Construction Documentation
And
Pre-Fill Certification Report
Scrubber Solids Pond No. 3N

NPDES Permit No. 0002186

Sherburne County (Sherco) Generating Plant

Northern States Power Company

(dba Xcel Energy, Inc.)

Prepared for
Xcel Energy, Inc.



November 2004

(Appendices J, K, L, and M bound separately)

Prepared by

McCain
and Associates, Inc.

Construction Documentation and Pre-Fill Certification Report

Scrubber Solids Pond No. 3 North
NPDES Permit No. 0002186
Northern States Power dba - Xcel Energy
Sherburne County (Sherco) Generating Plant
Becker, Minnesota

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Appendix J Electronic Leak Location Testing Reports
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Section 1 – Introduction

This report presents the results of field observations and testing work performed during construction of Pond 3 North (Pond 3N) at Xcel Energy's (Xcel) Sherburne County Generating Plant (Sherco) in Becker, Minnesota. Pond 3N covers approximately 50 acres and is the first phase of development of scrubber solids Pond No. 3 (Pond 3). Pond 3N is the first of two cells which will make up the base area of Pond 3. After the other cell is constructed, referred to as Pond 3 South (Pond 3S), the base area of Pond 3 will be complete and subsequent phases will be constructed vertically. Upon closure of Pond 3, a final cover system will be constructed over the pond, and free water will be removed from the pond through the integral dewatering system.

Pond 3 will be used primarily for disposal of scrubber solids and bottom ash from Sherco, but will also be used for disposal of bottom ash and fly ash from other Xcel Energy metro-area plants. The existing scrubber solids Pond No. 2 is nearing capacity, and Pond 3 is being constructed to augment and ultimately replace Pond 2. Pond 3 will also provide storage holding capacity for water used in plant operations to control chemistry, and will provide surge capacity to manage storm water from the Sherco facility. Pond 3N will primarily serve only the water management function described above, and will not receive scrubber solids slurry (other than carry over ash from Pond 2 during decanting of Pond 2 into Pond 3N) until Pond 3S is constructed.

Pond 3N earthwork and liner activities consisted of two phases, referred to as base liner construction and upstream embankment construction. Base liner construction included a composite liner on the pond bottom to elevation 960 on the north and east sideslopes extending to elevation 1010 in the northwest corner, and to elevation 972 on the south side, with the composite-lined west slope to elevation 972 (with a small portion of the composite-lined west slope extending to elevation 995). The composite liner consisted of a geosynthetic clay liner (GCL) overlain by a high density polyethylene (HDPE) geomembrane. Upstream embankment construction included constructing a clay-core upstream embankment to elevation 976 on the north and east sides. Other activities during Pond 3N construction included screening and stockpiling of excavated soils for use as drainage material, de-watering system installation, drainage material placement, construction of discharge piping and structures, riprap installation, decant piping and flume installation, and erosion control and site restoration activities. Construction activities are more completely described in subsequent sections of this report. Construction was performed in accordance with NPDES Permit No. 0002186, and "Contract Drawings and Specifications, Scrubber Solids Pond 3 North", prepared by McCain and Associates, Inc.(McCain)

and Utility Engineering (UE), and dated February 2004. The prime contractor was Ames Construction, Inc. (Ames), and composite liner installation was performed by Geo-Synthetics, Inc. (GSI) as a subcontractor to Ames. Excavation activities began in April, 2004 and the pond was substantially complete in November, 2004. Deviations from the Specifications and Drawings are noted on the enclosed Record Drawings and are described in the following sections of this report.

Personnel involved with the project included the following:

Xcel Energy, Inc.	Steve Bluhm	Engineer
	Josh Kamrud	On-site Intern
	Michael Montplaisir	On-site Intern
Utility Engineering	Roger Anderson	Project Manager
	Griff Duke	Project Superintendent
	Travis Peterson	Construction Superintendent
	Randy Foote	Cost/Scheduling
	Tony Witkowski	Mechanical Engineer
	Frank Qie	Structural Engineer
McCain and Associates	John McCain	Principal Engineer
	Scott Schwake	Project Engineer
	Isaac Fuhr	On-site Engineer
Ames Construction	Kevin Klimmek	Project Manager
	Curt Rudolph, Jr.	Project Superintendent

Subcontractors and suppliers to Ames Construction included the following:

Geo-Synthetics, Inc. (GSI)	GCL and HDPE liner installer (CETCO supplied GCL, Solmax supplier HDPE)
American Iron Works	Structural steel supply and erection
Premier Services	Seeding, erosion mat
Metro Building Systems	Blower building supply and erection
Bogart, Pederson, & Associates	Construction and verification surveying
Barton Sand & Gravel	Screening operation
Granite City	Concrete supplier
Ambassador Steel	Rebar supplier
National Waterworks	Pipe supplier
Whipps, Inc.	Slide gate supplier
Royal Concrete	Dewatering manhole supplier, installation and fusing of HDPE GSE Studliner in manholes
Martin Marietta (Meridian)	Riprap supplier
Partek Supply	Geotextile supplier

Xcel contracted directly with soil testing firms to provide on-site and laboratory testing of construction materials. Braun Intertec (Braun), provided on-site and laboratory material testing, and Soil Engineering Testing (SET) provided laboratory clay testing.

In 2003 the site was prepared for Pond 3N construction by relocating transmission and distribution lines, relocating Sherco site fencing, relocating phone lines, planting trees along Sherburne Avenue, and abandoning monitoring wells within the construction limits. The monitoring wells which were abandoned include the following:

Xcel Well No.	Minnesota Unique Well No.	Date Sealed	Minnesota Sealing No.
P-69A	NA	Aug. 15, 2003	207240
P-69B	NA	Aug. 15, 2003	207241
P-69C	NA	Aug. 15, 2003	207242
P-70	NA	Aug. 15, 2003	207243
P-71	NA	Aug. 15, 2003	214305
P-71-1	NA	Aug. 15, 2003	207247
P-85	NA	Aug. 14, 2003	207248
P-87	NA	Aug. 15, 2003	207249
P100A	449249	Aug. 14, 2003	207250
P100B	449250	Aug. 14, 2003	214301
P100D	449251	Aug. 14, 2003	214302
P124	493038	Aug. 15, 2003	214303

Additional monitoring wells will be installed in the spring of 2005, ninety days prior to putting Pond 3N into service.

Section 2 – Construction Methods and Materials

Methods of construction, equipment, and materials used to construct Pond 3N are described below. Appendix A contains photographs depicting the various stages of construction, and Record Drawings in Appendix I along with survey data in Appendix H show details of the project as-constructed.

2.1 Topsoil Stripping and Stockpiling

During previous construction activities at Sherco, borrow material had been excavated from the Pond 3 area, and topsoil had been stripped from those areas as shown on the Record Drawings. These prior activities included Pond 1 Final Cover and Pond 2 Vertical Expansion. Prior to beginning excavation for Pond 3N, the remaining topsoil within the Pond 3N excavation and embankment construction areas was stripped and stockpiled on the north and east sides of the Pond 3N embankment locations. Topsoil was also stripped from the base of the visual screening berm along Sherburne Avenue, from the drainage sand screening and stockpile location, and from part of the east slope of the Pond 2 embankment where Pond 3N was constructed. Topsoil depths varied across the site, but and ranged from a few inches thick to three feet in depth. Topsoil on the east embankment of Pond 2 was typically six inches thick.

2.2 Test Road Section Excavation

A paved road section containing bituminous and subbase enhanced with ash was constructed in 1991 as an EPRI ash utilization research project (NSP project E-R910005). The limits of the road were contained within the Pond 3N footprint as shown on the Drawings. Prior to excavation in this area, all of the bituminous and subbase material was removed and placed in the southwest corner of Pond 2 for disposal.

2.3 Excavation and Soil Segregation

The base grades of Pond 3N varied from elevation 940 to 951, and were approximately 10 to 25 feet below the ground surface. Excavation activities began at the north end of Pond 3N and commenced to the south. Mass excavation was completed by scrapers, backhoes, and off-road haul trucks. Excavated material consisted primarily of sand, with some areas containing gravel and cobbles, and a small amount of native clay along the toe of the west slope. During excavation, clean sand was segregated and screened for use as granular drainage material as discussed in Section 2.5. Excavated soil which was not segregated for other uses was used for construction of the visual screening berm, embankment

construction around the north, east, and south sides of the pond, or temporarily stockpiled for later use. A "strip" of soil between the two existing borrow pits which extended north from the south embankment was left in place during initial excavation activities. This "strip" was later excavated, and the material was used to construct portions of the upstream embankment after installation of the composite liner and placement of granular drainage material.

After discovering clay along the west toe during excavation, test pits were dug to define the extents of the clay and collect samples. Laboratory analysis showed the clay to be marginal for use as clay barrier material, but some of the clay was used to construct the bottom two feet of the clay anchor from approximately station 10+00 to 12+00. Laboratory test results of the clay are summarized in Table 7. Excavation of the clay for use in the clay anchor proved to be inefficient due to the limited quantity of clay and the effort required to isolate it from the surrounding granular soils, therefore the clay segregation effort was abandoned. The remainder of clay in the excavation was used as random fill in embankment construction.

2.4 Visual Screening Berm Construction

A visual screening berm was constructed along Sherburne Avenue with random fill generated from excavation of Pond 3N. The berm is ten feet high, and is intended to serve as visual barrier to Pond 3 construction and operation activities from traffic on Sherburne Avenue. The berm is configured such that it could be incorporated into the embankment of a future scrubber solids pond. For that reason, the random fill used to construct the berm was placed and compacted to meet the project specifications for embankment construction. Density tests on the visual screening berm are summarized in Table 2. The berm was covered with six inches of topsoil, and seeded to establish vegetation. Location of the tests are shown on Figures 4 and 5.

2.5 Granular Drainage Material Screening and Stockpiling

During Pond 3N excavation activities, clean sand was segregated and screened to a maximum particle size of ½-inch. The screened sand was stockpiled during excavation activities, and was later used as granular drainage material over the composite liner system. Approximately 200,000 cubic yards of clean sand was screened and stockpiled. During the screening and stockpiling operation, the contractor screened more material than was needed for granular drainage material for Pond 3N. The excess screened material (approximately 8,000 cubic yards) remains stockpiled on site for use on future projects.

Samples of the screened sand were collected during stockpiling operations and analyzed to verify compliance with project specifications. Sampling and analysis of the granular drainage material is discussed in Section 3.2.5.

The oversized material produced during the screening operation was stockpiled separately. A portion of the material was sold to a subcontractor and hauled off site. There is approximately 25,000 cubic yards of this material remaining on-site.

2.6 Embankment Construction and Subgrade Preparation

Excavated material which was not segregated for use as granular drainage material and met the requirements for random fill (maximum 6-inch particle size) was used to construct Pond 3N and the visual screening berm as discussed in Section 2.4. Random fill was used in Pond 3N to construct perimeter berms on the north, east, and south sides of the pond. The embankment in the northwest corner of the pond was built to full height to allow for installation of discharge piping and structures. Benches were built into the embankment to create building pads for the discharge structures and access to the structures. Random fill was also used for construction of upstream embankments on the north and east sides, as a protective layer over the granular drainage material on the south, west, and northwest slopes, was placed over the dewatering pipes to protect the granular drainage material and aggregate filter pack surrounding the perforated pipes, and was mounded around the discharge structures in the northwest corner. Other miscellaneous uses for random fill during construction included temporary haul roads inside the pond and access ramps into the pond.

During embankment construction, fill was placed in maximum 12-inch loose lifts, and compacted to at least 95 percent Standard Proctor maximum dry density using sheepsfoot and smooth-drum vibratory compaction equipment. Water was added during placement and compaction activities as needed to meet compaction requirements. An independent soil testing firm retained by Xcel performed nuclear density testing during embankment construction to verify compliance with project requirements. Compaction testing was performed to meet the required rate of 1 test per 3,000 cubic yards. A summary of the Standard Proctor tests and field density testing performed during Pond 3N and screening berm construction is presented in Tables 1, 2, and 3. Complete data for Standard Proctor and field compaction testing are included in Appendix B. Locations of tests are shown on Figures 1 through 5.

After the majority of soil was excavated from the pond floor and base sideslopes, bulldozers and motor graders fine-graded the subgrade, and the final subgrade was rolled with a smooth drum roller. The base and sideslope subgrade was surveyed to verify design grades were achieved within the allowable tolerances.

2.7 Overflow Weir Construction

During embankment construction, an overflow weir was built into the east end of the south berm as shown on the Record Drawings. The weir will eventually be used to decant water from Pond 3S into Pond 3N. The base of the weir is at elevation 960, with the sides sloping at 3 to 1 to elevation 972. The weir was lined during composite liner installation on the south embankment. The weir will not be used until Pond 3S is constructed, therefore the weir was filled in with random fill and a composite liner "flap" was installed over the fill and connected to the composite liner on the south berm. After Pond 3S is built, the flap will be removed to allow water to decant from Pond 3S into Pond 3N.

2.8 Clay Anchor Construction

A 5-foot thick clay anchor was constructed at the top of the base sideslopes along the north and east sides, and along a small portion of the west side slope at the north end. The clay anchor is aligned along the baseline as shown on the Drawings. The clay anchor was used to anchor the composite base liner, and provides a low permeability connection from the composite base liner to the inclined clay barrier in the upstream embankment. The top of the clay anchor is at elevation 960 along the east slope and the eastern portion of the north slope. In the northwest corner, the top of the clay anchor follows the 8 percent grade of the embankment from elevation 960 to 1010. The top of the clay anchor is at elevation 995 along the north part of the west slope, and is connected to the existing Pond 2 clay slope liner at elevation 990. At baseline station 55+00 on the west slope, the clay anchor dips approximately 2 feet beneath a Pond 2 dewatering wellhead. Details of the clay anchor are shown on the Record Drawings.

The clay anchor was constructed with clay from the off-site clay borrow source (Holker Pit) south of Monticello, except for a small portion of the base of the anchor as described in Section 2.3. The clay was placed in maximum 9-inch loose lifts and compacted to at least 95 percent Standard Proctor density at or above the optimum moisture content. Moisture was added as needed during placing and compacting to achieve the proper moisture content. During installation of the composite base liner, a 2-foot deep trench was dug into the top of the clay anchor to provide an anchor for the GCL and HDPE geomembranes. The

anchor trench was backfilled with clay and compacted. In-place density and moisture content testing, and laboratory testing of the clay was performed by Xcel's independent soil testing firms. The test results for clay used in the clay anchor are summarized in Tables 8 and 9, and complete clay data in located in Appendix C. Locations of tests are shown on Figure 6.

2.9 Connection to Pond 2

In the northwest corner of Pond 3N, a clay barrier and clay blanket was constructed to connect Pond 3 with Pond 2, which will provide complete containment for water in Pond 3. The existing clay barrier and clay slope liner in the northeast corner of Pond 2 was exposed by stripping topsoil and random fill from the Pond 2 embankment. The existing Pond 2 clay barrier was extended from elevation 998 to elevation 1010, and a 4-foot thick clay blanket was constructed on the Pond 2 embankment. The clay blanket was connected to the existing Pond 2 slope liner at elevation 990, and extended up the Pond 2 embankment to elevation 1010. The clay blanket was extended south to the point where the Pond 3 composite liner met the Pond 2 embankment. The composite liner was anchored in the clay blanket, and the clay anchor on the west side of Pond 3 was connected to the clay blanket. Details of the connection are shown in the Record Drawings. Clay testing performed during the construction are summarized in Tables 8 and 9.

2.10 Composite Base Liner Installation

As described in the Introduction, the pond bottom and sideslopes were lined with a composite GCL and HDPE geomembrane liner system. The composite lined slopes were 33 percent, or 3 horizontal to 1 vertical. Internally reinforced GCL with non-woven geotextiles on both sides was used on the slopes, overlain with textured 60-mil HDPE geomembrane. The base of the pond is configured with a ridge line oriented north-south through the center of the pond, with each side of the pond bottom sloping away from the ridge line at two percent. On the base of the pond, a non-reinforced GCL with non-woven geotextiles on both sides was specified for use, overlain with smooth 60-mil HDPE geomembrane. The GCL installer began installing the specified un-reinforced GCL on the base of the pond, but switched to a reinforced GCL after changing deployment methods. Details of this are further described below.

Composite liner installation began in the northeast quadrant of the pond and generally progressed in a clockwise direction around the pond. On the sideslopes, GCL and geomembrane panels were oriented parallel to the slope. On the pond bottom, panels were oriented either parallel or perpendicular to the two percent slope. During a typical day of liner installation, both GCL and geomembrane panels were

deployed and seamed, so that all the GCL deployed during the day was covered with geomembrane at the end of the day. This protected the GCL from precipitation and prevented it from becoming fully hydrated prior to completion of liner installation and cover soil placement. GCL which had become hydrated or was damaged during deployment was replaced or not used.

Prior to deployment of GCL, the subgrade was rolled with a smooth drum roller. In some areas, water was added to firm up the subgrade. In addition, a small tractor was available to smooth rake the subgrade immediately ahead of the deployment operation.

The composite liner system was electronically leak tested after granular drainage material was placed to insure the integrity of the geomembrane liner. Electronic leak testing was completed in phases, and is discussed in Section 3.5.

2.10.1 Geosynthetic Clay Liner (GCL)

The GCL used on this project was manufactured by CETCO. GCL rolls were 15 feet wide and contained approximately 150 feet of GCL . Both reinforced and un-reinforced GCL was used as further described below. Prior to deploying GCL, the installer inspected the subgrade and determined the subgrade was acceptable for installation by signing subgrade acceptance forms (contained in Appendix K).

On the pond bottom, un-reinforced GCL (Claymax 200R) was initially used, which was deployed by use of a telescopic forklift. The forklift used a spreader bar to lift and deploy the GCL by setting the GCL roll on the ground and slowly moving in reverse to unroll the GCL, taking care to prevent the roll from becoming skewed with the adjacent panel or developing wrinkles or folds. In order to expedite deployment of the GCL, the supplier and installer decided to use a track-type tractor (Caterpillar Challenger™) with a remote controlled deployment attachment, referred to as an EZ-Roller™ system. This method allowed an operator to drive the tractor, and personnel on the ground to remotely deploy the GCL, and was significantly faster than deploying by use of the forklift and spreader bar. The remote controlled deployment equipment proved not to be compatible with the un-reinforced GCL, therefore the installer and supplier proposed to substitute a reinforced GCL (Bentomat ST) in place of the un-reinforced GCL at no cost to Xcel. Bentomat ST contains a woven geotextile on the top side and a non-woven geotextile on the bottom side, and meets the requirements of project specifications for the base GCL, therefore Xcel approved the substitution. Approximately 25 percent of the pond floor (the

northeast quadrant) was lined with the un-reinforced GCL using traditional deployment methods, prior to switching to reinforced GCL and the remote controlled deployment equipment.

On the sideslopes, a reinforced GCL (Bentomat DN) was used. GCL was deployed by several methods: using the remote controlled deployment equipment, pulling the GCL down the slope from a spreader bar with four wheelers, and pulling the GCL up the slope from a spreader bar with a tractor using a cable and pulley system. Panel ends were heat tacked together where there were cross-seams on the slope. The GCL panels were anchored at the top of the slope in a 2-foot deep anchor trench in the clay anchor.

The following table shows the basic differences in the GCL products used on the project.

GCL Product	Location Used	Reinforced?	Top/Bottom Layer Geotextile
Claymax 200R	Pond Floor	No	Non-woven / Non-woven
Bentomat ST	Pond Floor	Yes	Woven / Non-woven
Bentomat DN	Pond Side-slopes	Yes	Non-woven / Non-woven

Adjacent GCL panels were overlapped a minimum of 6 inches along the edges. A lap line was marked on the GCL rolls during manufacturing to insure the proper overlap was achieved during deployment. No accessory bentonite was used along the edges of adjacent panels at the recommendation of the manufacturer. A groove was placed in the geotextile along each edge of the GCL roll during the manufacturing process, which allows bentonite to self-seal adjacent panels to each other. GCL panels were overlapped a minimum of 24 inches at the roll ends and augmented with granular bentonite. Damaged GCL was repaired by placing a patch over the damaged area, with a 12-inch minimum overlap around all parts of the damaged area, and augmented with granular bentonite around the perimeter of the patch. Quality control testing performed during GCL installation is described in Section 3.3.

2.10.2 Geomembrane

The HDPE geomembrane used on this project was manufactured by Solmax. Geomembrane rolls were 22.5 feet wide and contained approximately 500 feet of liner. All geomembrane was 60-mil (textured was used on the sideslopes and smooth on the pond bottom) and was installed directly over the GCL.

On the pond bottom, smooth geomembrane was deployed by using a telescopic forklift with a spreader bar to hold the rolls while four wheelers unrolled the geomembrane. In general, panels on the east half of the pond base were oriented parallel to the 2 percent slope, and panels on the west half were oriented perpendicular to the slope.

On the sideslopes, geomembrane was deployed by using a telescopic forklift with a spreader bar to hold the rolls while the geomembrane was unrolled using four wheelers to pull the end of the roll down the slope, or using a tractor with a cable and pulley system to pull the end of the roll up the slope. The geomembrane panels were anchored at the top of the slope in the same anchor trench used to anchor the GCL. Textured geomembrane panels were extended 10-feet beyond the toe of the slope on the pond bottom.

Adjacent geomembrane panels were overlapped and seamed together with a split-wedge fusion welder whenever possible. Patches, repairs, and areas inaccessible to the fusion welder were seamed with an extrusion welder. Panels were overlapped with the up-slope liner overlapping the down-slope liner. Sandbags were used to temporarily anchor geomembrane panels to prevent wind uplift and damage to the geomembrane. Geomembrane boots were installed around the 3 pipes which penetrated the liner at the north end of the pond. The boots were fused to polyethylene plates or channels which were installed integrally around the pipes at the penetration locations. Details of the pipe penetrations are shown on the Record Drawings in Appendix I.

The final configuration of geomembrane panels with locations of patches, seams, boots, and destructive tests is shown on the as-built panel layout and test reports in Appendix L. Quality control testing performed during liner installation is described in Section 3.4.

2.11 Dewatering System

A dewatering system was constructed with Pond 3N to accommodate post-closure dewatering of Pond 3. The dewatering system consists of a granular drainage layer over the composite liner (discussed in Section 2.12), and a system of polyethylene lateral and perimeter drain pipes and geomembrane-lined concrete manholes. An identical system will be constructed in Pond 3S when it is built. Details of the dewatering system are shown on the Record Drawings, and are described below.

There are three lateral dewatering pipes oriented east-west across the pond bottom which follow the two percent slope of the pond bottom. These pipes are perforated, and are connected to perforated dewatering header pipes at the toe of the east and west sideslopes. The header pipes are oriented north-south, and penetrate the composite liner at the north end of the pond using geomembrane boots. Solid wall pipes continue north from the liner penetrations to geomembrane-lined manholes in the north embankment. The pipes penetrate the manhole walls, and are booted through the geomembrane liner. The pipes are open-ended in the manholes, and the manholes will fill with water as the pond is filled. Clean-outs for the header pipes were installed in the manholes, and clean-outs for the lateral pipes are located along the east and west embankments inside corrugated metal pipe protective casings.

The dewatering pipes within the pond are 8-inch diameter perforated polyethylene pipes. Prior to installing the dewatering pipes, a protective geomembrane rub sheet was installed over the composite liner at the pipe locations. The pipes were installed over 6-inches of coarse aggregate filter material, and are encapsulated in a two-stage coarse and fine aggregate filter. Two feet of granular drainage material and two feet of random fill was mounded over the aggregate filter. The granular drainage material and aggregate filter are designed to filter out fines in the scrubber solids to prevent the dewatering pipes from becoming clogged.

The dewatering manholes are lined with 80-mil high density polyethylene geomembrane, which was cast into the concrete manhole barrel sections. After all the barrel sections were set, 4-inch strips of polyethylene were fused between barrel sections to achieve a continuous geomembrane- lined manhole. After leak location testing and repairing holes in the geomembrane, an exfiltration test was completed on each manhole. Dewatering manhole no. 2 was found to be watertight for the full depth (to elevation 974). Dewatering manhole no. 1 was found to be watertight from the base to elevation 958, with some leakage from elevation 958 to 998 (5-inches in 24 hours). Xcel will further evaluate the need for additional testing and patching of the manhole liner above elevation 958.

The tops of the dewatering pipes were surveyed after installation, and the survey data is included in Appendix H. Gradations for the coarse and fine aggregates are included in Appendix E. The solid wall pipes from the manholes through the geomembrane boots in the composite liner were hydrostatically pressure tested at 1.5 times the rated pressure of the pipe. Test procedures outlined by the pipe manufacturer were used for the "Non-monitored Make-Up Water Test". No leakage was indicated from the manhole wall to the liner penetration.

2.12 Granular Drainage Layer and Random Fill Layer Placement

Placement of the granular drainage layer commenced as composite liner installation and dewatering system piping installation were completed. The drainage layer was placed in a single 2-foot lift over the geomembrane. The native material used for granular drainage material was screened during excavation activities as discussed in Section 2.5. The material was screened to maximum particle size of 1/2-inch, and was tested for fines content and permeability to assure compliance with project specifications. Testing of the granular drainage material is discussed in Section 3.2.5.

The contractor hauled screened granular drainage material from the stockpile to the pond in off-road dump trucks. Granular drainage material was built up at least 4-feet thick along haul roads inside the pond to provide access for trucks. Drainage sand was dumped from the haul roads, and dozers utilizing GPS equipment worked to place the material over the liner by rolling the material off the edge of the previously placed material so that sand did not slide across the liner. Laborers worked ahead of the dozer, removing sandbags and placing sand to prevent wrinkle propagation in the geomembrane. On the slopes, drainage material was placed from the bottom up. Whenever possible, drainage sand was placed during the coolest parts of the day when the geomembrane liner was smooth. The sand was fine-graded to produce a smooth, uniform finished surface.

On the northwest, west, and south sideslopes, a 2-foot thick layer of random fill was placed over the 2-feet of granular drainage material. The random fill was placed in a single lift, and provided protection of the drainage layer during placement of the riprap, and will provide long term erosion protection of the granular drainage material on the slopes during pond operation.

2.13 Upstream Embankment Construction

On the north and east sides of the pond, an upstream embankment was constructed with a top elevation of 976. The upstream embankment contains an inclined clay barrier core which was connected to the clay anchor. The upstream barrier started in the northwest corner at station 5+00, reached full height at station 6+50, and continued to station 28+85 in the southeast corner of the pond. When Pond 3S is built, the upstream barrier will continue south from this point, and continue around the east and south sides of Pond 3S. Details of the upstream embankment are shown on the Record Drawings.

2.13.1 Random Fill

Most of the exterior portion of the upstream embankment (outside of the clay barrier) was constructed during excavation and embankment construction activities (as discussed in Section 2.6) prior to liner installation. The interior portion of the upstream embankment (inside the clay barrier) was constructed after the composite liner and drainage layer were placed, and electronic leak location testing of the liner was completed. Prior to placing and compacting random fill over the liner in the upstream embankment, a 2-foot thick buffer of random fill was placed over the granular drainage material is a single lift. Random fill placed above the 2-foot buffer was compacted to at least 95 percent Standard Proctor density. A summary of the Standard Proctor tests and field density testing performed during upstream embankment construction is presented in Tables 1 and 4. Complete data for Standard Proctor and field compaction testing are included in Appendix B. Locations of density tests are shown on Figure 3.

The random fill built up over the liner served as a foundation for the inclined clay barrier. This portion of the embankment was constructed to elevation 972 in preparation for upstream clay barrier construction. In areas where the random fill was built up on both sides of the inclined clay barrier prior to placing the clay, a corridor was left through the embankment to allow access for haul trucks and construction equipment during clay barrier construction.

2.13.2 Inclined Clay Barrier

The inclined clay barrier core of the upstream embankment was constructed with clay from the off-site borrow source. The base of the clay barrier was connected to the clay anchor by scarifying and moistening the top of the clay anchor prior to placing the first lift of clay, and was constructed to elevation 972. The clay barrier slopes at a 1.5 horizontal to 1 vertical, and is 4.5-thick as measured perpendicular to the slope. The clay barrier was constructed in horizontal lifts, and the surface of each lift was maintained in a rough and moistened condition to promote bonding between lifts and provide uniformity throughout the clay barrier. Water was added to the clay during placement and compaction to maintain adequate moisture content. Clay was placed in maximum 9-inch loose lifts and compacted to at least 95 percent Standard Proctor density at or above the optimum moisture content. In-place density and moisture content testing, and laboratory testing of the clay was performed by Xcel's independent soil testing firms. The test results for clay used in the clay barrier are summarized in Tables 8 and 9, and complete clay data is located in Appendix C. Locations of tests are shown on Figure 6.

As clay barrier construction progressed, the remaining portion of the corridor between the finished clay slope and the previously constructed upstream embankment was filled in with random fill. After completion of the clay barrier, an additional 4 feet of random fill was placed over the upstream embankment to bring the top of the embankment to final grade at elevation 976.

2.14 Pond 2 Decant Piping and Flume Construction

When Pond 3N is put into service, water will be decanted from the northeast portion of Pond 2 into Pond 3N through the Pond 2 decant structure. To prevent carry-over solids from directly entering the Pond 3N discharge structures during operation of Pond 3N, water decanted from Pond 2 will be routed to the south end of Pond 3N. In order to accomplish this, approximately 1,200 feet of 18-inch polyethylene pipe was installed in the west embankment of Pond 3N, connected to the existing Pond 2 decant pipe, and routed to the southwest corner of Pond 3N. A discharge flume consisting of a corrugated metal half-pipe was installed in the riprap on the west slope of Pond 3N, and will convey water from the polyethylene pipe into Pond 3N.

2.15 Return Water System Construction

During the operation of Pond 3, water will be decanted and returned to the plant for use in other operations. In order to accomplish this, a series of discharge structures and an aeration system was constructed in the northwest corner of the pond, along with a return water piping system.

2.15.1 Discharge Structures and Aeration System

The discharge structure system consists of 3 concrete towers constructed at increasing elevations in the northwest corner of Pond 3N. Each structure will be in service through a range of pond water surface levels, and then be abandoned as the operating level of the pond increases. The return water piping will be connected to each structure to convey decanted water back to the plant. Only the lowest structure, referred to as discharge structure no. 1, will be used until subsequent phases of Pond 3 are constructed.

Each structure was constructed on a bench which was graded into the northwest embankment. Each structure is accessible by means of a steel walkway bridge. The liner cover soils were compacted to 100 percent Standard Proctor density beneath each structure with a vibratory plate compactor. Compaction test results are included with the compaction test data in Table 5. After the structures were completed and

the discharge piping installed, additional cover soils were mounded around each structure to maintain stability. In addition, the riprap in the northwest corner was grouted around and between the structures.

The structures were formed and cast in-place. Details of structure configuration, concrete reinforcing, piping connections, and access walkways are shown on the Record Drawings in Appendix I. Results of concrete testing performed during construction are included in Appendix M.

In order to maintain flow during winter months and prevent water from freezing in the discharge structures, an aeration system was constructed. The aeration system consists of a blower and blower building, aeration piping to each of the discharge structures, and a system of valves. The blower building is located at the top of the embankment in the northwest corner of the pond, and houses a blower. The blower will deliver air to the discharge structures through a combination of 3-inch steel and high density polyethylene piping. The small bore piping is capable of forcing air through perforations in the pipe inside the structure. The forced air will create turbulence in the water inside the structure to prevent freezing.

2.15.2 Return Water Piping System

Each discharge structure is connected to a 24-inch steel discharge pipe. A slide gate at each structure allows flow from the pond into the pipe to be controlled. The steel pipe is oriented alongside the structures and exits the pond near the lowest discharge structure, with clean-out access for the piping located to the top of the northwest embankment. The pipe penetrates the composite liner through a reinforced concrete slab, with a geomembrane boot fused to polyethylene channels embedded in the concrete and connected to the steel pipe. Details of the discharge piping and pipe penetration are shown on the Record Drawings in Appendix I.

There is an existing 24-inch steel discharge pipe serving Pond 2, which returns water from Pond 2 back to the plant. In order to return water from Pond 3 to the plant, a 24-inch polyethylene pipe was connected to the Pond 3 steel discharge pipe just behind the pond penetration in the northwest embankment, and extended to the existing Pond 2 discharge pipe. In order to connect the Pond 3 discharge pipe the existing Pond 2 discharge pipe, flow from Pond 2 to the plant was stopped by installing a plug in the Pond 2 discharge structure. The existing steel discharge pipe was drained, cut, and a wye was installed to allow for connection of the Pond 3 discharge pipe. Valves were installed on both the Pond 3 and Pond 2 return flow piping. A concrete manhole (referred to as manhole no. 3) was constructed at the junction which

houses the wye, valves, and other controls. An existing 12-inch steel pipe (which extends from the pumphouse to Pond 2) also passes through the manhole. Clean-outs for the 24-inch piping from Pond 3 were also installed. Details of the piping, valves, manhole, and clean-outs are shown on the Record Drawings in Appendix I.

In order to fill Pond 3N with water for the water balance test, water taken from the Mississippi River will be pumped into Pond 3. In order to accomplish this, an 8-inch polyethylene pipe was extended from the scrubber water return building to manhole no. 3, and connected to the 24-inch Pond 3 discharge pipe. This will allow river water to be pumped into discharge structure no. 1 through the 24-inch discharge pipe from Pond 3. A steel pipe manifold will be temporarily installed in discharge structure no. 1, which will split the flow into two 6-inch polyethylene pipes. Additional temporary piping may be connected to the polyethylene pipes to fill the east and west half of the pond simultaneously if needed. After completion of the water balance test, the temporary piping and manifold will be removed.

The return water piping system was hydrostatically pressure tested in two phases. The steel pipes leading from the structures to the pond liner penetration, the cleanout pipe at the top of the northwest interior slope and the pipe from the pond liner penetration to a valve and cleanouts located at the toe of the northwest exterior slope were all tested at 60 psi. A leak was encountered at the flange connection to the valve near the toe of the northwest exterior slope. The leak was repaired and the system was retested and indicated no further leaking. The 8-inch and 24-inch pipes north of the valve and cleanouts at the toe of the northwest exterior slope to the return water pump building were tested at 23 psi. This system showed no leaks.

2.16 Riprap Slope Protection Installation

To protect the liner and prevent erosion of the liner cover soils on the slopes, a 1-foot layer of crushed granite riprap was placed on slope areas where the composite liner was not protected by the upstream embankment. The south and west slopes were covered with riprap, along with the northwest embankment. A 10-ounce non-woven geotextile was placed over the liner cover soils prior to placing riprap. The gradation of the riprap used was slightly different than that specified, but was determined to be acceptable. Gradations of the riprap are included in Appendix F.

Riprap and was hauled to the site in side-dump trailers. Haul roads were built up using random fill where the side-dumps traveled over the liner. Riprap was placed with a backhoe, starting at the toe of the slope

and working up. On long slopes, the backhoe moved up and down the slope to reach the entire slope. Additional protection around the discharge structures was added by filling voids in the riprap with a 6000 psi grout mix. Locations of the riprap and the extents of the grouted riprap are shown on the Record Drawings in Appendix I. Specifications and grout test results are located in Appendix M.

2.17 Site Restoration Activities

Site restoration included topsoiling and seeding, final grading to maintain drainage and manage runoff, and establishing access roads, and trimming stockpiles.

Seeding to establish vegetation was completed on all finished embankments and where construction activities disturbed previously restored areas. On newly constructed embankments, 6-inches of topsoil was spread prior to seeding activities. A protective straw erosion blanket was added to slope areas to minimize erosion until vegetation is fully established.

Class 5 aggregate was spread and compacted on the haul routes and ramps as shown on the Record Drawings. The access road around the outside of the pond embankment was re-routed from the south side (as originally planned) to the north side in order to stay clear of the Pond 3S construction area. Field density tests on class 5 aggregate are summarized in Table 11, with complete data located in Appendix G.

Stockpiles remaining on site include screened granular drainage material, oversized material from screening operations, topsoil, and boulders. These materials will be left in place for use on future projects at the site.

Section 3 – Testing and Quality Control

Testing and quality control activities were conducted by subcontractors to the prime contractor, by independent testing firms, and by field observation personnel from McCain, UE, and Xcel. Testing and quality control activities included surveying, soil testing, and geomembrane testing.
Testing and quality control procedures are presented below.

3.1 Surveying

An independent registered land surveyor, Bogart Pederson & Associates, Inc., was retained by the contractor to provide location and grade verification as required. Earthwork verification surveying included the following shots at grade breaks and 50-foot intervals: embankment sideslopes, clay anchor location and thickness, upstream embankment sideslopes and top, and upstream clay barrier thickness at 50-foot intervals. Verification surveying was completed on the pond bottom on a 50-foot grid. Other survey data included top of dewatering piping at grade breaks and 50-foot intervals, dewatering manhole inverts and castings, discharge structure tops and inverts, and top of Pond 2 decant piping at grade breaks and 50-foot intervals. The top of the liner cover soils were also surveyed on a 50-foot grid. The surveyor collected data using GPS and total station equipment, and periodically provided results of field data gathered during construction for review by McCain personnel. Complete survey data is contained in Appendix H. Construction staking was completed by the contractor, using their own GPS equipment and personnel.

During placement of cover soil over the liner, the contractor placed lath with the blunt end down on a 50-foot grid with 2-foot markings to aid in thickness control and to visually ensure that the proper cover soil thickness was placed. The contractor's personnel also verified the thickness utilizing their GPS equipment. Measurements of the cover soil thickness were taken by McCain personnel at random locations to verify the 2-feet of drainage material had been placed.

3.2 Soil Testing

Soil testing was performed on the following:

1. Off-site clay prequalification testing
2. Random Fill

3. Native Clay (on-site) testing
4. Clay anchor, upstream clay barrier, and Pond 2 connection
5. Granular drainage material
6. Coarse and fine filter aggregate
7. Class 5
8. Riprap

3.2.1 Off-Site Clay Prequalification Testing

Clay used during construction of Pond 3N was imported from an off-site source. The source was referred to as the Holker pit, and was located south of Monticello. The contractor collected samples from the pit prior to construction to verify the clay would meet the project requirements.

McCain personnel also collected clay samples from the Holker pit for additional prequalification testing. Samples were collected at four locations and sent to Xcel's independent laboratory for analysis of Atterberg Limits, particle size distribution, Standard Proctor, in-place moisture content, and permeability. The test results showed that the material met all the requirements of the MPCA soil construction guidelines. In addition, three of the samples were split and sent to Xcel's on-site soil testing firm to complete Standard Proctor testing for use in field compaction testing. The results of the clay prequalification testing are summarized in Table 6, with complete results in Appendix C.

3.2.2 Random Fill Testing

On-site material used for Pond 3N embankments and the screening berms was referred to as random fill. Samples of random fill were collected and analyzed for Standard Proctor results, and these results were used as compaction criteria for field density testing. The required compaction for embankments and screening berms was 95 percent of the Standard Proctor maximum dry density. The moisture content of the material was generally well below the optimum moisture content, so the contractor generally added water during construction to meet the compaction requirement. Compaction testing was performed by Xcel's independent soil testing firm under the direction of McCain personnel. Testing was performed with a nuclear density gauge at a minimum frequency of one test per 3,000 cubic yards of material placed.

Samples of random fill were collected throughout the course of the project as different material types were encountered. Each field density test result was compared to the Standard Proctor results of the same

material to determine if the field density met the 95 percent compaction criteria. When a density test indicated the embankment did not meet the compaction requirement, the area was re-worked and retested in the same location of the failing test.

The Standard Proctor results of all random fill samples are summarized in Table 1. Field compaction test data is organized by location, and results are presented in separate tables for visual screening berms (Table 2), embankment (Table 3), and upstream barrier (Table 4). Complete data is located in Appendix B.

3.2.3 On-Site Native Clay Testing

During excavation activities, clay was encountered near the west side of Pond 3N. To determine the extent of the clay, several test pits were dug, and 3 samples were collected from the test pits for laboratory analysis. Test results indicated that the clay did not meet the hydraulic conductivity requirement for the project under a 95% compaction of Standard Proctor max dry density, but could be met with 100% compaction. Some of the clay was used for the base of the clay anchor as discussed in Section 2.3, but most of the clay was used as random fill for embankment construction. The test results for the on-site clay are summarized in Table 7, with complete results in Appendix C.

3.2.4 Clay Anchor, Upstream Clay Barrier, and Pond 2 Connection Testing

The clay anchor, upstream clay barrier, and connection to Pond 2 were constructed with clay from the off-site source. Quality control testing performed during construction included in-place compaction and moisture content tests, laboratory analysis of in-place permeability, and index property tests (Atterberg Limits, sieve and hydrometer analysis, classification). Testing procedures and results are discussed below.

3.2.4.1 Clay Compaction Testing

During clay construction activities, a representative from Xcel's soil testing firm was on site to perform in-place density and moisture content testing of the clay liner using a nuclear density gauge. Compaction testing was completed at the minimum rate of one test per 200 cubic yards of clay placed in accordance with the permit requirements. Required test results were 95 percent or greater Standard Proctor maximum dry density and at or above optimum moisture content. Each field density test was matched with the

corresponding Standard Proctor result based on the soil type to determine the passing criteria. When a field density test indicated a failing result, the area received additional compaction if the compaction was low, or additional watering, mixing, and recompacting if the moisture content was below optimum. Additional testing was performed in the same location after the material had been reworked, and this procedure was repeated until passing test results were obtained. In addition to field testing of the clay, placement of the clay was constantly observed and monitored to verify that consistent processing and compaction procedures were being used. The on-site quality control personnel worked closely with the contractor during clay placement to insure the clay was placed and compacted to meet the project requirements.

Compaction testing was distributed across the site to give a representative presentation of the clay placed. Compaction test locations are shown in Figure 6, and results of clay compaction tests are summarized in Table 8.

3.2.4.2 Clay Permeability and Index Properties Testing

In addition to prequalification testing, analysis was completed on additional samples of the clay collected on-site. The samples were collected by pushing thin-wall tubes into the clay after placement and compaction to recover undisturbed cores of clay. Voids created during sample collection were backfilled with bentonite and hydrated. Seven samples were collected, and sample locations were distributed across the site to give a representative presentation of the clay blanket, barrier and anchor. Figure 6 shows the locations of the samples collected, except for ST-1, which was collected from the clay blanket at the connection to Pond 2. Approximately 22,000 cubic yards of clay were placed, resulting in approximately one test per 3,000 cubic yards. Samples were tested for permeability, Atterberg Limits, sieve and hydrometer analysis, and classification. The coefficient of permeability of the clay samples ranged from $6.8x10^{-8}$ to $9.8x10^{-9}$ cm/s, with an average of 2.4×10^{-8} cm/s, significantly slower than the required maximum rate of $1x10^{-7}$ cm/s. The results of all other index test showed that all samples met the project requirements for clay. The results from clay samples collected on site are summarized in Table 9, with complete results included in Appendix C.

3.2.5 Granular Drainage Material Testing

On-site material was screened and used as granular drainage material over the liner. Granular drainage material was tested for maximum particle size, percent passing the no. 200 sieve, and hydraulic

conductivity at the minimum rate of one test per 10,000 cubic yards of material placed. Approximately 160,000 cubic yards or granular drainage material was placed, requiring 16 samples. A total of 22 samples for gradation testing and 20 samples for permeability testing were collected from both the screening plant stockpile and from the pond after placement. All samples met the permeability and particle size requirements. The results are summarized in Table 10, with complete results in Appendix D.

3.2.6 Coarse and Fine Drainage Aggregate

Coarse and fine drainage aggregate was used around the dewatering pipes inside the pond. These aggregates were imported from off-site sources. The permit required one sample per source for the coarse and fine drainage aggregate. All of the drainage aggregate came from the same source, and one sample of each was collected from on-site stockpiles. The samples met the specified gradations, and the results are included in Appendix E.

3.2.7 Class 5 Testing

Class 5, also referred to as aggregate surface course, was used as a subbase beneath the dewatering manholes (DW-1 and DW-2), and beneath the manhole at the junction of the 24-inch discharge pipes from Pond 2 and Pond 3 (manhole no. 3). Class 5 was also placed on access roads and ramps around the pond perimeter. The contractor submitted gradations from two sources for class 5, both which met the project specifications. Samples of the material were collected after delivered to the site, and analyzed for Standard Proctor density. The class 5 used beneath the structures was required to be compacted to 95 percent Standard Proctor in accordance with the project specifications. After placing and compacting the material, an in-place density test was taken at each manhole, and found to meet the compaction requirement. Testing of the class 5 is summarized in Tables 11, and complete data is located in Appendix G.

3.2.8 Riprap Testing

Riprap was used on the northwest, west, and south pond slopes. Riprap consisted of crushed granite, and was imported from an off-site source. The contractor submitted a riprap gradation which was slightly different than the project specifications (MnDOT Class 2), but was determined to be acceptable. The gradation submitted met the requirements of Army Corp of Engineers R-20, and had a slightly smaller maximum rock size than MnDOT Class 2, but contained larger rocks on the lower end of the gradation

than MnDOT Class 2. The gradation submitted was not as well graded as MnDOT Class 2, but contained enough variation in particle size to function well. The angularity of the crushed material provided very good stability of the riprap on the slope, allowing stones to "lock" together. The riprap gradation was conducted at the source by the supplier, and is included in Appendix F.

3.3 Geosynthetic Clay Liner (GCL) Quality Control

Quality control for GCL included manufacturing quality control (MQC) and construction quality assurance (CQA) activities. Details of these activities are described below. GCL was installed by Geosynthetics, Inc. (GSI) as a subcontractor to the prime contractor.

3.3.1 Manufacturing Quality Control (MQC)

MQC was completed during and after production of the GCL by the GCL manufacturer (CETCO). The manufacturer was responsible for testing the GCL to confirm the product met the requirement of the project specifications. The results were documented and certified by CETCO, and submitted to the GCL installer (GSI). GSI then submitted the certification packages to the general contractor and Xcel's on-site representative. The certifications were reviewed by McCain personnel to insure the GCL met the project requirements.

GCL MQC certification packages were organized by GCL type (Claymax 200R, Bentomat DN, Bentomat ST). Each MQC package was further organized by order numbers, of which each order number contained several rolls of GCL. MQC packages included the following data:

1. Packing list
2. Daily GCL production certification
3. Needle detection certification
4. Bentonite clay certification
5. Geotextile manufacturer's certification
6. GCL manufacturing certification and test results
7. GCL MQA tracking form

Testing performed on the GCL included peel strength, bentonite free swell, bentonite fluid loss, bentonite mass per unit area content, grab strength, and permeability. Results of these tests were included with each

certification package. The GCL manufacturer's MQC certification packages are included in Appendix K. Certification packages are organized under subsections of the Appendix by GCL type.

3.3.2 Construction Quality Assurance (CQA)

CQA activities were completed on site during unloading, material handling, storage, transport, installation, and covering of the GCL. CQA was performed by personnel from McCain, UE, and Xcel.

The GCL was unloaded under observation of the CQA personnel. Rolls were unloaded from flatbed or enclosed trailers by the GCL installer. GCL rolls were generally unloaded in accordance with the manufacturer's recommendations with either an extendable-boom forklift or front end loader utilizing a stinger bar, a core pipe with a spreader bar, or lifting straps. Several rolls were unloaded and handled by methods other than those listed above, and some rolls were dropped. These rolls were marked, set aside, and not used in this project. As MQC data were received, the roll numbers of GCL delivered to the site were checked against the roll numbers in the MQC certification packages.

As GCL was unloaded, it was placed in designated storage areas around the site. The storage areas were level, dry, and well drained, and the GCL rolls were stacked no more than three rolls high. Most GCL rolls were stored directly on the ground, but GCL rolls which had damage to their protective wrappers were stored on pallets. GCL which was not used right away was covered with tarps to protect it from becoming hydrated.

During installation, GCL was transported from the storage areas to the deployment area using the same equipment and methods which were used to unload the GCL. Prior to deployment, the subgrade was inspected by the installer and the CQA personnel. If subgrade correction was necessary, the area was rolled with a smooth drum roller or dragged to remove ruts and provide acceptable conditions. The GCL installer approved the subgrade by signing subgrade acceptance forms, which are include in Appendix K.

After acceptance of the subgrade, GCL was deployed using the methods described in Section 2.10.1. On the side slopes, panels were oriented parallel to the slope. During deployment, care was taken to avoid wrinkles or folds in the GCL. Any wrinkles which occurred were pulled out to keep the panels smooth. Damage to the GCL was repaired using patches as described in Section 2.10.1. Adjacent overlaps between GCL panels were visually verified to be between 6 and 9 inches by observing the lap lines printed directly on the GCL rolls. The overlap area between panels was kept free of dirt to maintain self-

seaming between panels. If necessary, the overlap areas were swept clean. Accessory bentonite was not used between the edges of adjacent panels at the recommendation of the manufacturer. A groove in the geotextile along the edges of the GCL allowed bentonite to flow freely from the panels, and self-seam to adjacent panels. The ends of rolls were overlapped two feet, and accessory bentonite was used. On the slope areas, ends of panels were heat tacked by fusing the geotextiles together.

After deployment of the GCL, HDPE geomembrane was installed directly over the GCL. No heavy equipment was operated directly on the GCL, but 4-wheel all terrain vehicles were used to deploy geomembrane over the GCL. When 4-wheelers were used on GCL, no sudden stops, starts, or abrupt turning was allowed. All GCL panels were covered daily with geomembrane to ensure the bentonite did not hydrate prior to placement of cover soils.

3.4 Geomembrane Quality Control

On-site observation of the geomembrane installation was performed by personnel from McCain, UE, and Xcel. Geomembrane installation was performed by Geosynthetics, Inc. (GSI) as a subcontractor to the prime contractor.

Geomembrane used on the project was 60-mil high density polyethylene (HDPE) manufactured by Solmax. Geomembrane resin, rolls, and extrudate rod met the requirements of Geosynthetic Research Institute's (GRI) Test Method GM 17. Geomembrane quality control data was submitted by Solmax to GSI, and in turn submitted to the prime contractor and Xcel's on-site representative. The certifications were reviewed by McCain personnel to insure the geomembrane met the requirements of GRI GM 17.

Geomembrane was delivered to the site on flatbed trailers. The geomembrane rolls were delivered with lifting straps in place, and were unloaded with an extendable boom forklift or backhoe. Rolls were unloaded and stacked in the designated storage areas. Roll numbers were checked against the manufacturer's quality control submittals to verify all rolls were certified by the manufacturer.

Textured geomembrane was used on the sideslopes, and smooth geomembrane was used on the pond bottom. Panels on the slope were oriented parallel to the slope, and cross-seams were fused at 45 degree angles. Geomembrane was deployed over the GCL as described in Section 2.10.2.
Trial seams were prepared at the beginning of each seaming period with each piece of seaming equipment by the corresponding operator. One-inch-wide coupons were cut from the trial seams and tested on-site by the liner installer for mechanical seam strength (shear and peel) using a tensiometer. Field seaming of geomembrane panels was required to meet the strength requirements of GRI's test method GM 19. Trial seam tests are reported on the trial weld testing report forms included in Appendix L.

Destructive seam tests were performed on samples taken randomly from seams in the installed geomembrane at a rate of 1 sample per 500 lineal feet of seam. A total of 209 destructive seam samples were tested. The destructive seam samples were tested on-site by the liner installer for shear and peel strength using a tensiometer, and results were recorded on the destructive testing report forms included in Appendix L. In addition to on-site testing, 27 destructive seam samples were randomly chosen to be tested by Xcel's independent testing laboratory, Braun Intertec, to verify the results obtained on site. The laboratory test results and field test results correlated within one percent, with the field results tending to be slightly more conservative. A comparison summary of the destructive test results is included in Appendix L. A few destructive samples did not meet the minimum strength requirements. In these areas, additional destructive samples were taken on the same seam on each side of the failing sample until destructive testing met the strength requirements. The failing part of the seam was then extrusion welded and vacuum tested. The locations of the destructive seam test samples are shown on the geomembrane record drawing in Appendix L. On-site and laboratory destructive seam test reports are provided in Appendix L.

All seams were non-destructively tested for air leaks using either the air-channel test for split-wedge fusion seams or the vacuum box test for extruded seams. Split-wedge seams were required to hold 25 to 30 lbs/sq. inch of air pressure for 5 minutes without dropping more than 2 lbs/sq. inch. Non-destructive seam test reports are provided in Appendix L.

In addition to the report forms described above, the additional following quality control testing report forms were also completed by the geomembrane installer:

1. Panel placement forms
2. Panel seaming forms
3. Non-destructive testing forms
4. Geomembrane repair reports

All of these report forms are included in Appendix L.

3.5 Electronic Leak Location Testing

In addition to the routine quality control activities performed on the geomembrane prior to cover soil placement, electronic leak location testing was conducted over the geomembrane liner after placement of cover soils to identify the presence of construction related damage to the geomembrane. Xcel contracted directly with Leak Location Services, Inc. (LLSI) to perform leak testing. Leak testing was completed in four phases during construction of Pond 3N. A reliability assessment program was conducted during the first phase of electronic leak testing to assess the reliability of the electronic leak testing procedure. As

part of the program, a variety of holes were placed in the composite liner system at locations which were unknown to the leak testing contractor. The contractor successfully located all of the placed holes, and the testing procedure was determined to be able to reliably detect the presence of construction related defects. In addition to testing the pond liner system, LLSI also tested the geomembrane lined dewatering manholes. Interim reports were prepared and submitted by LLSI on the four leak testing phases, and manhole testing. A summary of the electronic leak location testing activities completed during Pond 3N construction is included in Appendix J.

Appendix J also contains the following documents related to electronic leak location testing:

1. Reliability Assessment Program for Electrical Leak Location Surveying
2. Technical Specification Section 02775 – Electrical Leak Location Surveying of Soil-Covered Geomembrane Liner
3. Reliability Assessment Report for Electrical Leak Location Survey
4. Interim Reports (4) for Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3N, and Report for Electrical Leak Location Survey of Two Geomembrane Lined Manholes.

3.6 Water Balance Requirements

The following section describes the various items that are required for completing a water balance and collecting good data.

3.6.1 Conducting Water Balance

Bolton & Menk, Inc. will be conducting the water balance on the Sherco Pond 3N. Bolton & Menk, Inc. will take the daily readings, compile the data and run the seepage calculations.

3.6.2 Prefill Water

The water for the prefill will be obtained from the Mississippi River through existing intake lines using the existing DNR water appropriation permit number 71-0938. The permit limit is 10.75 billon gallons and shall not exceed 25,000 gpm. The total volume of water required for the water balance is

approximately 133.32 million gallons. It is anticipated that it will take approximately three months to fill the pond to the high water level of 958.00 feet.

3.6.3 Depth of Water

The pond will be filled to elevation 958.00, providing 2' of freeboard below the top of composite liner. The barrels will be placed at this elevation around the pond.

3.6.4 Barrel Location

Four (4) barrel sets will be placed around the pond as shown in Figure 7. Each barrel set will consist of one perforated barrel and one evaporation barrel. The barrel sets will be placed into the riprap on the side slopes.

3.6.5 Water Balance Specifics

1. Pond Water Elevation Measurements:
   The pond water elevation will be measured in all four (4) barrel sets. The barrel readings will be read in millimeters. Additionally, pond elevations will be referenced by taking a pond reading from the manhole that is hydraulically connected to the pond located in the NE corner of the pond dike. Due to the depth of this manhole and the difficulty in obtaining accurate measurements, this reading will be used as a reference.
2. Rainfall Measurements:
   Rain gauges will be placed in two locations around the pond. Exact locations will be determined at the time of readings. Additionally, there is a weather station located on the Xcel Energy property, and this information will also be used as reference data.
3. Barrel Measurements:
   It is anticipated that the barrels and manhole will be read on a daily basis and for a minimum of six days per week. Water levels will be read to the nearest millimeter for both the evaporation and perforated barrels.
4. Calculating Seepage:
   After the required amount of data is collected, Bolton & Menk, Inc., will calculate the seepage amount using the MPCA approved spreadsheet for calculating seepage. A water balance report including the spreadsheet analysis and the individual readings will be

submitted to the MPCA for review and an electronic copy of the spreadsheet can be forwarded if requested.

Section 4 – Conclusion

Construction of Scrubber Solids Pond 3 North at Xcel Energy's Sherburne County Generating Plant has been completed in material conformance with the "Contract Drawings and Specifications for Scrubber Solids Pond 3 North, February 2004" prepared by McCain and Associates, Inc. and Utility Engineering, and in compliance with the requirements for notification, construction, materials, and testing contained in NPDES Permit No. 0002186. This report presents the results of all observation, documentation, and testing performed during the course of construction of this facility.

Tables

TABLE 1

Random Fill Standard Proctor Testing Summary

Sample No.	Soil Type	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
1	Poorly Graded Sand, fine grained, trace gravel, brown - SP	110.6	10.8
2	Poorly Graded Sand with Gravel, fine to medium grained, brown - SP	125.6	9.4
3	Poorly Graded Sand, fine to medium grained, little gravel, brown - SP	119.6	10.5
4	Poorly Graded Sand, fine to medium grained, little gravel, brown - SP	108.6	12.7
5	Poorly Graded Sand, fine to medium grained, trace gravel, brown - SP	110.8	13.7
7	Silty Sand with Gravel, fine to medium grained, brown - SM	138.2	7.1
8	Poorly Graded Sand with Silt, fine to medium grained, trace gravel, brown - SP-SM	113.9	13.5
12	Poorly Graded Sand, fine to medium grained, trace gravel, brown - SP	110.7	12.9
13	Poorly Graded Sand, fine to medium grained, little gravel, brown - SP	112.2	11.4
14	Poorly Graded Sand, fine to medium grained, little gravel, brown - SP	110.9	12.5

Note: Complete test data located in Appendix B

TABLE 2

Visual Screening Berm Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	Location*		DIST. BELOW FIN. SUBGRADE (FT)	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	Northing	Easting							
RF-1	865720	2033034	4	110	8	110.6	10.8	99	
RF-2	865645	2033044	4	106	6	110.6	10.8	96	
RF-3	865320	2033021	6	110	5	110.6	10.8	99	
RF-4	865484	2033011	1	108	6	110.6	10.8	98	
RF-5	865874	2033047	1.5	103	4	110.6	10.8	93	Failed to meet 95%
RF-5R	866094	2033037	2	117	8	119.6	10.5	98	Retest of RF-5
RF-6	866330	2033044	2.5	122	9.4	125.6	10.8	97	
RF-7	866593	2033076	8	114	9.4	125.6	10.8	91	Failed to meet 95%
RF-7R	866583	2033060	6.5	114	6	119.6	10.5	95	Retest of RF-7
RF-8	866881	2033070	5	116	6	125.6	9.4	92	Failed to meet 95%
RF-8R	866891	2033070	6	115	6	119.6	10.5	96	Retest of RF-8
RF-62	867105	2033073	5	119	6	119.6	10.5	99	
RF-63	867236	2033067	9	116	8	119.6	10.5	97	
RF-64	865510	2033047	0	117	7	119.6	10.5	98	
RF-65	866215	2033053	0	116	11	119.6	10.5	97	
RF-66	867180	2033070	0	110	7	110.6	10.8	99	
RF-60	864388	2033017	9	113	13	119.6	10.5	94	Failed to meet 95%
RF-60R	864391	2033017	9	112	15	119.6	10.5	94	Retest, Failed to meet 95%
RF-60RR	864335	2033011	9	115	12	119.6	10.5	96	Retest of RF-60R
RF-61	863833	2032978	9	114	10	119.6	10.5	95	
RF-67	864345	2032988	7.5	107	9	110.6	10.8	97	
RF-68	863361	2033011	7	120	6	119.6	10.5	100	
RF-76	864129	2033011	8.5	109	8	110.6	10.8	99	
RF-77	862790	2033004	9	107	14	110.8	13.7	97	
RF-83	863994	2032981	6	109	13	110.8	13.7	98	
RF-84	863561	2032988	2.5	119	8	119.6	10.5	99	
RF-85	862492	2033001	5.5	115	8	119.6	10.5	96	
RF-86	864312	2032998	2.5	105	11	110.8	13.7	95	
RF-87	863272	2033004	1.5	126	11	138.2	7.1	91	Failed to meet 95%
RF-87R	863220	2032984	1.5	115	7	119.6	10.5	96	Retest of RF-87
RF-88	862964	2032935	2.5	126	11	125.9	10.2	100	
RF-89	862682	2032991	2	127	9	125.9	10.2	101	
RF-127	864519	2033004	0	112	7	110.6	10.8	101	
RF-128	863318	2032998	0	126	10	125.6	9.4	100	
RF-129	862587	2032988	0	127	7	125.6	9.4	101	

Notes: * See Figures 4 & 5 for test locations.
Complete test data located in Appendix B

Table 3

Pond Embankment Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION* STATION	O.S. FROM BASELINE (FT)	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	PERCENT COMPACTION	NOTES
RF-9	4 + 0	75 N	962.7	117	15	119.6	10.5	98	
RF-10	6 + 70	70 N	965.0	118	10	119.6	10.5	99	
RF-11	16 + 70	70 E	963.0	105	12	108.6	12.7	97	
RF-12	14 + 30	60 NE	961.0	109	12	108.6	12.7	100	
RF-13	10 + 80	72 N	966.0	120	10	119.6	10.5	100	
RF-14	8 + 40	85 N	966.5	121	12	119.6	10.5	101	
RF-15	3 + 12	40 N	964.0	114	8	119.6	10.5	95	
RF-16	5 + 47	90 N	969.0	114	13	119.6	10.5	95	
RF-17	8 + 0	90 N	969.3	116	10	119.6	10.5	97	
RF-18	9 + 0	75 N	970.0	117	14	119.6	10.5	98	
RF-19	11 + 73	60 N	966.0	116	11	119.6	10.5	97	
RF-20	13 + 0	50 NE	963.8	121	8	119.6	10.5	101	
RF-21	15 + 10	80 E	964.4	109	7	110.6	10.8	99	
RF-22	17 + 65	64 E	967.0	108	13	110.6	10.8	98	
RF-23	18 + 70	90 E	964.5	114	8	119.6	10.5	95	
RF-24	2 + 85	8 N	964.6	114	9	119.6	10.5	95	
RF-25	3 + 35	50 S	963.8	119	9	119.6	10.5	99	
RF-26	4 + 30	85 N	968.7	116	7	119.6	10.5	97	
RF-27	6 + 75	85 N	974.0	124	8	125.6	9.4	99	
RF-28	7 + 40	80 N	976.5	109	17	110.8	13.7	98	
RF-29	10 + 60	73 N	970.5	119	9	119.6	10.5	99	
RF-30	13 + 0	65 NE	967.7	118	12	119.6	10.5	99	
RF-31	14 + 40	60 NE	965.4	117	12	119.6	10.5	98	
RF-32	17 + 0	65 E	969.9	117	8	119.6	10.5	98	
RF-33	17 + 60	60 E	971.6	117	10	119.6	10.5	98	
RF-34	4 + 25	30 N	967.5	116	11	119.6	10.5	97	
RF-35	3 + 0	6 S	966.0	109	7	110.6	10.8	99	
RF-36	5 + 0	45 N	972.3	119	6	119.6	10.5	99	
RF-37	7 + 0	50 N	970.0	118	4	119.6	10.5	99	
RF-38	9 + 40	35 N	964.5	113	10	110.6	10.8	102	
RF-39	12 + 15	30 N	966.3	114	10	119.6	10.5	95	
RF-40	16 + 0	40 E	963.4	115	10	119.6	10.5	96	
RF-41	14 + 65	25 NE	964.5	109	7	110.6	10.8	99	
RF-42	15 + 30	50 E	969.3	113	9	110.6	10.8	102	
RF-43	16 + 40	60 E	972.5	112	14	110.8	13.7	101	
RF-44	16 + 10	90 E	973.7	111	9	110.8	13.7	100	
RF-45	14 + 75	80 E	975.0	114	7	119.6	10.5	95	
RF-46	17 + 30	95 E	976.0	109	11	110.8	13.7	98	
RF-47	2 + 75	75 N	969.6	119	7	119.6	10.5	99	
RF-48	4 + 0	50 N	974.8	116	7	119.6	10.5	97	
RF-49	4 + 10	70 N	976.5	118	8	119.6	10.5	99	
RF-50	13 + 0	80 NE	970.7	116	6	119.6	10.5	97	
RF-51	13 + 65	75 NE	975.7	115	7	119.6	10.5	96	

Note: See Figures 1 & 2 for test locations.
Complete test data located in Appendix B.

Table 3 (cont.)

Pond Embankment Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION* STATION	O.S. FROM BASELINE (FT)	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	PERCENT COMPACTION	NOTES
RF-52	16 + 30	25 E	976.0	114	11	119.6	10.5	95	
RF-53	20 + 50	85 E	963.7	114	7	119.6	10.5	95	
RF-54	21 + 50	80 E	966.0	115	9	119.6	10.5	96	
RF-55	22 + 80	70 E	963.5	115	6	119.6	10.5	96	
RF-56	28 + 0	75 E	962.7	119	6	119.6	10.5	99	
RF-57	27 + 10	55 E	964.0	114	8	119.6	10.5	95	
RF-58	26 + 40	75 E	963.7	115	7	119.6	10.5	96	
RF-59	34 + 70	80 S	952.8	114	7	119.6	10.5	95	
RF-69	32 + 0	30 S	954.7	109	14	110.8	13.7	98	
RF-70	33 + 90	55 S	957.0	112	13	110.8	13.7	101	
RF-71	35 + 0	15 N	957.5	114	6	119.5	10.5	95	
RF-72	38 + 50	15 S	951.7	110	12	110.8	13.7	99	
RF-73	39 + 30	15 S	962.5	107	14	110.8	13.7	97	
RF-74	3 + 0	30 S	982.0	111	6	110.6	10.8	100	
RF-75	3 + 0	55 S	973.0	99	9	110.8	13.7	89	Failed to meet 95%, Retest = RF-81
RF-78	31 + 0	30 N	961.0	109	9	110.8	13.7	98	
RF-79	34 + 60	2 N	962.5	112	13	110.8	13.7	101	
RF-80	32 + 95	30 S	957.5	119	11	119.6	10.5	99	
RF-81	3 + 0	55 S	971.0	101	12	110.8	13.7	91	Failed to meet 95%, Retest = RF-100
RF-82	4 + 0	55 S	972.0	114	8	119.6	10.5	95	
RF-90	30 + 15	25 S	962.0	112	11	110.8	13.7	101	
RF-91	29 + 0	5 S	967.0	119	12	119.6	10.5	99	
RF-92	31 + 20	10 S	966.0	116	7	119.6	10.5	97	
RF-93	32 + 30	25 S	963.5	119	10	119.6	10.5	99	
RF-94	33 + 55	45 S	967.0	105	12	110.8	13.7	95	
RF-95	35 + 0	25 S	964.5	118	12	119.6	10.5	99	
RF-96	35 + 75	30 S	964.0	118	12	119.6	10.5	99	
RF-97	39 + 10	15 S	955.0	112	9	110.8	13.7	101	
RF-98	39 + 75	10 S	965.0	117	9	119.6	10.5	98	
RF-99	38 + 0	30 S	950.5	111	9	110.8	13.7	100	
RF-100	2 + 90	50 S	972.0	99	8	110.8	13.7	89	Failed to meet 95%, Retest = RF-100R
RF-100R	2 + 85	55 S	971.5	113	6	110.8	13.7	102	
RF-101	37 + 85	90 S	955.0	119	9	119.6	10.5	99	
RF-102	38 + 40	100 S	954.0	112	8	110.6	10.8	101	
RF-103	37 + 0	15 N	960.0	121	5	125.6	9.4	96	
RF-104	38 + 50	15 S	970.0	120	7	125.6	9.4	96	
RF-105	38 + 45	15 N	964.5	119	11	119.6	10.5	99	
RF-106	39 + 0	0	966.0	117	12	119.6	10.5	98	
RF-107	40 + 20	0	966.0	112	7	110.6	10.8	101	
RF-108	35 + 0	5 S	969.0	117	6	119.6	10.5	98	
RF-109	33 + 80	22 S	971.5	118	9	119.6	10.5	99	
RF-110	32 + 20	6 S	971.0	114	8	119.6	10.5	95	
RF-111	31 + 0	18 S	967.5	115	5	119.6	10.5	96	

Note: See Figures 1 & 2 for test locations.
Complete test data located in Appendix B.

Table 3 (cont.)

Pond Embankment Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION* STATION	O.S. FROM BASELINE (FT)	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	PERCENT COMPACTION	NOTES
RF-112	29 + 40	25 S	967.0	115	7	119.6	10.5	96	
RF-113	19 + 90	50 E	966.5	120	9	119.6	10.5	100	
RF-114	20 + 60	40 E	969.5	118	11	119.6	10.5	99	
RF-115	21 + 20	70 E	973.0	115	8	119.6	10.5	96	
RF-116	21 + 60	55 E	971.5	112	7	110.6	10.8	101	
RF-117	22 + 35	70 E	974.0	114	8	119.6	10.5	95	
RF-118	23 + 70	70 E	969.5	107	10	110.6	10.8	97	
RF-119	26 + 0	60 E	969.5	108	8	110.6	10.8	98	
RF-120	26 + 40	30 E	963.5	116	7	119.6	10.5	97	
RF-121	27 + 30	35 E	964.0	113	7	110.6	10.8	102	
RF-122	28 + 20	50 E	970.0	115	7	119.6	10.5	96	
RF-123	29 + 15	20 S	968.5	111	13	110.8	13.7	100	
RF-124	32 + 50	5 S	971.5	120	10	119.6	10.5	100	
RF-125	35 + 50	15 S	972.0	118	7	119.6	10.5	99	
RF-126	2 + 6	50 N	957.0	114	5	119.6	10.5	95	MH DW-1 BACKFILL
RF-130	38 + 0	30 S	972.0	120	8	119.6	10.5	100	
RF-131	36 + 75	15 S	972.0	119	9	119.6	10.5	99	
RF-132	40 + 25	2 S	968.0	111	6	110.6	10.8	100	
RF-133	13 + 60	35 NE	955.0	113	11	110.6	10.8	102	MH DW-2 BACKFILL
RF-134	14 + 10	8 NE	954.0	118	9	119.6	10.5	99	
RF-135	2 + 25	60 N	972.0	116	9	119.6	10.5	97	
RF-136	1 + 90	55 S	962.5	106	6	110.6	10.8	96	
RF-137	0 + 75	100 N	973.5	111	6	110.6	10.8	100	
RF-138	2 + 0	33 N	976.0	120	6	119.6	10.5	100	
RF-139	2 + 0	100 S	965.0	106	9	110.6	10.8	96	
RF-140	19 + 25	60 E	969.0	112	9	113.7	13.5	99	
RF-141	19 + 0	50 E	974.5	120	7	119.6	10.5	100	
RF-142	0 + 0	100 N	985.0	117	4	119.6	10.5	98	
RF-143	1 + 20	100 S	963.5	115	10	119.6	10.5	96	
RF-144	2 + 2	10 S	982.5	117	9	119.6	10.5	98	
RF-145	1 + 10	6 N	984.0	113	7	110.6	10.8	102	
RF-146	N. A.	135 E	969.5	117	5	119.6	10.5	98	CL of E Access Ramp, 135' E of Baseline
RF-147	N. A.	N.A.	947.5	115	8	119.6	10.5	96	POND BOTTOM FILL N 864296 E 2031393
RF-148	1 + 25	60 N	990.0	113	6	110.8	13.7	102	
RF-149	0 + 85	60 N	998.0	116	11	110.8	13.7	105	
RF-150	1 + 0	8 S	993.5	120	8	119.6	10.5	100	
RF-151	0 + 10	90 N	1006.0	131	4	125.6	9.4	104	
RF-152	41 + 13	24 S	972.0	124	7	125.6	9.4	99	
RF-153	N. A.	N.A.	950.0	119	4	125.6	9.4	95	POND BOTTOM FILL IN OVER-EXCAVATION AREA, N 864952 E 2031446
RF-174	4 + 0	35 N	990.0	116	4	119.6	10.5	97	
RF-176	3 + 0	50 N	992.0	117	6	119.6	10.5	98	
RF-177	2 + 0	50 N	994.0	117	10	119.6	10.5	98	
RF-193	5 + 0	40 N	980.0	125	10	119.6	10.5	105	
RF-198	0 + 40	0	1005.0	114	10	119.6	10.5	95	
RF214	25 + 0		955.0	109	8	110.6	10.8	99	
RF-215	24 + 0		960.0	109	7	110.6	10.8	99	

Note: See Figures 1 & 2 for test locations.
Complete test data located in Appendix B.

Table 3 (cont.)

Pond Embankment Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION*			IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	PERCENT COMPACTION	NOTES
	STATION	O.S. FROM BASELINE (FT)	ELEVATION						
RF-216	24 + 60	10 E	960.0	125	9	125.6	10.8	100	
RF-217	24 + 10	10 E	959.5	121	8	125.6	10.8	96	
RF-218	24 + 52	5 E	962.0	120	10	125.6	10.8	96	
RF-219	24 + 15	12 E	962.5	122	7	125.6	10.8	97	

Note: See Figures 1 & 2 for test locations.
Complete test data located in Appendix B.

Table 4

Upstream Barrier Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION*			IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	STATION	O.S. FROM BASELINE (FT)	ELEVATION						
RF-228	8 + 25	60 S	957.0	120	8	119.6	10.5	100	
RF-229	9 + 85	62 S	955.0	115	8	119.6	10.5	96	
RF-230	11 + 95	75 S	949.0	114	9	119.6	10.5	95	
RF-231	15 + 60	95 W	945.0	120	9	119.6	10.5	100	
RF-232	9 + 0	72 S	952.0	120	3	119.6	10.5	100	
RF-233	10 + 70	55 S	953.5	120	3	119.6	10.5	100	
RF-234	13 + 25	83 SW	951.0	116	3	119.6	10.5	97	
RF-235	12 + 10	30 S	957.5	119	7	119.6	10.5	99	
RF-236	14 + 0	33 SW	956.5	118	7	119.6	10.5	99	
RF-237	13 + 25	15 SW	959.0	107	11	110.7	12.9	97	
RF-238	10 + 0	12 S	961.0	109	7	110.7	12.9	98	
RF-239	16 + 70	50 W	953.0	120	8	119.6	10.5	100	
RF-240	19 + 20	45 W	953.5	121	7	119.6	10.5	101	
RF-242	13 + 60	18 S	966.5	115	8	119.6	10.5	96	
RF-243	11 + 85	50 S	967.0	114	5	119.6	10.5	95	
RF-244	10 + 40	30 S	967.0	112	8	110.7	12.9	101	
RF-245	14 + 65	20 W	964.5	120	11	119.6	10.5	100	
RF-246	15 + 50	28 W	967.0	112	7	110.7	12.9	101	
RF-247	16 + 95	82 W	956.0	118	11	119.6	10.5	99	
RF-248	18 + 10	93 W	952.0	116	8	119.6	10.5	97	
RF-249	18 + 50	20 W	962.0	115	6	119.6	10.5	96	
RF-253	23 + 0	66 W	946.0	119	5	119.6	10.5	99	
RF-254	26 + 10	85 W	945.5	118	5	119.6	10.5	99	
RF-255	12 + 67	44 S	966.0	114	6	119.6	10.5	95	
RF-256	11 + 35	40 S	968.0	119	5	119.6	10.5	99	
RF-257	13 + 48	27 SW	968.5	116	4	119.6	10.5	97	
RF-258	17 + 65	25 W	971.0	112	4	112.2	11.4	100	
RF-259	21 + 50	60 W	947.0	111	7	112.2	11.4	99	
RF-260	26 + 0	69 W	949.0	114	7	119.6	10.5	95	
RF-261	23 + 0	60 W	952.0	115	12	119.6	10.5	96	
RF-262	24 + 50	75 W	952.0	116	7	119.6	10.5	97	
RF-263	26 + 50	90 W	950.0	119	5	119.6	10.5	99	
RF-264	22 + 50	66 W	958.0	116	5	119.6	10.5	97	
RF-265	24 + 60	55 W	957.5	117	5	119.6	10.5	98	
RF-266	26 + 70	54 W	956.0	114	6	119.6	10.5	95	
RF-267	27 + 15	52 W	955.0	119	7	119.6	10.5	99	
RF-268	27 + 90	24 W	959.0	115	6	119.6	10.5	96	
RF-269	26 + 0	22 W	961.5	115	5	119.6	10.5	96	
RF-270	23 + 20	20 W	963.0	110	4	110.6	10.8	99	
RF-271	21 + 70	15 W	964.0	112	9	110.6	10.8	101	
RF-272	28 + 50	25 W	965.0	109	3	110.6	10.8	99	
RF-273	25 + 35	20 W	963.0	110	4	110.6	10.8	99	
RF-280	23 + 40	25 W	972.0	120	3	119.6	10.5	100	
RF-281	27 + 50	25 W	972.0	121	3	119.6	10.5	101	
RF-282	17 + 30	25 W	972.0	116	4	119.6	10.5	97	
RF-285	6 + 0	75 S	957.0	117	11	119.6	10.5	98	
RF-290	5 + 0	50 S	960.0	109	9	110.6	10.8	99	
RF-301	28 + 0	30 E	978.0	125	4	125.6	9.4	100	
RF-302	27 + 0	35 E	976.0	121	4	125.6	9.4	96	
RF-303	26 + 0	35 E	975	126	4	125.6	9.4	100	
RF-307	25 + 0	0.0	972	110	5	110.6	10.8	99	
RF-308	22 + 0	0.0	972	109	6	110.6	10.8	99	
RF-309	17 + 50	0.0	971.5	113	6	113.7	13.5	99	
RF-310	11 + 0	0	970.0	107	6	108.6	12.7	99	
RF-311	9 + 0	0	971.0	105	6	108.6	12.7	97	
RF-312	7 + 0	0	970.0	110	6	110.6	10.8	99	
RF-320	25 + 0	35 E	960.0	118	8	119.6	10.5	99	
RF-321	24 + 0	30 E	960.0	119	6	119.6	10.5	99	

Notes: * See Figure 3 for test locations
Complete test data located in Appendix B

Table 4 (cont.)

Upstream Barrier Random Fill Density Testing Summary

RANDOM FILL DENSITY TEST #	LOCATION* STATION	O.S. FROM BASELINE (FT)	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
RF-323	22 + 0	25 E	963.0	118	5	119.6	10.5	99	
RF-324	21 + 0	35 E	960.0	114	5	119.6	10.5	95	
RF-352	25 + 25	20 E	971.0	121	4	119.6	10.5	101	
RF-353	26 + 40	15 E	975.5	114	10	119.6	10.5	95	
RF-354	27 + 20	50 E	976.0	120	8	119.6	10.5	100	
RF-355	20 + 15	13 E	973.0	136	4	138.2	7.1	98	
RF-356	22 + 0	6 E	972.0	116	5	119.6	10.5	97	
RF-357	22 + 95	21 E	975.0	124	6	125.6	9.4	99	
RF-358	24 + 60	4 W	976.0	117	6	119.6	10.5	98	
RF-359	15 + 62	15 N	972.0	115	5	112.2	11.4	102	
RF-360	16 + 57	25 N	976.0	114	6	112.2	11.4	102	
RF-361	18 + 87	25 N	973.0	114	6	112.2	11.4	102	
RF-362	20 + 42	45 N	976.0	113	6	112.2	11.4	101	
RF-363	N A	NA	958.0	110	9	110.9	12.5	99	
RF-364	N A	NA	958.0	109	10	110.9	12.5	98	
RF-365	N A	NA	957.5	110	10	110.9	12.5	99	
RF-366	N A	NA	957.0	111	11	110.9	12.5	100	

Notes: * See Figure 3 for test locations
Complete test data located in Appendix B

TABLE 5

Discharge Structures Subgrade Density Testing Summary

RANDOM FILL DENSITY TEST #	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
RF-241	955.0	114	5	119.6	10.5	95	below 24" steel pipe and slab at penetration
RF-250	952.0	120	7	119.6	10.5	100	Discharge Structure #1 liner subgrade
RF-251	966.0	120	7	119.6	10.5	100	Discharge Structure #2 liner subgrade
RF-252	980.0	120	8	119.6	10.5	100	Discharge Structure #3 liner subgrade
DS-274	-0.5 / S.G.	111	10	110.9	12.5	100	Discharge Structure #1 top GDM
DS-275	-0.5 / S.G.	111	11	110.9	12.5	100	Discharge Structure #1 top GDM
DS-276	-0.5 / S.G.	111	8	110.9	12.5	100	Discharge Structure #2 top GDM
DS-277	-0.5 / S.G.	112	7	110.9	12.5	101	Discharge Structure #3 top GDM
DS-278	-0.5 / S.G.	113	8	110.9	12.5	102	Lower Catwalk Support Subgrade
DS-279	-0.5 / S.G.	112	7	110.9	12.5	101	Upper Catwalk Support Subgrade
RF-337	Finish SG	120	5	119.6	10.5	100	Discharge Structure #3 Finish Subgrade
RF-338	Finish SG	120	5	119.6	10.5	100	Discharge Structure #2 Finish Subgrade
RF-339	Finish SG	120	6	119.6	10.5	100	Discharge Structure #1 Finish Subgrade
RF-345	Finish SG	114	7	113.7	13.5	100	Blower Building Finish Subgrade

Note: Complete test data located in Appendices B (RF tests) and D (DS tests).

TABLE 6

Off-Site (Holker Pit) Clay Prequalification Testing Summary

Sample No.	Engineering Classification	Max Dry Density (pcf)	Opt Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Passing #200	In-Place Moisture Content (%)	Permeability (cm/s)	NOTES
HCL-1	Lean Clay w/ Sand, trace gravel (CL)	98.4	23.9	47.1	20.8	26.3	71.5	27.3	5.8×10^{-8}	Tested by Soil Engineering Testing
P-11	Lean Clay w/ Sand, trace gravel (CL)	97.1	21.9	--	--	--	--	--	--	Tested by Braun Lab, split sample with HCL-1
HCL-2	Sandy Lean Clay, trace gravel (CL)	97.8	23.7	46.4	21.8	24.6	62.6	29.4	2.8×10^{-8}	Tested by Soil Engineering Testing
HCL-3	Sandy Fat Clay, little gravel (CH)	98.9	22.2	53.2	22.9	30.3	63.8	27.3	6.6×10^{-8}	Tested by Soil Engineering Testing
P-10	Sandy Fat Clay, little gravel (CH)	99.6	22.1	--	--	--	--	--	--	Tested by Braun Lab, split sample with HCL-3
HCL-4	Fat Clay with Sand (CH)	90.3	29.1	66.6	27.7	38.9	80.2	33.7	2.3×10^{-8}	Tested by Soil Engineering Testing
P-9	Fat Clay with Sand (CH)	83.8	30.5	--	--	--	--	--	--	Tested by Braun Lab, split sample with HCL-4
MPCA GUIDELINES	CL, CH	NA	NA	≥25	NA	≥12	≥50	NA	$\leq 1 \times 10^{-7}$	

Note: Complete test data located in Appendix C

TABLE 7

On-Site Native Clay Testing Summary

Sample No.	Engineering Classification	Max Dry Density (pcf)	Opt Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Passing #200	In-Place Moisture Content (%)	Permeability (cm/s)	NOTES
TP-1	Lean Clay (CL)	--	--	40.7	24.3	16.4	99.6	31.1	--	
TP-3	Lean Clay (CL)	95.5	25.9	42.1	22.6	19.5	99.7	31.6	5.1×10^{-7}	Permeability tested at approx. 95% of max dry density
TP-5	Lean Clay (CL)	95.3	23.6	42.3	23.5	18.8	99.7	31.4	1.7×10^{-6}	Permeability tested at approx. 95% of max dry density

Note: Complete test data located in Appendix C

Table 8

Clay Anchor and Upstream Clay Barrier Density Testing Summary

CLAY DENSITY TEST #	LOCATION*		IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	STATION	ELEVATION						Start Clay Anchor
154	0 + 03	991.0	96	19	97.1	21.9	99	Failed to meet minimum moisture content
154R	0 + 03	991.0	97	24	97.1	21.9	100	
155	54 + 01	994.0	95	23	97.1	21.9	98	
155R	54 + 01	994.0	96	24	97.1	21.9	99	Before Braun Proctor Test was complete, thought moisture was too low
156	0 + 38	991.0	99	24	97.1	21.9	102	
157	2 + 35	988.5	95	22	97.1	21.9	98	Before Braun Proctor Test was complete, thought moisture was too low
157R	2 + 35	988.5	96	24	97.1	21.9	99	
158	5 + 0	968.0	95	25	97.1	21.9	98	
159	0 + 35	998.0	94	23	97.1	21.9	97	
160	55 + 54	1004.0	97	22	97.1	21.9	100	
161	55 + 55	1007.0	97	22	97.1	21.9	100	
162	6 + 10	957.0	96	23	97.1	21.9	99	
163	55 + 56	1009.0	97	23	97.1	21.9	100	
164	15 + 0	956.0	102	22	99.7	22.1	102	
165	16 + 50	956.0	96	23	97.1	21.9	99	
166	20 + 0	956.0	98	23	97.1	21.9	101	
167	22 + 10	956.0	96	22	97.1	21.9	99	
168	1 + 85	992.0	105	22	99.7	22.1	105	
169	4 + 0	977.0	96	23	97.1	21.9	99	
170	8 + 0	957.0	95	22	97.1	21.9	98	
171	10 + 0	957.0	94	22	97.1	21.9	97	
172	3 + 25	983.0	97	23	97.1	21.9	100	
173	9 + 15	957.0	97	23	97.1	21.9	100	
175	5 + 0	969.0	96	23	97.1	21.9	99	
178	16 + 0	957.5	95	22	97.1	21.9	98	
179	18 + 50	956.5	96	22	97.1	21.9	99	
180	21 + 0	956.0	98	22	97.1	21.9	101	
181	2 + 25	989.0	92	25	97.1	21.9	95	
182	4 + 0	979.0	94	24	97.1	21.9	97	
183	6 + 0	961.5	93	24	97.1	21.9	96	
184	7 + 0	959.0	96	24	97.1	21.9	99	

Notes: *See Figure 6 for test locations.
Complete test data located in Appendix C

Table 8 (cont.)

Clay Anchor and Upstream Clay Barrier Density Testing Summary

CLAY DENSITY TEST #	LOCATION*		IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	STATION	ELEVATION						
186	12 + 0	?	97	21	97.1	21.9	100	
187	15 + 50	958.0	95	22	97.1	21.9	98	
188	22 + 50	958.0	96	23	97.1	21.9	99	
189	9 + 0	959.0	97	22	97.1	21.9	100	
190	14 + 0	958.0	92	24	97.1	21.9	95	
191	17 + 50	958.5	96	23	97.1	21.9	99	
192	19 + 0	958.5	92	26	97.1	21.9	95	
194	16 + 0	959.0	94	27	97.1	21.9	97	
195	19 + 0	959.0	95	25	97.1	21.9	98	
196	13 + 0	958.0	92	26	97.1	21.9	95	
197	11 + 0	959.5	98	23	97.1	21.9	101	
199	0 + 40	1008.0	94	24	97.1	21.9	97	
200	0 + 50	1010.0	93	25	97.1	21.9	96	
201	5 + 0	972.0	97	22	97.1	21.9	100	
202	8 + 0	960.0	98	22	97.1	21.9	101	
203	12 + 0	959.5	98	24	97.1	21.9	101	
204	16 + 0	960.0	96	23	97.1	21.9	99	
205	18 + 0	959.5	98	23	97.1	21.9	101	
206	21 + 0	960.0	96	23	97.1	21.9	99	
207	27 + 50	957.0	93	25	97.1	21.9	96	
208	26 + 50	957.0	88	24	97.1	21.9	91	Failed to meet 95%
208R	26 + 50	957.0	93	24	97.1	21.9	96	Retest of CL-208
209	28 + 0	957.0	93	25	97.1	21.9	96	
210	27 + 0	958.5	94	23	97.1	21.9	97	
211	27 + 85	959.0	94	23	97.1	21.9	97	
212	28 + 60	969.0	94	24	97.1	21.9	97	
213	28 + 0	960.0	94	25	97.1	21.9	97	
220	28 + 60	972.0	99	24	97.1	21.9	102	
221	23 + 80	960.0	97	22	97.1	21.9	100	
222	24 + 0	957.0	96	22	97.1	21.9	99	
223	28 + 80	962.0	97	22	97.1	21.9	100	
224	25 + 0	958.0	97	22	97.1	21.9	100	
225	25 + 75	958.0	96	23	97.1	21.9	99	
226	26 + 0	959.0	95	23	97.1	21.9	98	

Notes: *See Figure 6 for test locations.
Complete test data located in Appendix C

Table 8 (cont.)

Clay Anchor and Upstream Clay Barrier Density Testing Summary

CLAY DENSITY TEST #	LOCATION*		IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	STATION +	ELEVATION						Start Upstream Clay Barrier
283	28 + 0	961.0	94	22	97.1	21.9	97	
286	26 + 0	961.0	96	22	97.1	21.9	99	
287	18 + 50	963.0	97	23	97.1	21.9	100	
288	20 + 0	960.5	96	22	97.1	21.9	99	
289	28 + 50	963.0	96	23	97.1	21.9	99	
291	27 + 0	968.0	95	24	97.1	21.9	98	
292	28 + 0	968.0	96	23	97.1	21.9	99	
293	25 + 25	963.0	94	25	97.1	21.9	97	
294	26 + 25	969.0	95	25	97.1	21.9	98	
295	25 + 0	972.0	97	26	97.1	21.9	100	
296	24 + 25	962.0	96	25	97.1	21.9	99	
297	23 + 50	963.0	96	22	97.1	21.9	99	
298	23 + 0	970.0	98	23	97.1	21.9	101	
299	22 + 25	963.0	97	24	97.1	21.9	100	
300	22 + 0	961.0	96	22	97.1	21.9	99	
304	20 + 50	963.0	93	25	97.1	21.9	96	
305	22 + 50	971.0	96	22	97.1	21.9	99	
306	21 + 50	965.0	98	23	97.1	21.9	101	
313	16 + 10	961.0	94	23	97.1	21.9	97	
314	17 + 0	962.0	93	22	97.1	21.9	96	
315	20 + 25	968.0	94	24	97.1	21.9	97	
316	19 + 10	964.0	97	22	97.1	21.9	100	
317	19 + 0	970.0	96	22	97.1	21.9	99	
318	18 + 50	966.0	93	24	97.1	21.9	96	
319	18 + 0	966.0	98	22	97.1	21.9	101	
325	17 + 50	966.0	93	24	97.1	21.9	96	
326	16 + 0	968.0	95	22	97.1	21.9	98	
327	15 + 0	963.0	96	23	97.1	21.9	99	
328	14 + 50	961.0	96	24	97.1	21.9	99	
329	15 + 20	971.0	97	22	97.1	21.9	100	
330	13 + 20	963.0	97	22	97.1	21.9	100	
331	14 + 10	969.0	96	22	97.1	21.9	99	
332	13 + 0	966.0	97	22	97.1	21.9	100	

Notes: *See Figure 6 for test locations.
Complete test data located in Appendix C

Table 8 (cont.)

Clay Anchor and Upstream Clay Barrier Density Testing Summary

CLAY DENSITY TEST #	LOCATION*		IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	COMPACTION (%)	NOTES
	STATION	ELEVATION						
334	6 + 50	965.0	93	23	97.1	21.9	96	
335	6 + 0	970.0	94	23	97.1	21.9	97	
336	7 + 0	962.0	96	23	97.1	21.9	99	
340	7 + 0	970.0	93	24	97.1	21.9	96	
341	8 + 0	964.0	88	25	97.1	21.9	91	Failed to meet 95%
341R	8 + 0	964.0	93	24	97.1	21.9	96	Retest of CL-341
342	8 + 10	971.0	96	22	97.1	21.9	99	
343	9 + 10	965.0	93	24	97.1	21.9	96	
344	10 + 0	961.0	96	24	97.1	21.9	99	
346	9 + 0	972.0	93	25	97.1	21.9	96	
347	12 + 0	965.0	93	23	97.1	21.9	96	
348	11 + 0	962.0	95	23	97.1	21.9	98	
349	12 + 40	970.0	96	26	97.1	21.9	99	
350	11 + 0	970.0	94	22	97.1	21.9	97	
351	10 + 0	968.0	94	23	97.1	21.9	97	

Notes: *See Figure 6 for test locations.
Complete test data located in Appendix C

Table 9

Clay Anchor and Upstream Clay Barrier Index Properties and Permeability Summary

Sample #	Location	Elevation	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Passing No. 200 Sieve	Permeability (cm/s)	Notes
ST-1	NW CLAY BLANKET	1008.5 - 1009	44	20.8	24	>50	1.7×10^{-8}	Pond 2 Connection
ST-2	STA 15+00, 6' E OF BASELINE	957.5 - 958	45	20.5	25	>50	6.8×10^{-8}	Clay Anchor
ST-3	STA 22+00, 5' E OF BASELINE	959.5 - 960	40	19.6	21	>50	9.8×10^{-9}	Clay Anchor
ST-4	STA 21+23, 9' W OF BASELINE	968 - 968.5	43	19.9	23	53.9	1.8×10^{-8}	Upstream Barrier
ST-5	STA 27+58, 14' W OF BASELINE	971 - 971.5	45	21.3	24	65.2	9.9×10^{-9}	Upstream Barrier
ST-6	STA 14+70, 2' W OF BASELINE	965.5 - 966	44	23	21	63.2	1.2×10^{-8}	Upstream Barrier
ST-7	STA 8+65, 14' W OF BASELINE	962.5 - 963	39	19.1	20	53.9	3.4×10^{-8}	Upstream Barrier
MPCA GUIDELINES			≥ 25	NA	≥ 12	≥ 50	1×10^{-7}	
AVERAGE			**2.4×10^{-8}**					

Note: Clay samples were taken by Shelby tube and tested in Soil Engineering Testing Lab.
Complete test data located in Appendix C.

TABLE 10

Granular Drainage Material Permeability and Particle Size Tests Summary

Sample #	Location	Date Sampled	Percent Passing No. 200 Sieve	Percent Retained on 1/2" Sieve	Permeability (cm/s)
G-1	Screening Plant Stockpile	4/6/2004	2.7	0	Not Tested
G-2	Screening Plant Stockpile	4/6/2004	2.7	0	Not Tested
G-3	Screening Plant Stockpile	4/8/2004	2.2	0	3.6×10^{-2}
G-4	Screening Plant Stockpile	4/13/2004	2.5	0	4.4×10^{-2}
G-6	Screening Plant Stockpile	4/19/2004	2.6	0	2.4×10^{-2}
G-7	Screening Plant Stockpile	4/21/2004	3.1	0	2.7×10^{-2}
G-8	Screening Plant Stockpile	4/23/2004	3.1	0	2.8×10^{-2}
G-9	Screening Plant Stockpile	4/28/2004	3.9	0	2.6×10^{-2}
G-10	Screening Plant Stockpile	4/30/2004	2.5	0	4.5×10^{-2}
G-11	Screening Plant Stockpile	5/5/2004	2.5	0	3.3×10^{-2}
G-12	Screening Plant Stockpile	5/6/2004	3.3	0	1.9×10^{-2}
G-13	Screening Plant Stockpile	5/6/2004	2.9	0	3.3×10^{-2}
G-14	Screening Plant Stockpile	5/11/2004	4.9	0	2.9×10^{-2}
G-15	Screening Plant Stockpile	5/12/2004	1.8	0	3.9×10^{-2}
G-16	Screening Plant Stockpile	5/14/2004	2.5	0	2.9×10^{-2}
G-17	Screening Plant Stockpile	5/17/2004	2.9	0	3.1×10^{-2}
G-18	Screening Plant Stockpile	5/18/2004	5.0	0	2.6×10^{-2}
G-19	Screening Plant Stockpile	5/19/2004	3.9	0	3.6×10^{-2}
G-20	N 865,248 E 2,031,689	6/15/2004	3.1	0	3.0×10^{-2}
G-21	N 864,814 E 2,031,439	6/30/2004	2.6	0	2.0×10^{-2}
G-22	N 864,002 E 2,031,856	7/14/2004	3.8	0	3.3×10^{-2}
G-23	N 864,962 E 2,030,993	7/26/2004	4.1	0	2.2×10^{-2}
MPCA GUIDELINES AND PROJECT REQUIREMENTS			≤ 5	0	$\geq 1 \times 10^{-3}$

NOTE: Complete test data located in Appendix D

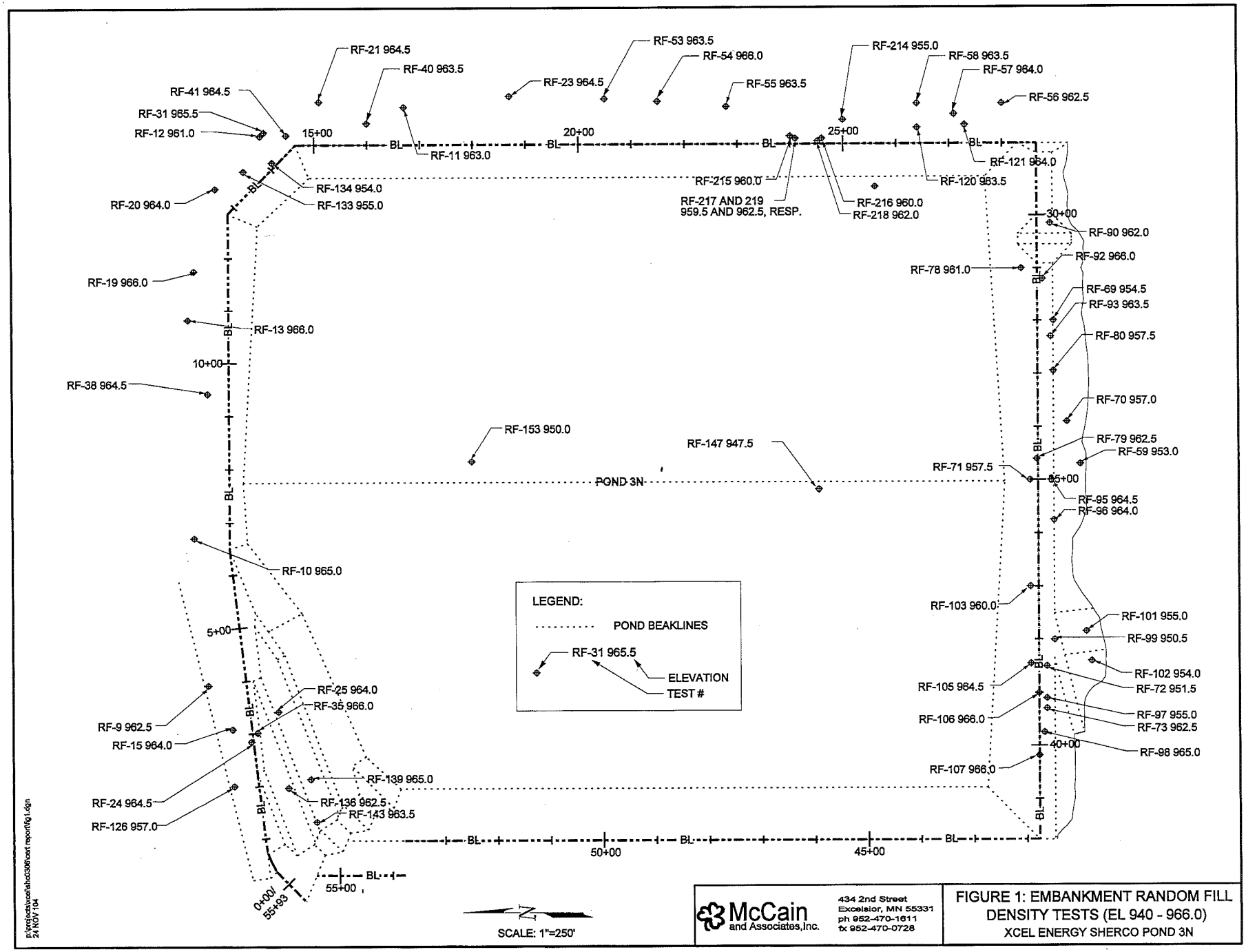
Table 11

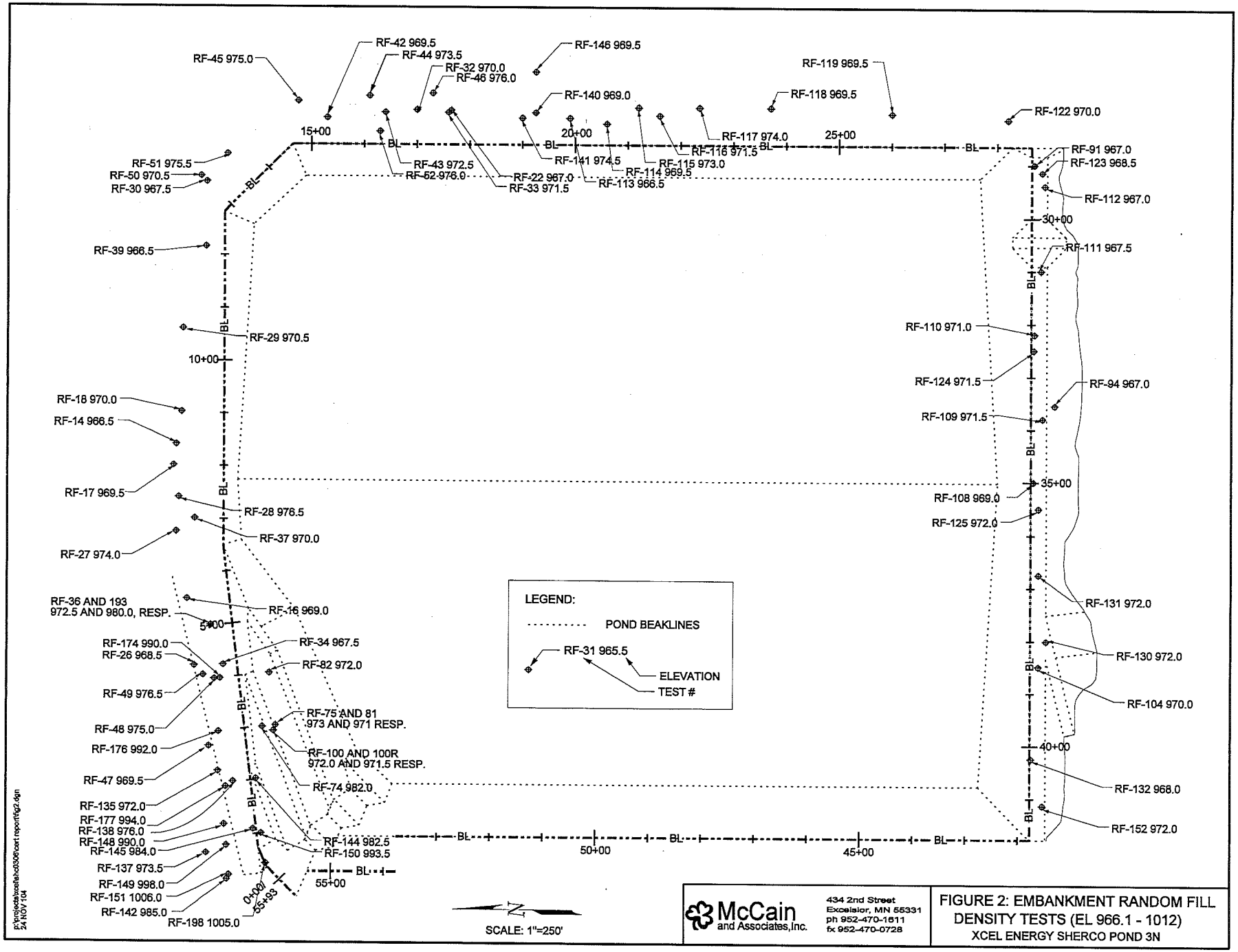
Class 5 Testing Summary

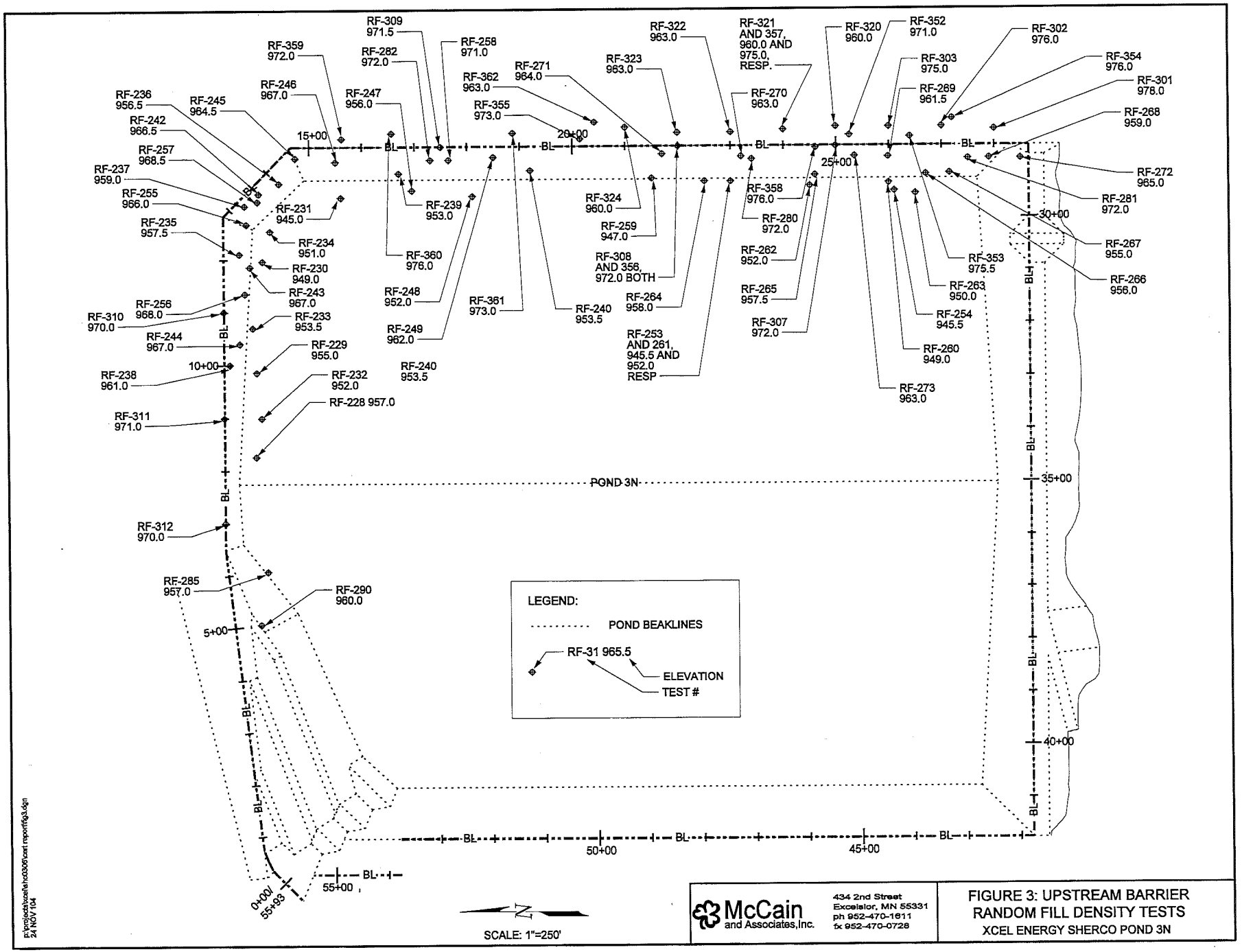
Class 5 Density Test #	Location	ELEVATION	IN-PLACE DENSITY (PCF)	MOISTURE CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	PERCENT COMPACTION
C5-1	MH DW-1	936.0	125	10	125.9	10.2	99
C5-2	MH DW-2	936.0	122	7	125.9	10.2	97
C5-284	MH DW-3	947.5	126	10	125.9	10.2	100

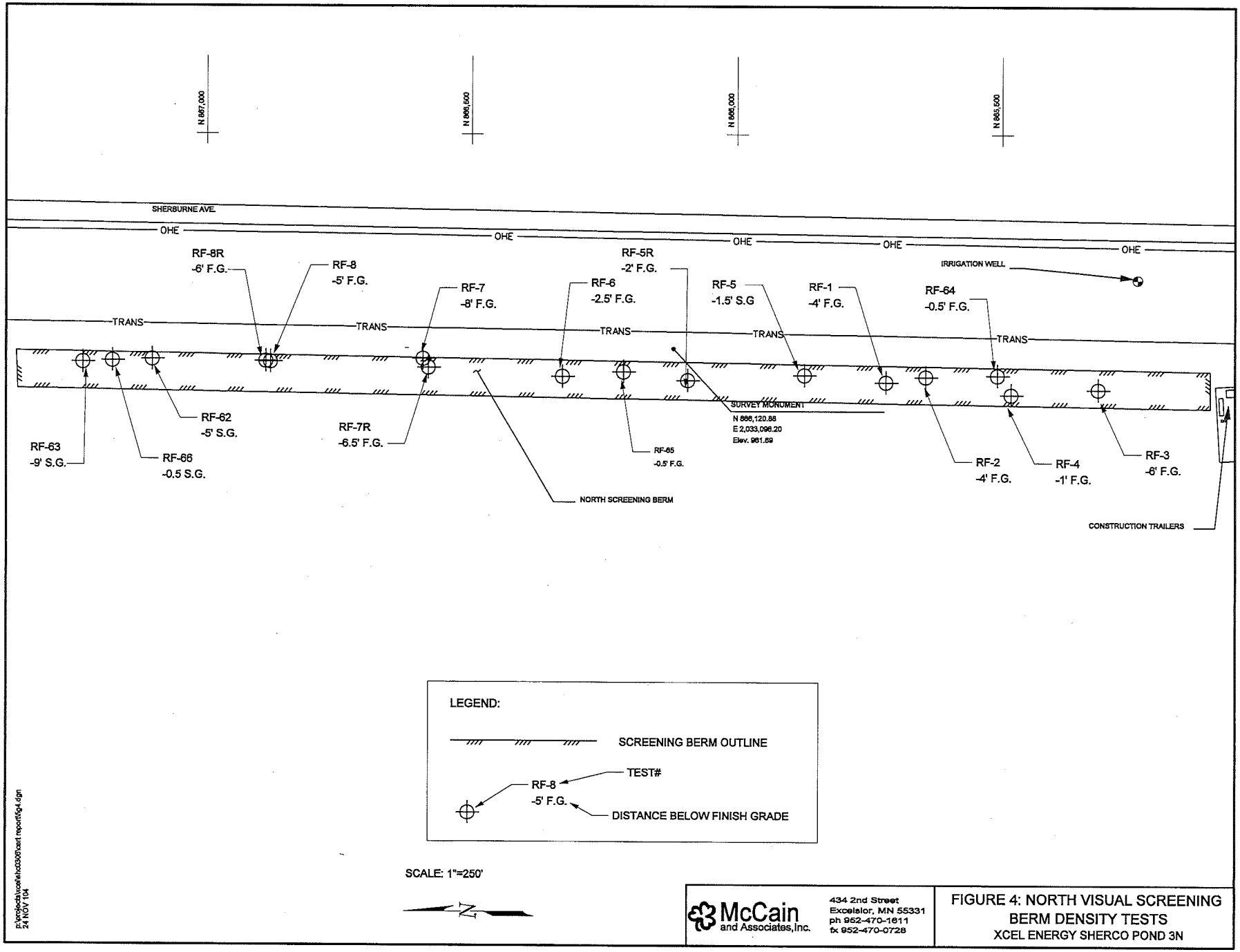
NOTE: Complete test data located in Appendix G

Figures


RF-21 964.5
RF-40 963.5
RF-53 963.5
RF-54 966.0
RF-23 964.5
RF-55 963.5
RF-214 955.0
RF-58 963.5
RF-57 964.0
RF-56 962.5
RF-41 964.5
RF-31 965.5
RF-12 961.0
15+00
20+00
25+00
BL
RF-11 963.0
RF-121 964.0
RF-215 960.0
RF-120 963.5
RF-217 AND 219
959.5 AND 962.5, RESP.
RF-216 960.0
RF-218 962.0
RF-134 954.0
RF-133 955.0
RF-20 964.0
30+00
RF-90 962.0
RF-92 966.0
RF-78 961.0
RF-19 966.0
RF-69 954.5
RF-93 963.5
RF-13 966.0
RF-80 957.5
10+00
RF-38 964.5
RF-70 957.0
RF-153 950.0
RF-147 947.5
RF-79 962.5
RF-59 953.0
RF-71 957.5
POND 3N
35+00
RF-95 964.5
RF-96 964.0
RF-10 965.0
LEGEND:
POND BEAKLINES
RF-31 965.5
ELEVATION
TEST #
RF-103 960.0
RF-101 955.0
RF-99 950.5
5+00
RF-102 954.0
RF-105 964.5
RF-72 951.5
RF-25 964.0
RF-35 966.0
RF-9 962.5
RF-97 955.0
RF-106 966.0
RF-73 962.5
RF-15 964.0
40+00
RF-98 965.0
RF-107 966.0
RF-139 965.0
RF-24 964.5
RF-136 962.5
RF-143 963.5
RF-126 957.0
50+00
45+00
55+00
0+00/
55+93
SCALE: 1"=250'
McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728
FIGURE 1: EMBANKMENT RANDOM FILL DENSITY TESTS (EL 940 - 966.0)
XCEL ENERGY SHERCO POND 3N
p:\projects\xcelsh\cd306\cat report\fig1.dgn
24 NOV 104


RF-45 975.0
RF-42 969.5
RF-44 973.5
RF-32 970.0
RF-46 976.0
RF-146 969.5
RF-140 969.0
RF-119 969.5
RF-118 969.5
RF-122 970.0
15+00
20+00
25+00
RF-117 974.0
RF-116 971.5
RF-115 973.0
RF-114 969.5
RF-113 966.5
RF-141 974.5
RF-43 972.5
RF-52 976.0
RF-22 967.0
RF-33 971.5
RF-51 975.5
RF-50 970.5
RF-30 967.5
RF-91 967.0
RF-123 968.5
RF-112 967.0
30+00
RF-111 967.5
RF-39 966.5
RF-29 970.5
10+00
RF-110 971.0
RF-124 971.5
RF-94 967.0
RF-109 971.5
RF-18 970.0
RF-14 966.5
RF-17 969.5
RF-28 976.5
RF-37 970.0
RF-27 974.0
35+00
RF-108 969.0
RF-125 972.0
RF-36 AND 193
972.5 AND 980.0, RESP.
RF-16 969.0
5+00
RF-174 990.0
RF-26 968.5
RF-34 967.5
RF-82 972.0
RF-49 976.5
RF-48 975.0
RF-75 AND 81
973 AND 971 RESP.
RF-100 AND 100R
972.0 AND 971.5 RESP.
RF-176 992.0
RF-47 969.5
RF-74 982.0
RF-135 972.0
RF-177 994.0
RF-138 976.0
RF-148 990.0
RF-145 984.0
RF-144 982.5
RF-150 993.5
RF-137 973.5
RF-149 998.0
RF-151 1006.0
RF-142 985.0
RF-198 1005.0
0+00
55+93
55+00
50+00
45+00
40+00
RF-131 972.0
RF-130 972.0
RF-104 970.0
RF-132 968.0
RF-152 972.0
BL
LEGEND:
POND BEALINES
RF-31 965.5
ELEVATION
TEST #
SCALE: 1"=250'
McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728
FIGURE 2: EMBANKMENT RANDOM FILL DENSITY TESTS (EL 966.1 - 1012)
XCEL ENERGY SHERCO POND 3N
p:\projects\xcelsh\sh0306\cont report\fig2.dgn
24 NOV 104


RF-309 971.5
RF-359 972.0
RF-282 972.0
RF-258 971.0
RF-322 963.0
RF-321 AND 357, 960.0 AND 975.0 RESP.
RF-320 960.0
RF-352 971.0
RF-302 976.0
RF-354 976.0
RF-303 975.0
RF-301 978.0
RF-246 967.0
RF-247 956.0
RF-271 964.0
RF-362 963.0
RF-323 963.0
RF-269 961.5
RF-268 959.0
RF-236 956.5
RF-245 964.5
RF-355 973.0
RF-270 963.0
RF-242 966.5
RF-257 968.5
RF-237 959.0
RF-255 966.0
RF-235 957.5
RF-231 945.0
RF-239 953.0
RF-324 960.0
RF-358 976.0
RF-272 965.0
RF-281 972.0
RF-234 951.0
RF-360 976.0
RF-259 947.0
RF-280 972.0
RF-267 955.0
RF-230 949.0
RF-308 AND 356, 972.0 BOTH
RF-262 952.0
RF-353 975.5
RF-243 967.0
RF-248 952.0
RF-264 958.0
RF-263 950.0
RF-266 956.0
RF-256 968.0
RF-361 973.0
RF-240 953.5
RF-265 957.5
RF-254 945.5
RF-310 970.0
RF-233 953.5
RF-249 962.0
RF-307 972.0
RF-244 967.0
RF-253 AND 261, 945.5 AND 952.0 RESP
RF-260 949.0
RF-229 955.0
RF-238 961.0
RF-232 952.0
RF-240 953.5
RF-273 963.0
RF-228 957.0
RF-311 971.0
POND 3N
RF-312 970.0
RF-285 957.0
RF-290 960.0
LEGEND:
POND BEAKLINES
RF-31 965.5
ELEVATION
TEST #
15+00
20+00
25+00
30+00
35+00
40+00
45+00
50+00
55+00
10+00
5+00
0+00/ 55+93
BL
SCALE: 1"=250'
McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728
FIGURE 3: UPSTREAM BARRIER RANDOM FILL DENSITY TESTS
XCEL ENERGY SHERCO POND 3N
p:\projects\xcel\sher03006\cad\ report\fig3.dgn
24 NOV 104



p:\projects\xcel\shc0306\cert report\fig4.dgn
24 NOV 104

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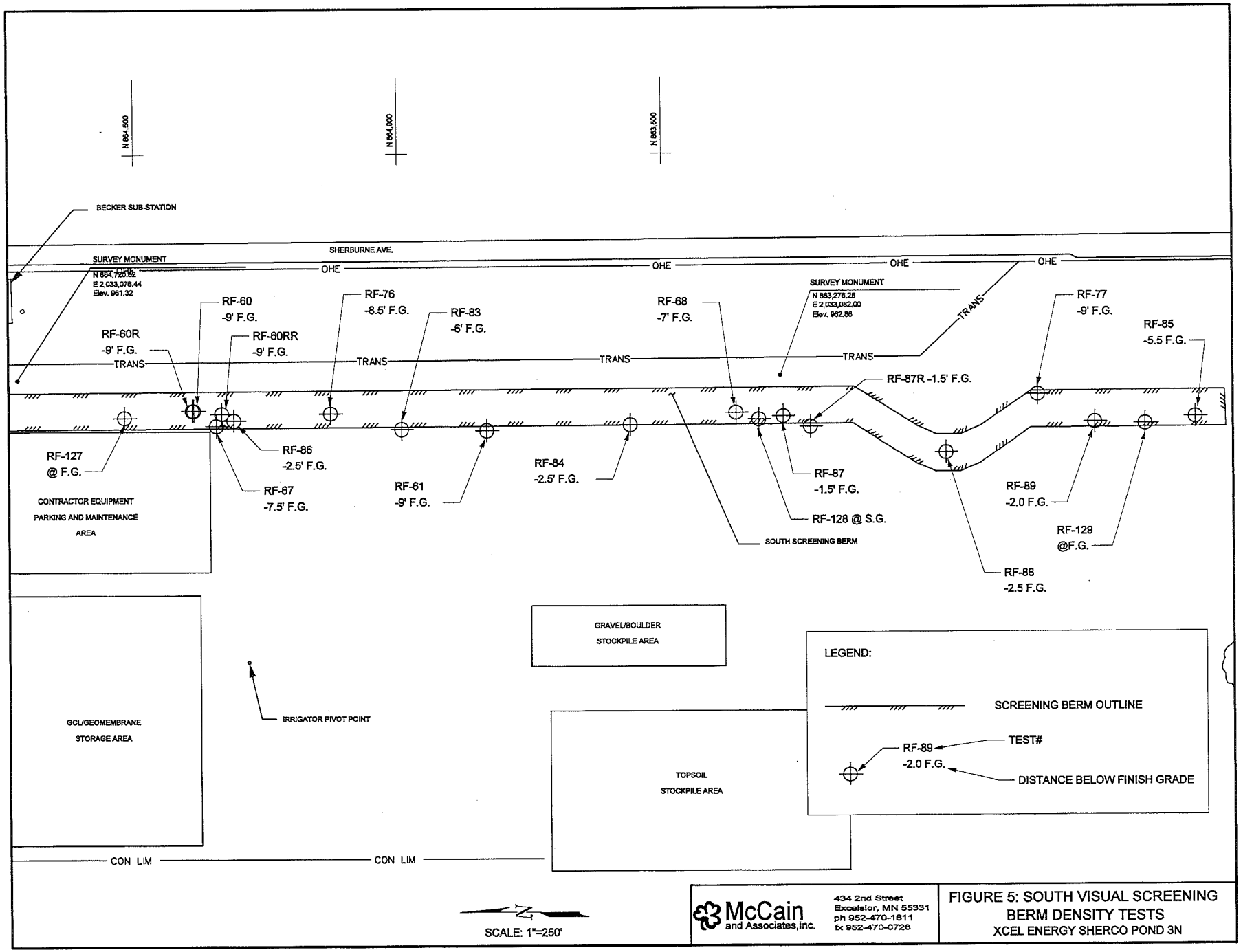
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

FIGURE 4: NORTH VISUAL SCREENING BERM DENSITY TESTS
XCEL ENERGY SHERCO POND 3N



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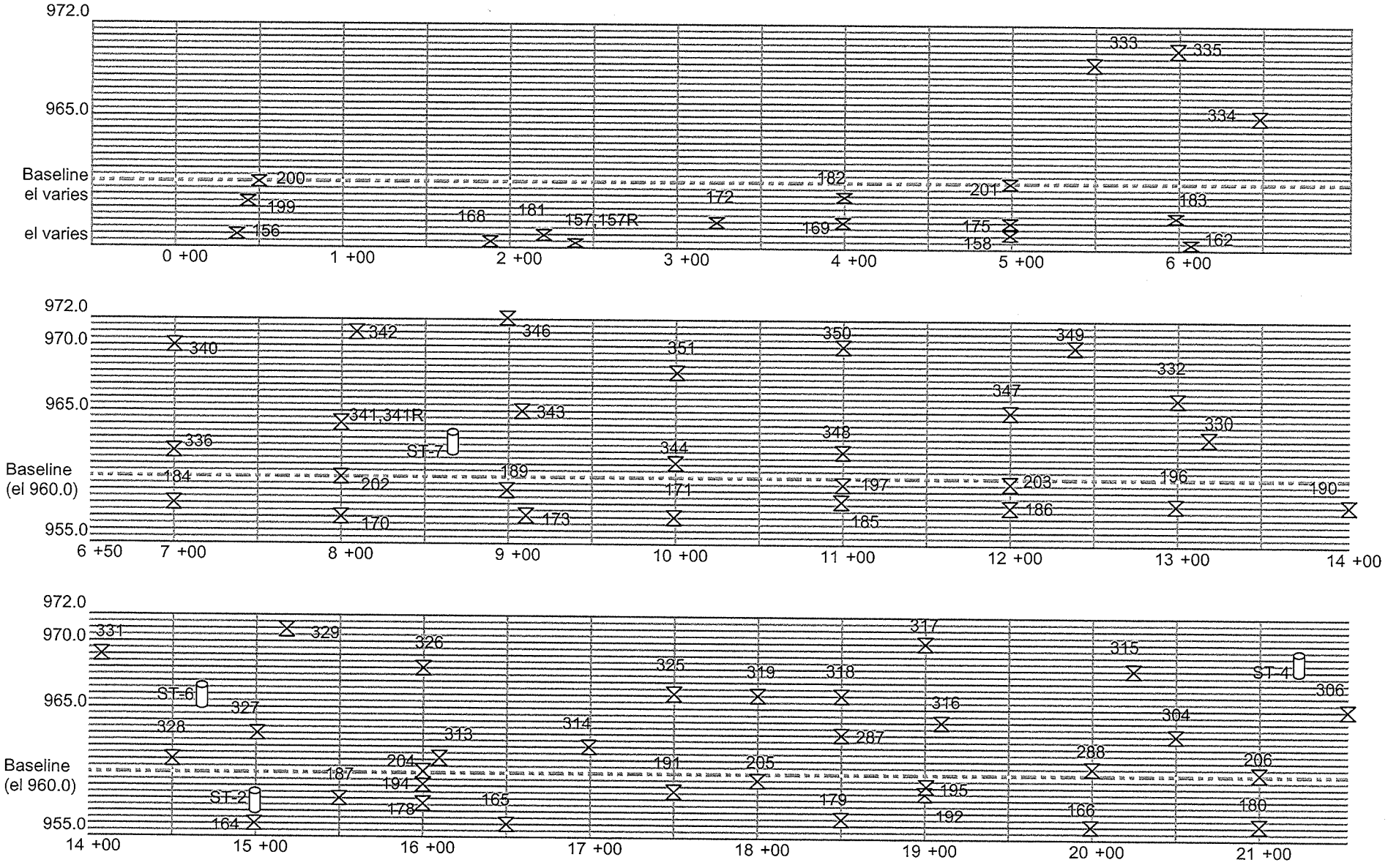
ph 952-470-1611
fx 952-470-0728

FIGURE 5: SOUTH VISUAL SCREENING BERM DENSITY TESTS
XCEL ENERGY SHERCO POND 3N



Legend:

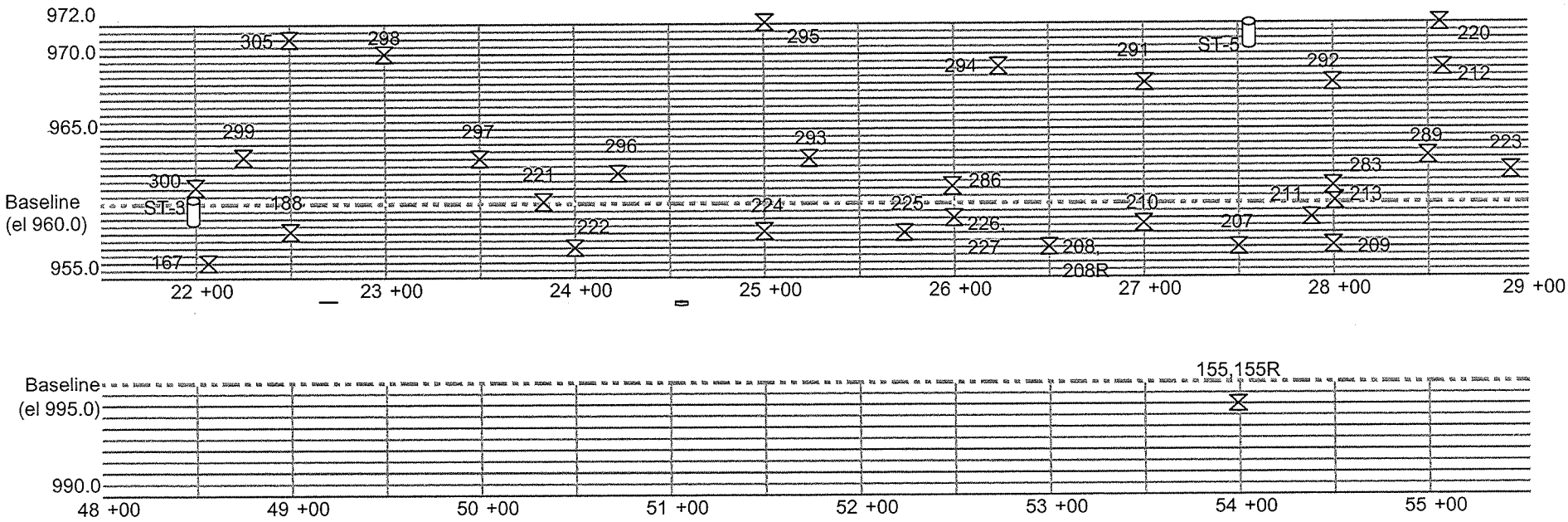
Density Test Locations

Permeability Test Locations

346 Test#

Figure 6: Clay Anchor and Upstream Clay Barrier

Density and Permeability Test Locations



NOTE: ST-1 location not shown. Located on Clay Blanket in NW corner at connection to Pond 2.

Legend:

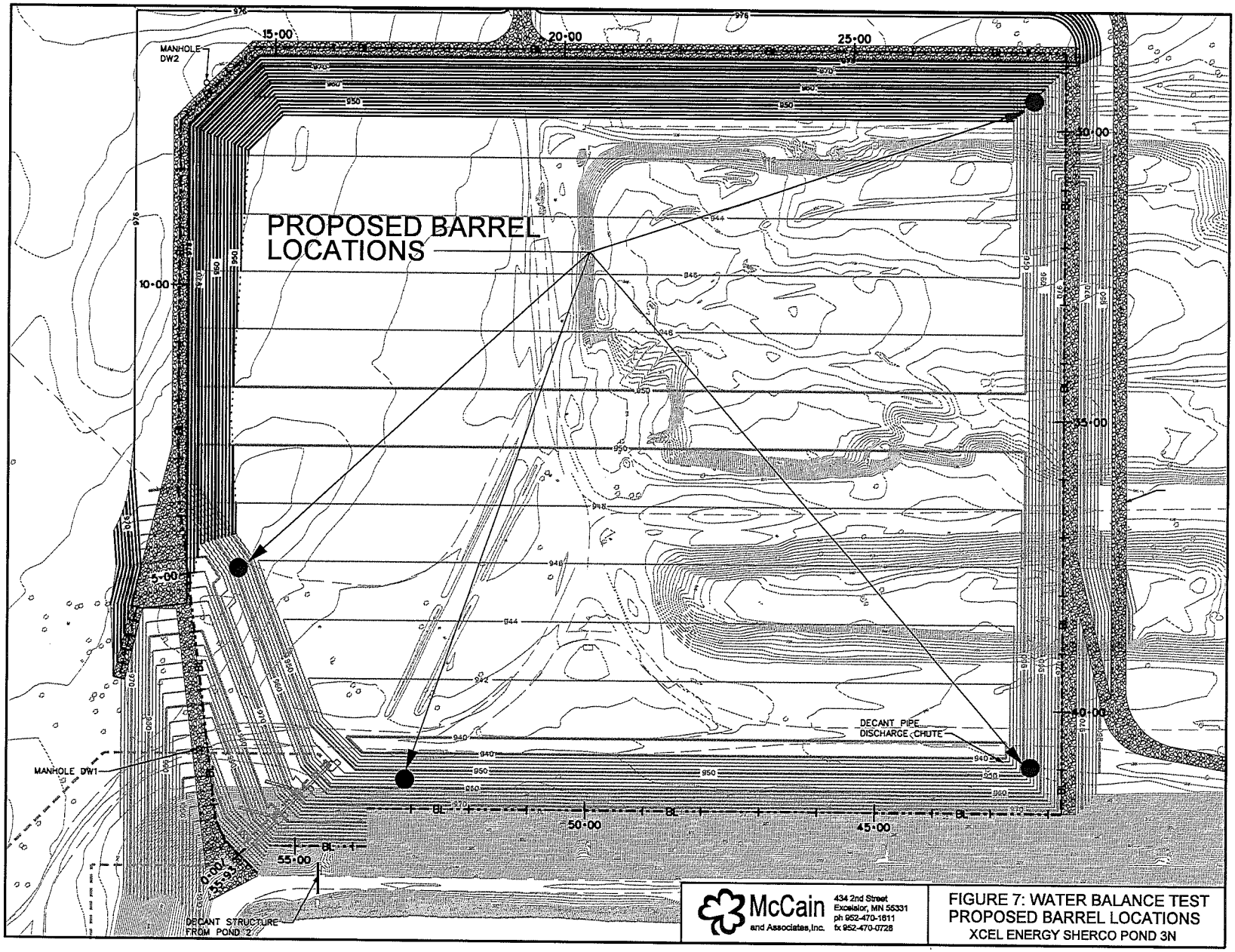
Density Test Locations

Permeability Test Locations

346 Test#

Figure 6: Clay Anchor and Upstream Clay Barrier Density and Permeability Test Locations

P:\Projects\XCEL\SHC0306\Cert Report\Figure6.xls



McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

FIGURE 7: WATER BALANCE TEST
PROPOSED BARREL LOCATIONS
XCEL ENERGY SHERCO POND 3N

p:\projects\xcel\shd\50\cert reporting\.dgn
24 NOV 104

Appendix A

Construction Photos

Photo 1: Mass Excavation of Pond 3N looking North from Southwest Corner.

Photo 2: Mass Excavation of Pond 3N looking Southwest from Northeast Corner.

Photo 3: Braun Technician Recording Nuclear Gauge In-Place Density Test.

Photo 4: Scraper Placing Random Fill on East Embankment, looking Northwest.









Photo 5: Pipe Crew Constructing Clean-out Pipe for Dewatering Manhole DW-1.

Photo 6: Ames Earthwork Crew Backfilling around MH DW-1 and Open Trench for 24" Discharge Pipe, looking South.

Photo 7: Construction of North Road, Mostly from Salvaged Class 5 before Mass Excavation, looking West.

Photo 8: On-site Sand being Screened and Stockpiled for use as Drainage Layer.









Photo 9: Native Clay being Excavated from Southwest Corner of Pond Footprint, looking North.

Photo 10: Native Clay being Compacted by Vibratory Sheep-foot Roller into Bottom Portion of Clay Anchor at East End of North Embankment, looking East. Note: Dewatering Manhole #2 in Background.

Photo 11: Holker-Pit Clay being Hauled and Spread onto Bench on West Slope at Elevation 990 +/-, looking North. Note: Pond 2 Dewatering Wellhead in Foreground.

Photo 12: Clay Blanket Connection to Pond 2 as Constructed in Northwest Corner, looking West.









Photo 13: Clay Anchor at Northeast Corner being Constructed, looking Northwest. Note: Dewatering Manhole #2 in Background.

Photo 14: Clay Anchor at Northwest Corner being Constructed, looking Southwest.

Photo 15: Clay being Ripped by Dozer Claw in Northeast Corner of Clay Anchor after the Discovery that Previous Lift was not Scarified.

Photo 16: Anchor Trench being Excavated through North Embankment Clay Anchor, looking East.









Photo 17: 2ft x 2ft Anchor Trench on North Embankment with Geosynthetic Clay Liner Placed Inside, looking West.

Photo 18: Anchor Trench Backfill being Compacted on North Embankment after Geomembrane has been Installed, looking West.

Photo 19: "EZ-Roller" on CAT Challenger Body being used to Deploy GCL on East Embankment Slope near Northeast Corner, looking Northwest.

Photo 20: Looking West from Northeast Corner during Liner Installation.









Photo 21: Supplemental Bentonite being used at GCL End Panel Overlaps. Pre-Cut Groove on Under-Side of Bentomat ST and DN.

Photo 22: GSI Deploying Claymax 200R onto Pond Floor in Northeast Quadrant. Laborers Cleaning Under-Side Surface of Geomembrane that was Deployed the Night Before.

Photo 23: Non-Destructive Testing of Hot-Wedge Welded Seam included 30 psi Air Pressure Test on Every Seam.

Photo 24: Extrusion Welding Seam at Geomembrane Panel Junction.


07.26.2004






07.02.2004

Photo 25: Bentomat ST being Deployed by CAT Challenger on Pond Floor.

Photo 26: Peel Test being Performed on Geomembrane Trial Weld Samples. Digital Tensiometer Built inside Unit.

Photo 27: 8-in Dewatering Pipe Penetration into Pond. 8-in HDPE SDR-17 Pipe Pre-Welded onto 4 ft x 8 ft HDPE Flat Stock.

Photo 28: Stainless Steel Bands being Installed onto Neoprene Gaskets over End of Geomembrane Boot around Pipe Penetration into Pond.









Photo 29: First Location of Granular Material being Placed onto the Geomembrane in NE Corner in Early Morning, looking Northwest.

Photo 30: Granular Drainage Material being Placed onto Liner. 8 ft Thick Haul Road being Constructed Down the NE Slope, looking West.

Photo 31: Bentomat ST being Deployed at Northwest Corner of Pond Floor. Looking West at Geomembrane as Constructed on NW Corner Slopes.

Photo 32: Haul Road being Constructed on Geomembrane along Rub-Sheet for Dewatering Pipe Header at East Toe, looking West.




07 20 2004





Photo 33: Weir Panel As Constructed on South Embankment.

Photo 34: Looking Northwest from Middle of East Embankment during Cover Soils Installation.

Photo 35: Aggregate Filter being Constructed around 8-in Dewatering Pipe along East Toe, looking North. Coarse and Fine Aggregates can be seen.

Photo 36: Looking South from Northwest Embankment during Geomembrane and Cover Soils Installation.


07.24.2004






07.26.2004

Photo 37: Upstream Clay Barrier being Constructed against Pond Inside (right) Random Fill Embankment at 1.5H:1V. Random Fill Outside of Upstream Clay Barrier being Placed as the Clay Rises.

Photo 38: Coarse Aggregate Filter being Constructed around 8-in Dewatering Pipe Lateral in Middle of East Half of Pond. East Toe Header and Middle Lateral Junction Cross can be seen.

Photo 39: Upstream Clay Barrier being Constructed along East Embankment, looking North.

Photo 40: Random Fill Upstream Barrier being Graded and Compacted on East Embankment. Dewatering Pipe Clean-outs can be seen as well as Top of Clay Anchor (right).


08.06.2004


08.05.2004


07.08.2004


07.23.2004

Photo 41: Manhole Liner Welding Crew Entering Manhole DW-2.

Photo 42: Technician Extrusion Welding Patch onto Studliner on Manhole Wall.

Photo 43: Subgrade being Prepared for Discharge Structures.

Photo 44: Forms being Constructed for Discharge Structure Footing.




07.29.2004




08.11.2004

Photo 45: Concrete being Placed into Forms for Discharge Structure Footings.

Photo 46: Forms being Constructed for Discharge Structure Walls.

Photo 47: Rip-Rap being Placed onto Northwest Slopes over Geotextile looking West.

Photo 48: Rip-Rap being Placed onto West Slope, looking Southwest.


08.13.2004


09.16.2004


08.30.2004


09.20.2004

Photo 49: 24-in Discharge Pipe Extending Down Northwest Slope from Discharge Structures, looking Northwest.

Photo 50: 24-in Discharge Pipe from Structure #1 to Pond Penetration, looking South.

Photo 51: Trench for 24-in Discharge Pipe North of Pond 3N.

Photo 52: Valve at 24-in Header Discharge Junction North of Pond 3N.




09. 16. 2004




09. 14. 2004

Photo 51: Topsoil being Placed onto South Embankment, looking Northeast.

Photo 52: Seeded Erosion Control Blanket over Topsoil on Exterior Slope of Northwest Corner, looking Southwest.

Photo 53: East Side of Seeded and Mulched North Visual Screening Berm, looking North. Note: Fence right.

Photo 54: Discharge Structures #1-3 (from bottom to top) on Northwest Slope, looking Northeast. Note: Rip-Rap Construction not Complete yet.






10.11.2004


10.11.2004

Appendix B

Random Fill Standard Proctor Test Reports

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-1

Project No.: SC-04-03359 **Date:** 4/1/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 2 & 3

Elev./Depth: **Sample No.** P-1

Remarks:

MATERIAL DESCRIPTION

Description: SP - Poorly Graded Sand, fine grained, with a trace of Gravel, brown

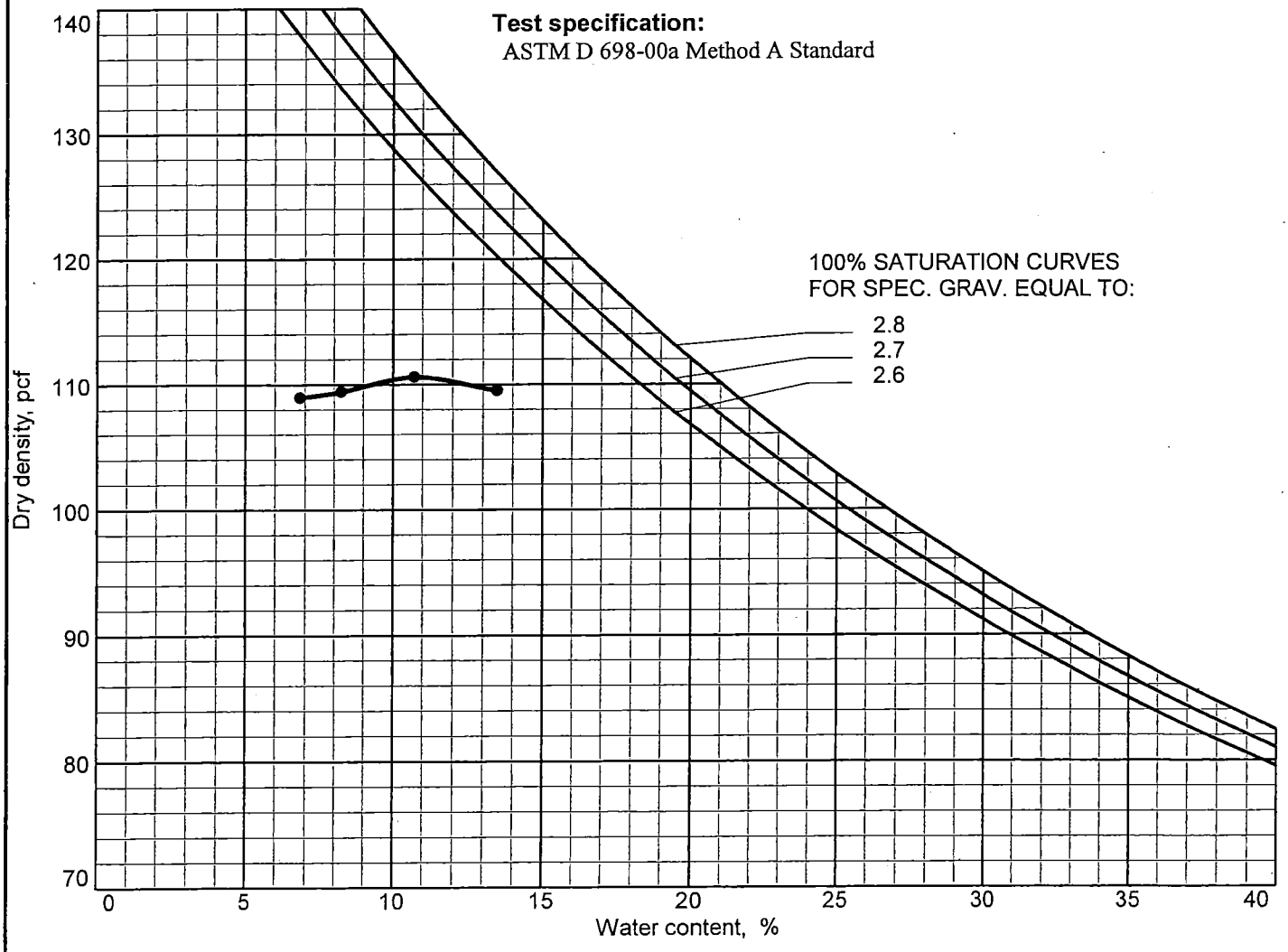
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 3.8 % **Sp.G. =**

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > No.4 = 3.2 % **% < No.200 =** 2.4 %

TEST RESULTS
Maximum dry density = 110.6 pcf
Optimum moisture = 10.8 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-2

Project No.: SC-04-03359 **Date:** 4/1/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 7 & 8

Elev./Depth: **Sample No.** P-2

Remarks:

MATERIAL DESCRIPTION

Description: SP - Poorly Graded Sand, fine-to medium-grained, with GRAVEL, brown

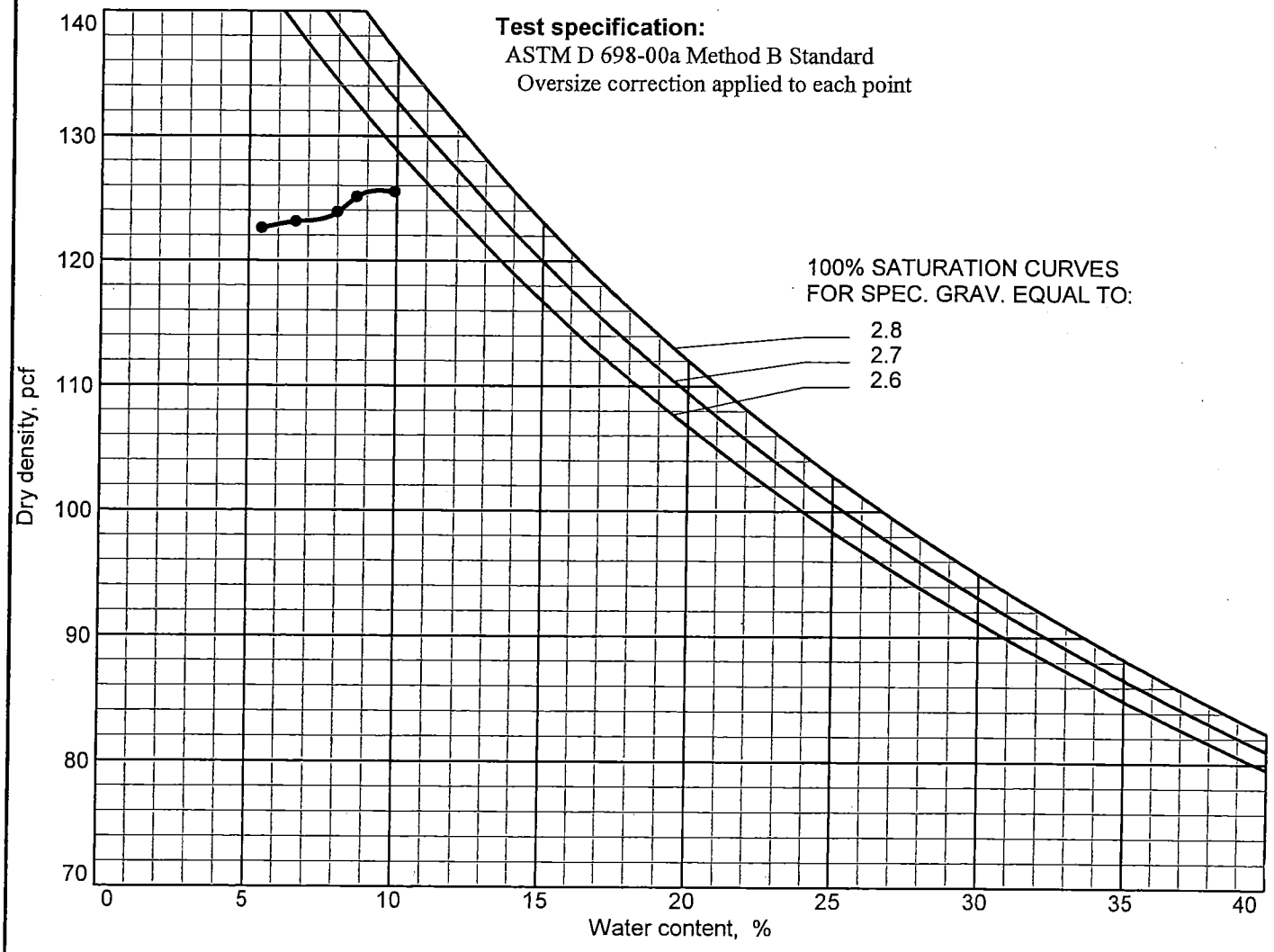
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 5.5 % **Sp.G. =** 2.650

Liquid Limit = Not Applicabe **Plasticity Index =** Not Applicabe

% > No.4 = 29.4 % **% < No.200 =** 1.9 %

TEST RESULTS
Maximum dry density = 125.6 pcf
Optimum moisture = 9.4 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-3

Project No.: SC-04-03359 **Date:** 4/5/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 9 & 10

Elev./Depth: 965 **Sample No.** P-3

Remarks:

MATERIAL DESCRIPTION

Description: SP - Poorly Graded Sand, fine-to medium-grained, with little Gravel, brown

Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 10.2 %

Liquid Limit = Not Tested

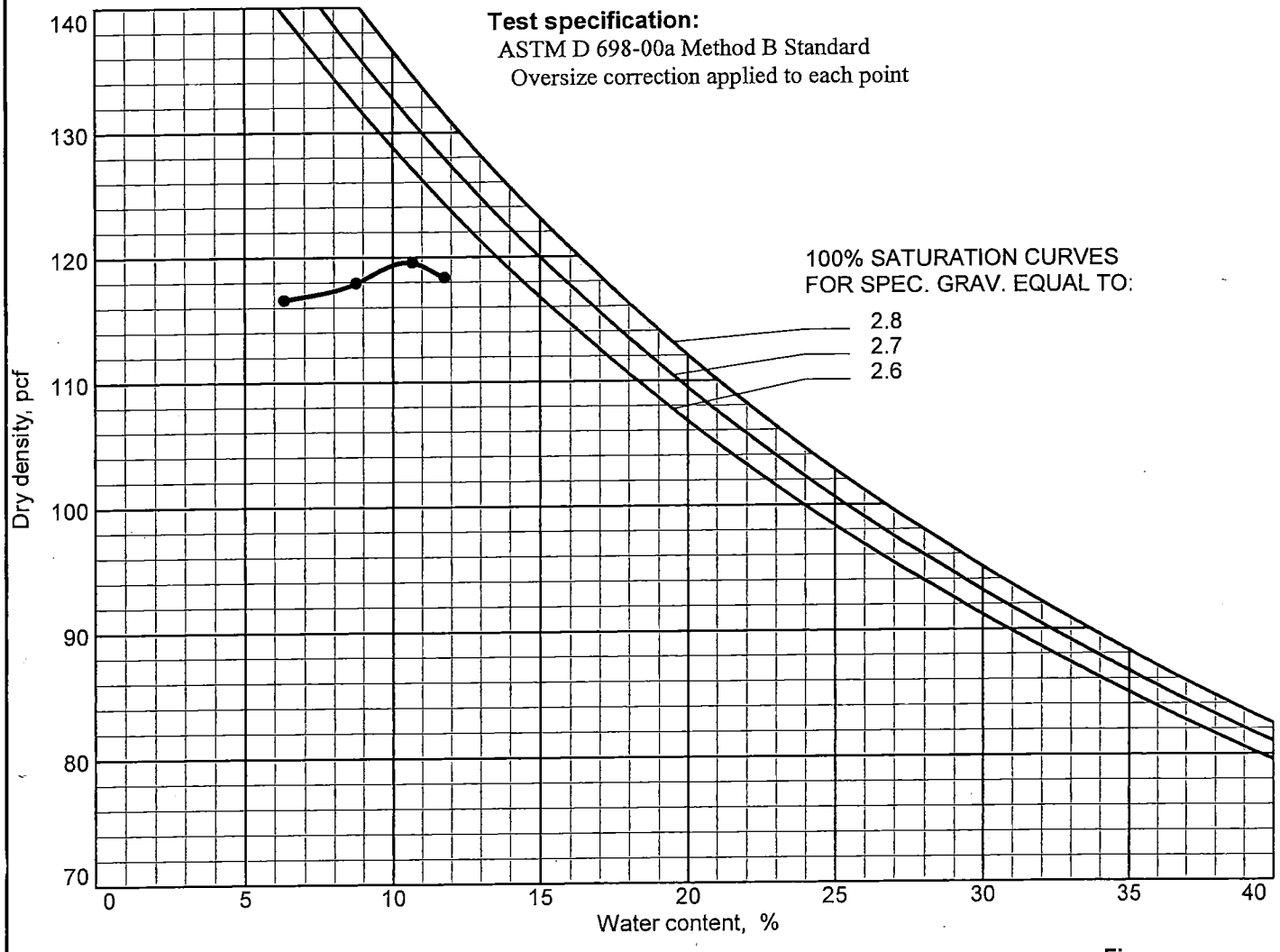
% > No.4 = 10.2 %

Sp.G. = 2.650

Plasticity Index = Not Tested

% < No.200 = 3.6 %

TEST RESULTS
Maximum dry density = 119.6 pcf
Optimum moisture = 10.5 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-4

Project No.: SC-04-03359 **Date:** 4/5/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 11 & 12

Elev./Depth: 966 **Sample No.** P-4

Remarks:

MATERIAL DESCRIPTION

Description: SP - Poorly Graded Sand, fine-to medium-grained, with little Gravel, brown

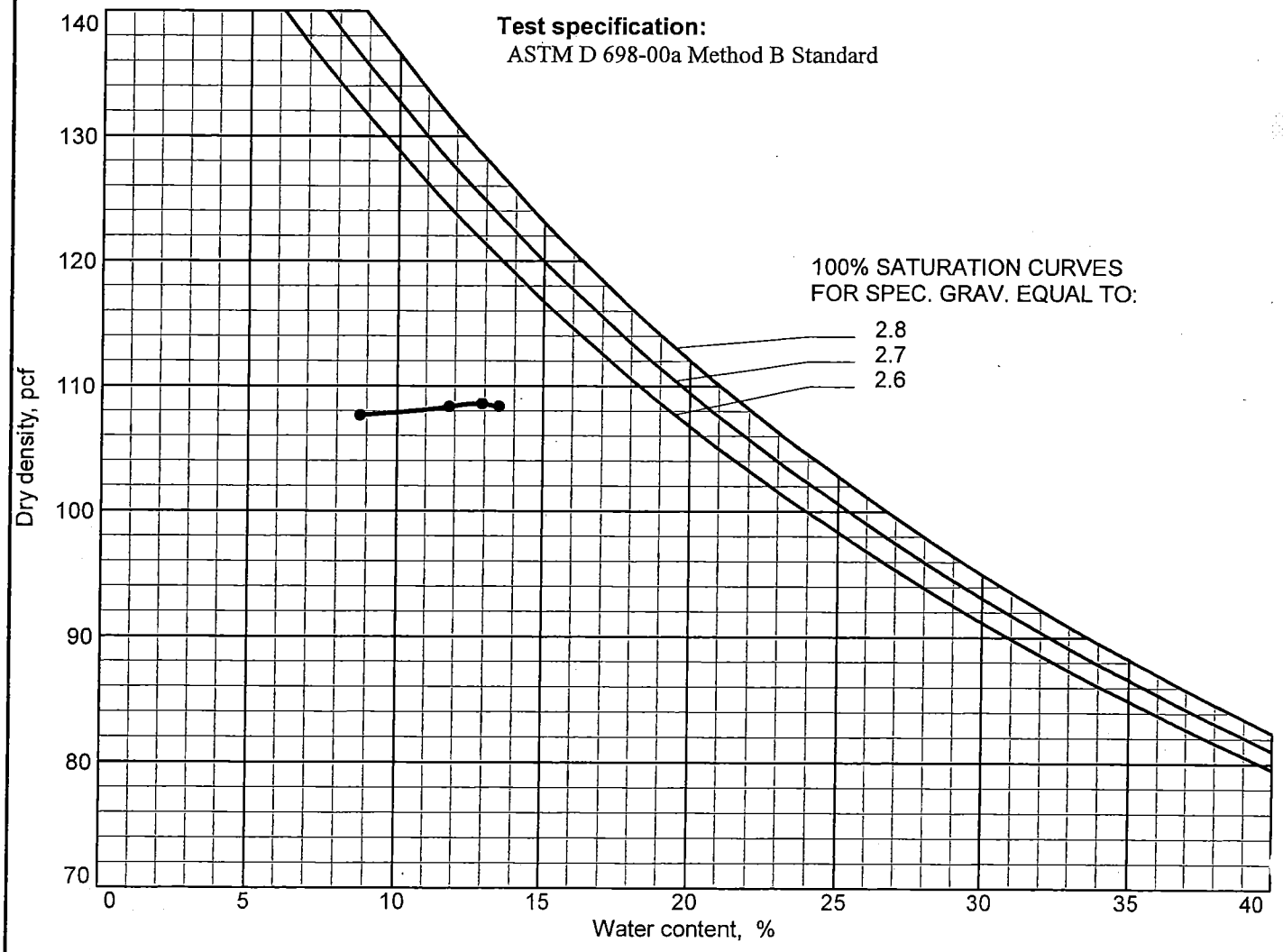
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 9.4 % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > No.4 = 5.6 % **% < No.200 =** 2.2 %

TEST RESULTS
Maximum dry density = 108.6 pcf
Optimum moisture = 12.7 %



Figure

Braun Intertec

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-5

Project No.: SC-04-03359 **Date:**

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 28

Elev./Depth: 976 1/2 **Sample No.** P-5

Remarks:

MATERIAL DESCRIPTION

Description: SP - Poorly Graded Sand, fine grained, with a trace of Gravel, brown

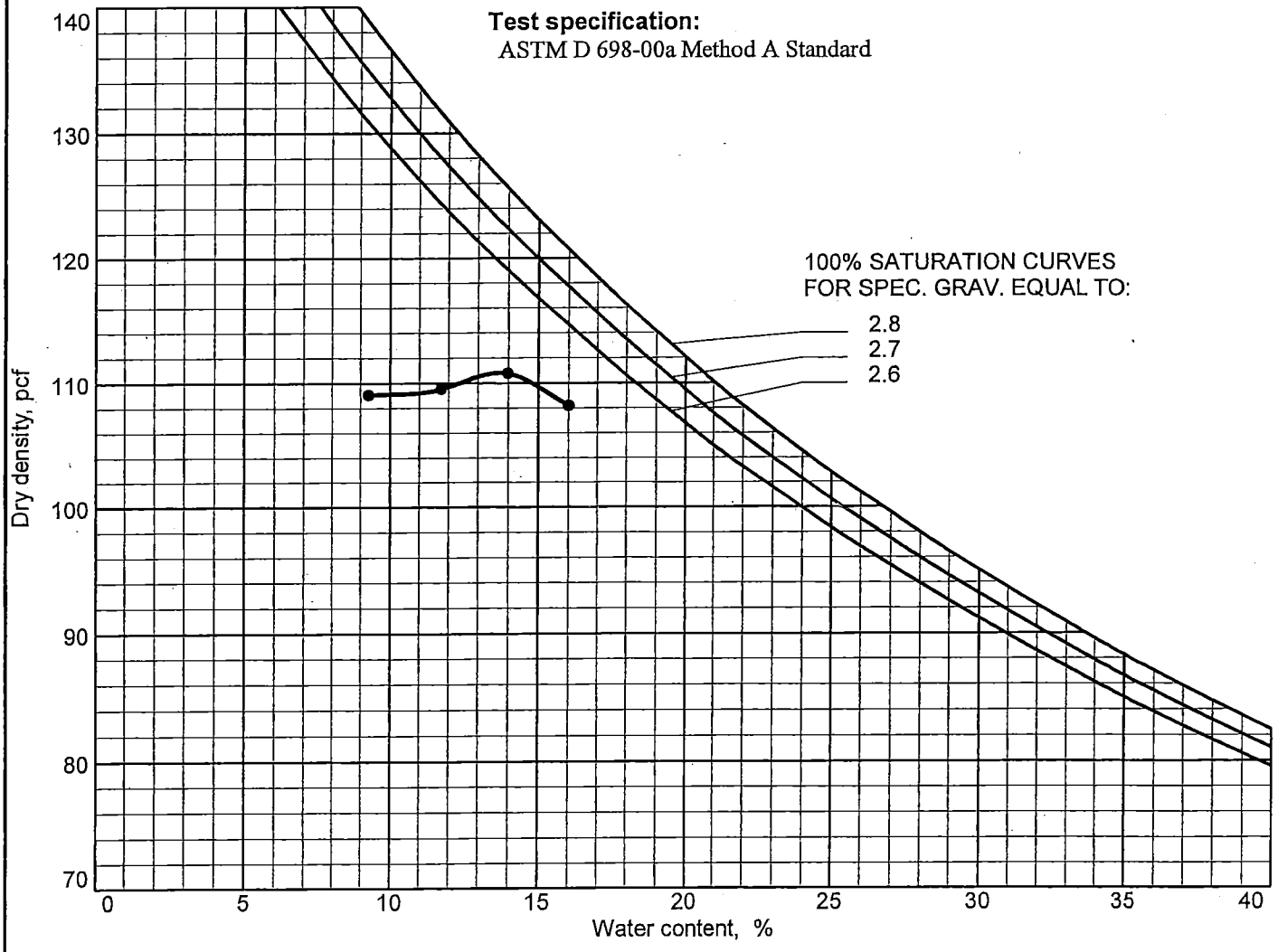
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 7.7 % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > No.4 = 3.1 % **% < No.200 =** 4.1 %

TEST RESULTS
Maximum dry density = 110.8 pcf
Optimum moisture = 13.7 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-7

Project No.: SC-04-03359 **Date:** 4/16/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF - 87

Elev./Depth: 2 1/2' below FG **Sample No.** P-7

Remarks:

MATERIAL DESCRIPTION

Description: SM - Silty Sand, fine-to medium-graned, with silt and GRAVEL, brown

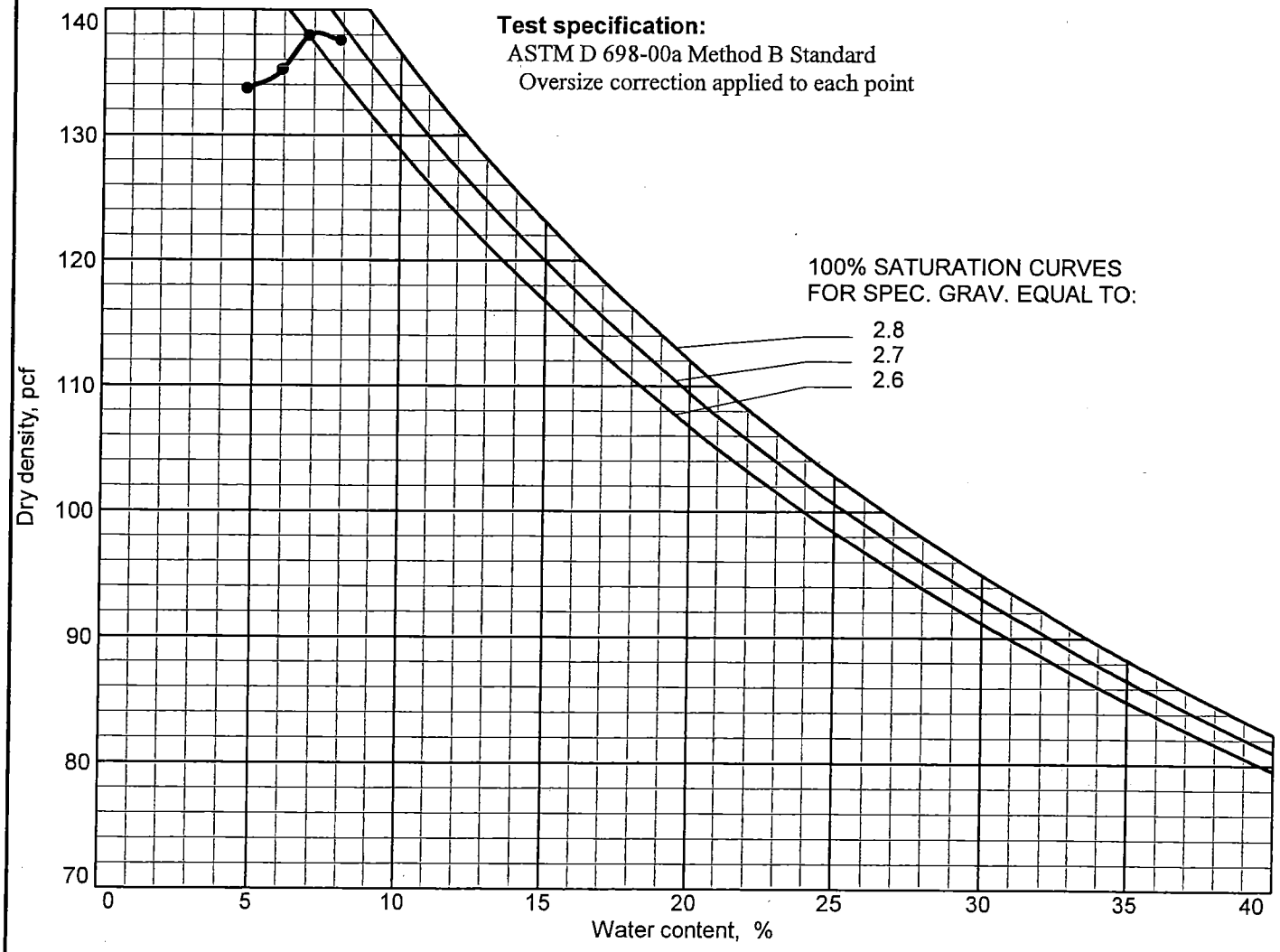
Classifications - **USCS:** SM **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > No.4 = 23.1 % **% < No.200 =** 15.9 %

TEST RESULTS
Maximum dry density = 138.2 pcf
Optimum moisture = 7.1 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-8

Project No.: SC-04-03359 **Date:** 4-23-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: RF-140 East Embankment Sta 19+25 60' East of Baseline

Elev./Depth: N/A **Sample No.** P-8

Remarks:

MATERIAL DESCRIPTION

Description: SP-SM - POORLY GRADED SAND, fine-to medium-grained, with silt and a trace of Gravel, brown

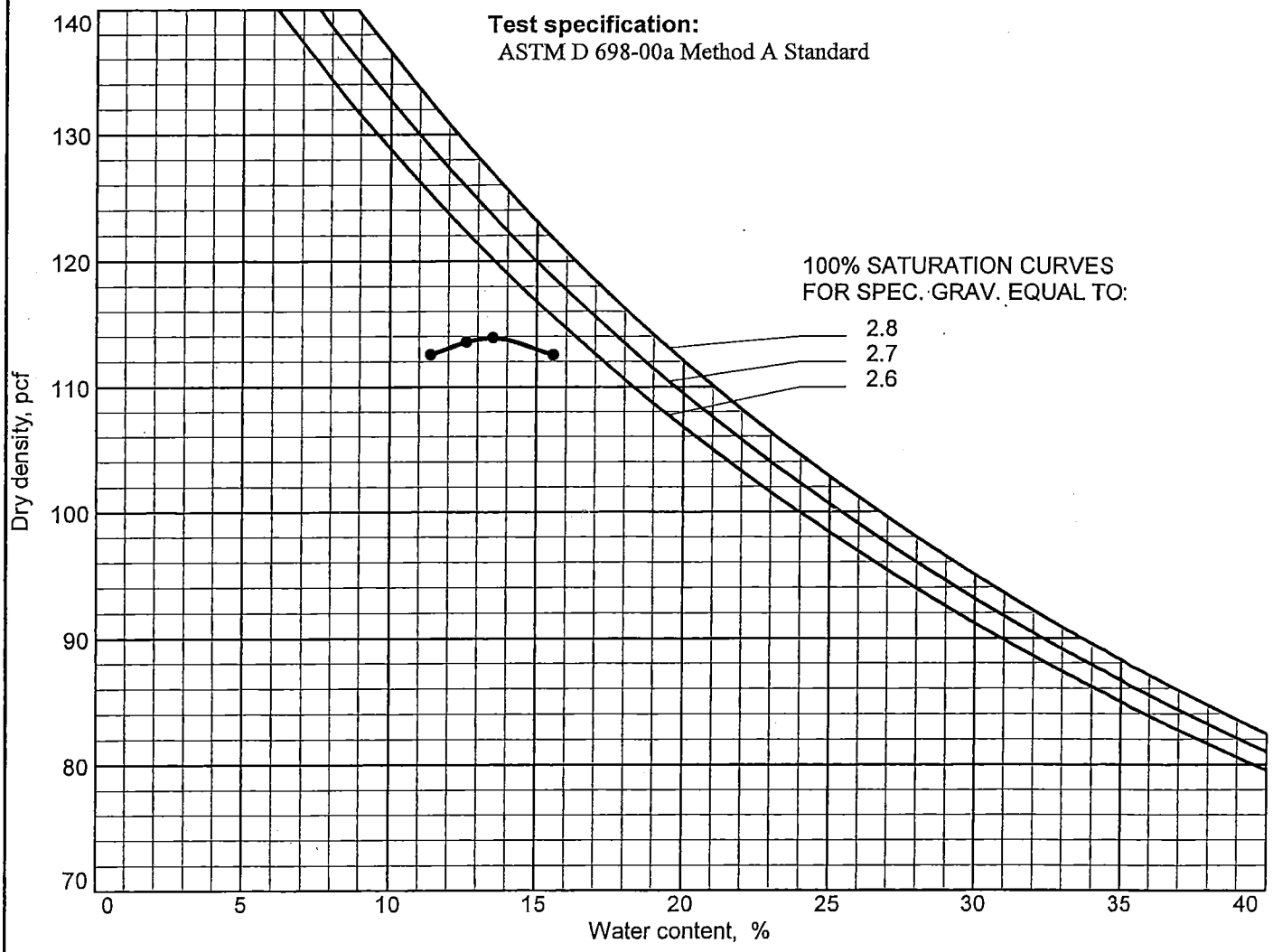
Classifications - **USCS:** SP-SM **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.650

Liquid Limit = N/A **Plasticity Index =** N/A

% > No.4 = 2.7 % **% < No.200 =** 5.0 %

TEST RESULTS
Maximum dry density = 113.9 pcf
Optimum moisture = 13.5 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-12

Project No.: SC-04-03359 **Date:** 5-17-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: GDM Stockpile

Elev./Depth: **Sample No.** P-12

Remarks:

MATERIAL DESCRIPTION

Description: SP - POORLY GRADED SAND, fine-to-medium-grained, with trace Gravel, brown

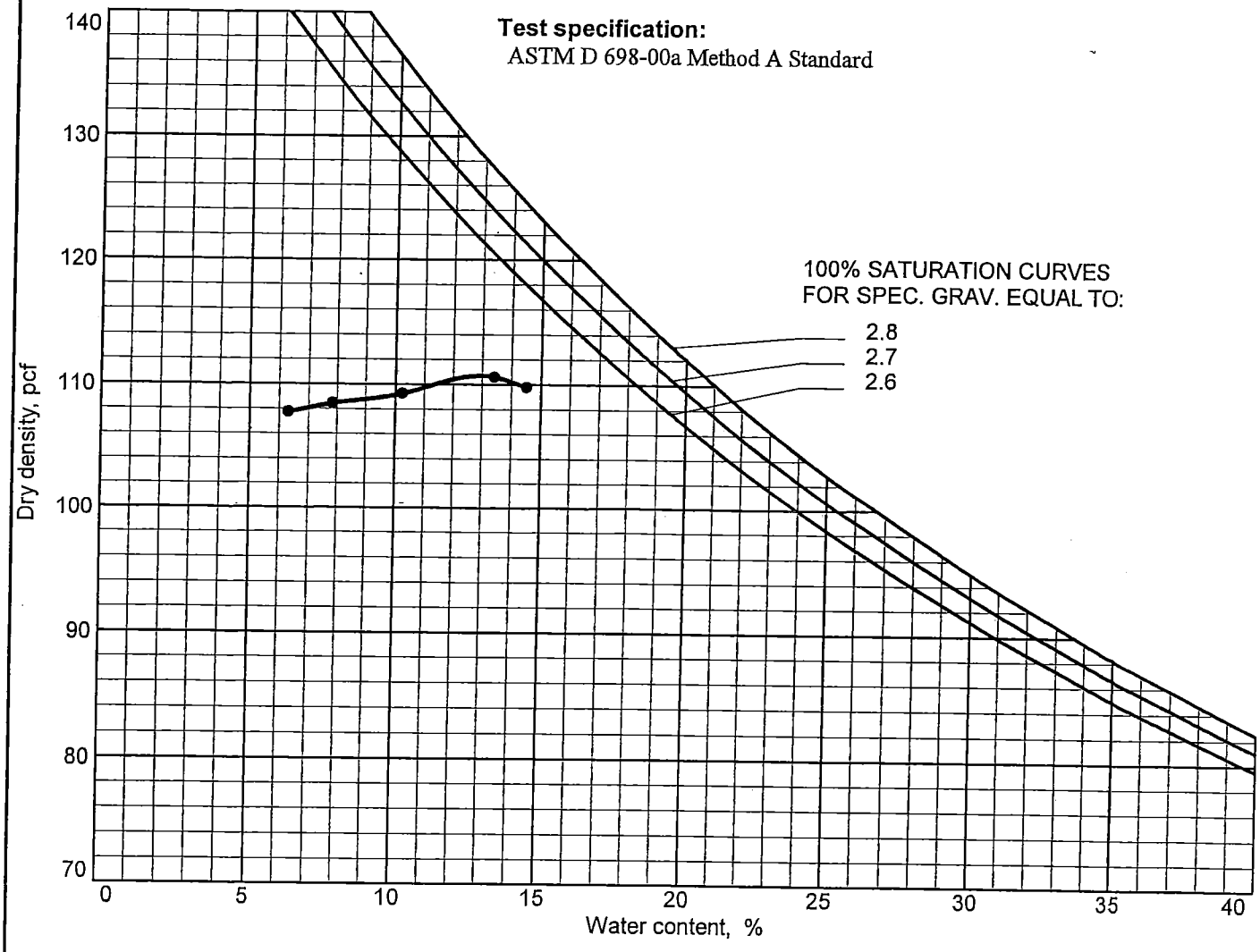
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = NOT TESTED % **Sp.G. =** 2.65

Liquid Limit = N/A **Plasticity Index =** N/A

% > No.4 = 3.2 % **% < No.200 =** 2.7 %

TEST RESULTS
Maximum dry density = 110.7 pcf
Optimum moisture = 12.9 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-13

Project No.: SC-04-03359 **Date:** 6-30-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: Coordinates from GPS Northing 864814; Easting 2031439

Elev./Depth: **Sample No.** P-13

Remarks:

MATERIAL DESCRIPTION

Description: SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, brown

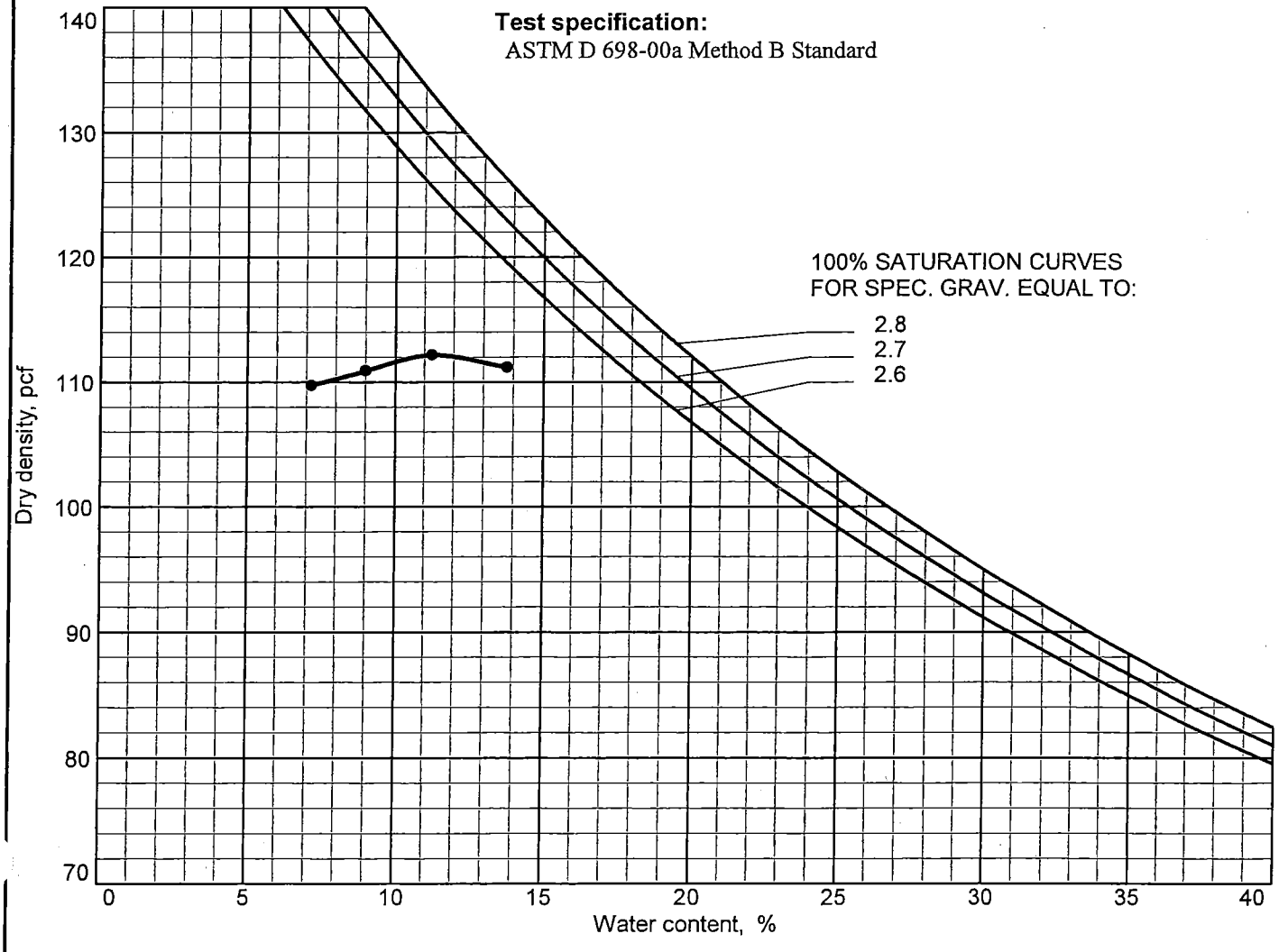
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = 4.2 % **Sp.G. =** 2.650

Liquid Limit = N/A **Plasticity Index =** N/A

% > 3/8 in. = 1.1 % **% < No.200 =** 5.9 %

TEST RESULTS
Maximum dry density = 112.2 pcf
Optimum moisture = 11.4 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-14

Project No.: SC-04-03359 **Date:** 4/20/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: Granular Drainage Sand, Stockpile

Elev./Depth: **Sample No.** P-14

Remarks:

MATERIAL DESCRIPTION

Description: SP - POORLY GRADED SAND, fine-to medium-grained, with a little Gravel, brown

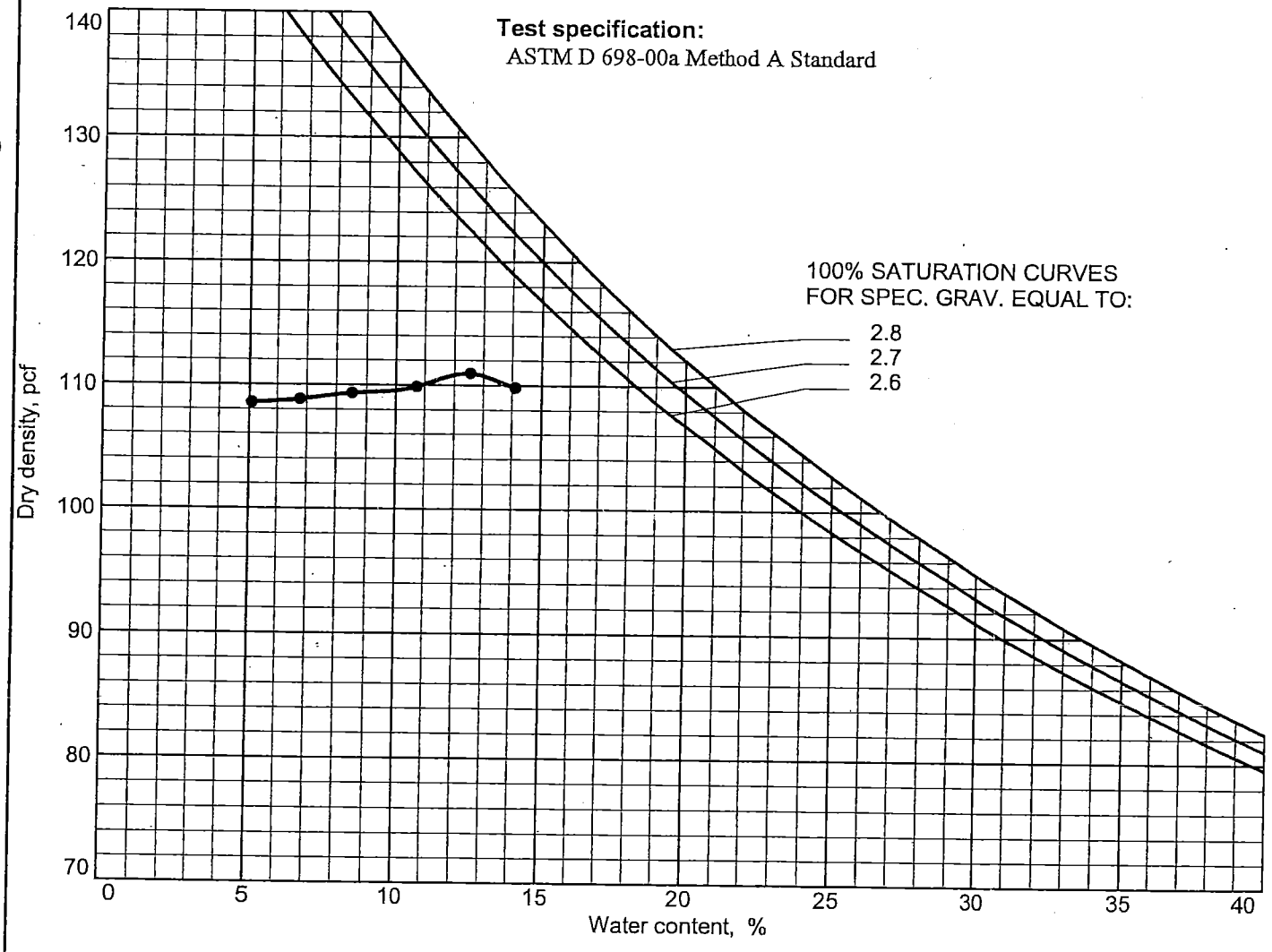
Classifications - **USCS:** SP **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.65

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > No.4 = 4.6 % **% < No.200 =** N/A %

TEST RESULTS
Maximum dry density = 110.9 pcf
Optimum moisture = 12.5 %



Figure

Random Fill Density Test Reports

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 1

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-1	4/1/04	N	P-1: SP	10.8	110.6	8	110	99	95	A
RF-2	4/1/04	N	P-1: SP	10.8	110.6	6	106	96	95	A
RF-3	4/1/04	N	P-1: SP	10.8	110.6	5	110	99	95	A
RF-4	4/1/04	N	P-1: SP	10.8	110.6	6	108	98	95	A
RF-5	4/1/04	N	P-1: SP	10.8	110.6	4	103	93	95	B
RF-6	4/1/04	N	P-2: SP	9.4	125.6	6	122	97	95	A
RF-7	4/1/04	N	P-2: SP	9.4	125.6	5	114	90	95	B

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-1	NE Berm: 865720N, 2033034E, 48" below finished grade (Random Fill)	
RF-2	NE Berm: 865645N, 2033044E, 50" below finished grade (Random Fill)	
RF-3	NE Berm: 865320N, 2033021E, 75" below finished grade (Random Fill)	
RF-4	NE Berm: 865484N, 2033011E, 12" below finished grade (Random Fill)	
RF-5	NE Berm: 865874N, 2033047E, 16" below finished grade (Random Fill)	
RF-6	NE Berm: 866330N, 2033044E, 32" below finished grade (Random Fill)	
RF-7	NE Berm: 866593N, 2033076E, 95" below finished grade (Random Fill)	

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 2

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-8	4/1/04	N	P-2: (SP)	9.4	125.6	6	116	93	95	B

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-8	NE Berm: 866881N, 2033070E, 57" below finished grade (Random Fill)	

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 3

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-9	4/5/04	N	P-3: SP	10.5	119.6	15	117	98	95	A
RF-10	4/5/04	N	P-3: SP	10.5	119.6	10	118	99	95	A
RF-11	4/5/04	N	P-4: SP	12.7	108.6	12	105	97	96	A
RF-12	4/5/04	N	P-4: SP	12.7	108.6	12	109	100	95	A
RF-13	4/5/04	N	P-3: SP	10.5	119.6	10	120	100	95	A
RF-14	4/5/04	N	P-3: SP	10.5	119.6	12	121	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-9	Station 4+00, 75'N of baseline (Random Fill)	962 1/2
RF-10	Station 6+70, 70'N of baseline (Random Fill)	965
RF-11	Station 16+70, 70'E of baseline (Random Fill)	963
RF-12	Station 14+30, 60'E of baseline (Random Fill)	961
RF-13	Station 10+80, 72'N of baseline (Random Fill)	966
RF-14	Station 8+40, 85'N of baseline (Random Fill)	966 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 4

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-15	4/6/04	N	P-3: SP	10.5	119.6	8	114	95	95	A
RF-16	4/6/04	N	P-3: SP	10.5	119.6	13	114	95	95	A
RF-17	4/6/04	N	P-3: SP	10.5	119.6	10	116	97	95	A
RF-18	4/6/04	N	P-3: SP	10.5	119.6	14	117	98	95	A
RF-19	4/6/04	N	P-3: SP	10.5	119.6	11	116	97	95	A
RF-20	4/6/04	N	P-3: SP	10.5	119.6	8	121	101	95	A
RF-21	4/6/04	N	P-1: SP	10.8	110.6	7	109	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-15	Station 3+12, 40'N of baseline (Random Fill)	964
RF-16	Station 5+47, 90'N of baseline (Random Fill)	969
RF-17	Station 8+00, 90'N of baseline (Random Fill)	969
RF-18	Station 9+00, 75'N of baseline (Random Fill)	970
RF-19	Station 11+73, 60'N of baseline (Random Fill)	966
RF-20	Station 13+00, 50'E of baseline (Random Fill)	963 1/2
RF-21	Station 15+10, 8'E of baseline (Random Fill)	964 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 5

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-22	4/6/04	N	P-1: SP	10.8	110.6	13	108	98	95	A
RF-23	4/6/04	N	P-3: SP	10.5	119.6	8	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-22	Station 17+65, 64'E of baseline (Random Fill)	967
RF-23	Station 18+70, 90'E of baseline (Random Fill)	964 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 7

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-24	4/7/04	N	P-3: SP	10.5	119.6	9	114	95	95	A
RF-25	4/7/04	N	P-3: SP	10.5	119.6	9	119	99	95	A
RF-26	4/7/04	N	P-3: SP	10.5	119.6	7	116	97	95	A
RF-27	4/7/04	N	P-2: SP	9.4	125.6	8	124	99	95	A
RF-28	4/7/04	N	P-5: SP	13.7	110.8	17	109	98	95	A
RF-29	4/7/04	N	P-3: SP	10.5	119.6	9	119	99	95	A
RF-30	4/7/04	N	P-3: SP	10.5	119.6	12	118	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-24	Station 2+85, 8'N of baseline (Random Fill)	964 1/2
RF-25	Station 3+35, 50'S of baseline (Random Fill)	963 1/2
RF-26	Station 4+30, 85'N of baseline (Random Fill)	968 1/2
RF-27	Station 6+75, 85'N of baseline (Random Fill)	974
RF-28	Station 7+40, 80'N of baseline (Random Fill)	976 1/2
RF-29	Station 10+60, 73'N of baseline (Random Fill)	970 1/2
RF-30	Station 13+00, 65'NE of baseline (Random Fill)	967 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 8, 2004 **Project:** SC-04-03359 **Report:** 6

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-31	4/7/04	N	P-3: SP	10.5	119.6	12	117	98	95	A
RF-32	4/7/04	N	P-3: SP	10.5	119.6	8	117	98	95	A
RF-33	4/7/04	N	P-3: SP	10.5	119.6	10	117	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-31	Station 14+40, 60'E of baseline (Random Fill)	965 1/2
RF-32	Station 17+00, 65'E of baseline (Random Fill)	970
RF-33	Station 17+60, 60'E of baseline (Random Fill)	971 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 8, 2004

Project: SC-04-03359

Report: 8

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-34	4/7/04	N	P-3: SP	10.5	119.6	11	116	97	95	A
RF-35	4/7/04	N	P-1: SP	10.8	110.6	7	109	99	95	A
RF-36	4/7/04	N	P-3: SP	10.5	119.6	6	119	99	95	A
RF-37	4/7/04	N	P-3: SP	10.5	119.6	4	118	99	95	A
RF-38	4/7/04	N	P-1: SP	10.8	110.6	10	113	102	95	A
RF-39	4/7/04	N	P-3: SP	10.5	119.6	10	114	95	95	A
RF-40	4/7/04	N	P-3: SP	10.5	119.6	10	115	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-34	Station 4+25, 30'S of baseline (Random Fill)	967 1/2
RF-35	Station 3+00, 6'S of baseline (Random Fill)	966
RF-36	Station 5+00, 45'N of baseline (Random Fill)	972
RF-37	Station 7+00, 50'N of baseline (Random Fill)	970
RF-38	Station 9+40, 35'N of baseline (Random Fill)	964 1/2
RF-39	Station 12+15, 30'N of baseine (Random Fill)	966
RF-40	Station 16+00, 40'E of baseline (Random Fill)	963

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: May 4, 2004 **Project:** SC-04-03359 **Report:** 9

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-41	4/7/04	N	P-1: SP	10.8	110.6	7	109	99	95	A
RF-42	4/7/04	N	P-1: SP	10.8	110.6	9	113	102	95	A
RF-43	4/7/04	N	P-5: SP	13.7	110.8	14	112	101	95	A
RF-44	4/7/04	N	P-5: SP	13.7	110.8	9	111	100	95	A
RF-45	4/7/04	N	P-3: SP	10.5	119.6	7	114	95	95	A
RF-46	4/7/04	N	P-5: SP	13.7	110.8	11	109	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-41	Station 14+65, 25'E of baseline (Random Fill)	964 1/2
RF-42	Station 15+30, 50'E of baseline (Random Fill)	969
RF-43	Station 16+40, 60'E of baseline (Random Fill)	972 1/2
RF-44	Station 16+10, 90'E of baseline (Random Fill)	973 1/2
RF-45	Station 14+75, 80'E of baseline (Random Fill)	975
RF-46	Station 17+30, 95'E of baseline (Random Fill)	976

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: April 12, 2004

Project: SC-04-03359

Report: 10

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-47	4/9/04	N	P-3: SP	10.5	119.6	7	119	99	95	A
RF-48	4/9/04	N	P-3: SP	10.5	119.6	7	116	97	95	A
RF-49	4/9/04	N	P-3: SP	10.5	119.6	8	118	99	95	A
RF-50	4/9/04	N	P-3: SP	10.5	119.6	6	116	97	95	A
RF-51	4/9/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
RF-52	4/9/04	N	P-3: SP	10.5	119.6	11	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-47	Station 2+75, 75'N of baseline (Random Fill)	969 1/2
RF-48	Station 4+00, 50'N of baseline (Random Fill)	974 1/2
RF-49	Station 4+10, 70'N of baseline (Random Fill)	976 1/2
RF-50	Station 13+00, 80'N of baseline (Random Fill)	970 1/2
RF-51	Station 13+65, 75'NE of baseline (Random Fill)	975 1/2
RF-52	Station 16+30, 25'E of baseline (Random Fill)	976

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 20, 2004 **Project:** SC-04-03359 **Report:** 11

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-53	4/12/04	N	P-3: SP	10.5	119.6	7	114	95	95	A
RF-54	4/12/04	N	P-3: SP	10.5	119.6	9	115	96	95	A
RF-55	4/12/04	N	P-3: SP	10.5	119.6	6	115	96	95	A
RF-56	4/12/04	N	P-3: SP	10.5	119.6	6	119	100	95	A
RF-57	4/12/04	N	P-3: SP	10.5	119.6	8	114	96	95	A
RF-58	4/12/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
RF-59	4/12/04	N	P-3: SP	10.5	119.6	7	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-53	Random Fill: Station 20+50, 85'E of baseline	963 1/2
RF-54	Random Fill: Station 21+50, 80'E of baseline	966
RF-55	Random Fill: Station 22+80, 70'E of baseline	963 1/2
RF-56	Random Fill: Station 28+00, 75'E of baseline	962 1/2
RF-57	Random Fill: Station 27+10, 55'E of baseline	964
RF-58	Random Fill: Station 26+40, 75'E of baseline	963 1/2
RF-59	Random Fill: Station 34+70, 80'S of baseline	952 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 20, 2004

Project: SC-04-03359

Report: 12

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-60	4/12/04	N	P-3: SP	10.5	119.6	13	113	95	95	A
RF-60R	4/12/04	N	P-3: SP	10.5	119.6	15	112	93	95	B
RF-61	4/12/04	N	P-3: SP	10.5	119.6	10	114	95	95	A
RF-62	4/12/04	N	P-3: SP	10.5	119.6	6	119	99	95	A
RF-63	4/12/04	N	P-3: SP	10.5	119.6	8	116	97	95	A
RF-8R	4/12/04	N	P-3: SP	10.5	119.6	6	115	96	95	A
RF-7R	4/12/04	N	P-3: SP	10.5	119.6	6	114	96	95	A

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* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-60	Random Fill: 864388N and 2033017E, S berm, 9' below footing	
RF-60R	Random Fill: 864391N and 2033017E, S berm, 9' below footing	
RF-61	Random Fill: 863833N and 2032978E, S berm, 9' below footing	
RF-62	Random Fill: 867105N and 2033073E, N berm, 5' below footing	
RF-63	Random Fill: 867236 and 2033067E, N berm, 9' below footing	
RF-8R	Retest of #8	
RF-7R	Retest of #7	

Elevation Reference:

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Report of Field Compaction Tests

Date: April 21, 2004 **Project:** SC-04-03359 **Report:** 13

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-5R	4/12/04	N	P-3: SP	10.5	119.6	8	117	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-5R	Retest of #5	

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 21, 2004

Project: SC-04-03359

Report: 14

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-64	4/14/04	N	P-3: SP	10.5	119.6	7	117	98	95	A
RF-65	4/14/04	N	P-3: SP	10.5	119.6	11	116	97	95	A
RF-66	4/14/04	N	P-1: SP	10.8	110.6	7	110	99	95	A
RF-67	4/14/04	N	P-1: SP	10.8	110.6	9	107	97	95	A
RF-60RR	4/14/04	N	P-3: SP	10.5	119.6	12	115	96	95	A
RF-68	4/14/04	N	P-3: SP	10.5	119.6	6	120	100	95	A
RF-69	4/14/04	N	P-5: SP	13.7	110.8	14	109	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-64	North Screening Berm: 865510N, 2033047E, 1/2' below footing	
RF-65	North Screening Berm: 866215N, 2033053E, 1/2' below footing	
RF-66	North Screening Berm: 867180N, 2033070E, 1/2' below footing	
RF-67	South Screening Berm: 864345N, 2032988E, 7 1/2' below footing	
RF-60RR	South Screening Berm: 864335N, 2033017E, 9' below footing	
RF-68	South Screening Berm: 863361N, 2033011E, 7' below footing	
RF-69	South Embankment: Station 32+00, 30'S at baseline (Random Fill)	954 1/2

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Report of Field Compaction Tests

Date: April 21, 2004 **Project:** SC-04-03359 **Report:** 15

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-70	4/13/04	N	P-5: SP	13.7	110.8	13	112	101	95	A
RF-71	4/13/04	N	P-3: SP	10.5	119.5	6	114	95	95	A
RF-72	4/13/04	N	P-5: SP	13.7	110.8	12	110	99	95	A
RF-73	4/13/04	N	P-5: SP	13.7	110.8	14	107	97	95	A
RF-74	4/13/04	N	P-1: SP	10.8	110.6	6	111	100	95	A
RF-75	4/13/04	N	P-4: SP	13.7	110.8	9	99	89	95	B

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SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-70	South Embankment: Station 33+90, 55'S of baseline (Random Fill)	957
RF-71	South Embankment: Station 35+00, 15'N of baseline (Random Fill)	957 1/2
RF-72	South Embankment: Station 38+50, 15'S of baseline (Random Fill)	951 1/2
RF-73	South Embankment: Station 38+30, 15'S of baseline (Random Fill)	962 1/2
RF-74	North Embankment: Station 3+00, 30'S of baseline (Random Fill)	982
RF-75	North Embankment: Station 3+00, 55'S of baseline (Random Fill)	973

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 16

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-76	4/14/04	N	P-1: SP	10.8	110.6	8	109	99	95	A
RF-77	4/14/04	N	P-5: SP	13.7	110.8	14	107	97	95	A
RF-78	4/14/04	N	P-5: SP	13.7	110.8	9	109	98	95	A
RF-79	4/14/04	N	P-5: SP	13.7	110.8	13	112	101	95	A
RF-80	4/14/04	N	P-3: SP	10.5	119.6	11	119	99	95	A
RF-81	4/14/04	N	P-5: SP	13.7	110.8	12	101	91	95	B
RF-82	4/14/04	N	P-3: SP	10.5	119.6	8	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-76	South Screening Berm: N864129, E2033011, 8 1/2' below footing	
RF-77	South Screening Berm: N862790, E2033004, 9' below footing	
RF-78	South Embankment: Station 31+00, 30'N of baseline	961 1/2
RF-79	South Embankment: Station 34+60, 2'N of baseline	962 1/2
RF-80	South Embankment: Station 32+95, 30'S of baseline	957 1/2
RF-81	North Embankment: Station 3+00, 55'S of baseline	971
RF-82	North Embankment: Station 4+00, 55'S of baseline	972

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004

Project: SC-04-03359

Report: 17

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-83	4/14/04	N	P-4: SP	13.7	110.8	13	109	98	95	A
RF-84	4/14/04	N	P-3: SP	10.5	119.6	8	119	99	95	A
RF-85	4/14/04	N	P-3: SP	10.5	119.6	8	115	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-83	South Screening Berm: N863994, E2032981, 6' below footing	
RF-84	South Screening Berm: N863561, E2032988, 2 1/2' below footing	
RF-85	South Screening Berm: N862492, E2033001, 5 1/2' below footing	

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 18

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
C5-1	4/15/04	N	P-6: C5	10.2	125.9	10	125	99	95	A
RF-86	4/15/04	N	P-5: SP	13.7	110.8	11	104	94	95	B
RF-87	4/15/04	N	P-7: SM	7.1	138.2	11	126	91	95	B
RF-88	4/15/04	N	P-2: SP	10.2	125.9	11	126	100	95	A
RF-89	4/15/04	N	P-2: SP	10.2	125.9	9	127	101	95	A
RF-90	4/15/04	N	P-5: SP	13.7	110.8	11	112	101	95	A
RF-91	4/15/04	N	P-3: SP	10.5	119.6	12	119	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
C5-1	MH-DW1	936
RF-86	South Berm: N864312, E2032998, 2 1/2' below footing (Random Fill)	
RF-87	South Berm: N863272, E2033004, 1 1/2' below footing (Random Fill)	
RF-88	South Berm: N862964, E2032935, 2 1/2' below footing (Random Fill)	
RF-89	South Berm: N862682, E2032991, 2' below footing (Random Fill)	
RF-90	South Embankment: Station 30+15, 25'S of baseline	962
RF-91	South Embankment: Station 29+00, 5'S of baseline	967

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 19

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-92	4/15/04	N	P-3: SP	10.5	119.6	7	116	97	95	A
RF-93	4/15/04	N	P-3: SP	10.5	119.6	10	119	99	95	A
RF-94	4/15/04	N	P-5: SP	13.7	110.8	12	104	94	95	B
RF-95	4/15/04	N	P-3: SP	10.5	119.6	12	118	99	95	A
RF-96	4/15/04	N	P-3: SP	10.5	119.6	12	118	99	95	A
RF-97	4/15/04	N	P-5: SP	13.7	110.8	9	112	101	95	A
RF-98	4/15/04	N	P-3: SP	10.5	119.6	9	117	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-92	South Embankment: Station 31+20, 10'S of baseline	966
RF-93	South Embankment: Station 32+30, 25'S of baseline	963 1/2
RF-94	South Embankment: Station 33+55, 45'S of baseline	967
RF-95	South Embankment: Station 35+00, 25'S of baseline	964 1/2
RF-96	South Embankment: Station 35+75, 30'S of baseline	964
RF-97	South Embankment: Station 39+10, 15'S of baseline	955
RF-98	South Embankment: Station 39+75, 10'S of baseline	965

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004

Project: SC-04-03359

Report: 20

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-99	4/15/04	N	P-5: SP	13.7	110.8	9	111	100	95	A
RF-100	4/15/04	N	P-5: SP	13.7	110.8	8	99	90	95	B

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-99	South Embankment: Station 38+00, 30'S of baseline	950 1/2
RF-100	Northwest Embankment: Station 2+90, 50'S of baseline	972

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 21

Client:
Steve Bluhm, PE
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-101	4/16/04	N	P-3: SP	10.5	119.6	9	119	99	95	A
RF-102	4/16/04	N	P-1: SP	10.8	110.6	8	112	101	95	A
RF-103	4/16/04	N	P-2: SP	9.4	125.6	5	121	96	95	A
RF-104	4/16/04	N	P-2: SP	9.4	125.6	7	120	96	95	A
RF-105	4/16/04	N	P-3: SP	10.5	119.6	11	119	99	95	A
RF-106	4/16/04	N	P-3: SP	10.5	119.6	12	117	98	95	A
RF-107	4/16/04	N	P-1: SP	10.8	110.6	7	112	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
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A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-101	South Embankment: Station 37+85, 90'S of baseline (Random Fill)	955
RF-102	South Embankment: Station 38+40, 100'S of baseline (Random Fill)	954
RF-103	South Embankment: Station 37+00, 15'N of baseline (Random Fill)	960
RF-104	South Embankment: Station 38+50, 15'S of baseline (Random Fill)	970
RF-105	South Embankment: Station 38+45, 15'S of baseline (Random Fill)	964 1/2
RF-106	South Embankment: Station 39+00, on baseline (Random Fill)	966
RF-107	South Embankment: Station 40+20, on baseline (Random Fill)	966

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Thomas Henkemeyer
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Report of Field Compaction Tests

Date: April 22, 2004

Project: SC-04-03359

Report: 22

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-108	4/16/04	N	P-3: SP	10.5	119.6	6	117	98	95	A
RF-109	4/16/04	N	P-3: SP	10.5	119.6	9	118	99	95	A
RF-110	4/16/04	N	P-3: SP	10.5	119.6	8	114	95	95	A
RF-111	4/16/04	N	P-3: SP	10.5	119.6	5	115	96	95	A
RF-112	4/16/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
C5-2	4/16/04	N	P-6: Class 5	10.2	125.9	7	122	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-108	South Embankment: Station 35+00, 5'S of baseline (Random Fill)	969
RF-109	South Embankment: Station 33+80, 22'S of baseline (Random Fill)	971 1/2
RF-110	South Embankment: Station 32+20, 6'S of baseline (Random Fill)	971
RF-111	South Embankment: Station 31+00, 18'S of baseline (Random Fill)	967 1/2
RF-112	South Embankment: Station 29+40, 25'S of baseline (Random Fill)	967
C5-2	Bottom of MH-DW2 (Class 5)	936

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 23

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-113	4/19/04	N	P-3: SP	10.5	119.6	9	120	100	95	A
RF-114	4/19/04	N	P-3: SP	10.5	119.6	11	118	99	95	A
RF-115	4/19/04	N	P-3: SP	10.5	119.6	8	115	96	95	A
RF-116	4/19/04	N	P-1: SP	10.8	110.6	7	112	101	95	A
RF-117	4/19/04	N	P-3: SP	10.5	119.6	8	114	95	95	A
RF-118	4/19/04	N	P-5: SP	10.8	110.6	10	107	97	95	A
RF-119	4/19/04	N	P-5: SP	10.8	110.6	8	108	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-113	East Embankment: Station 19+90, 50'E of baseline (Random Fill)	966 1/2
RF-114	East Embankment: Station 20+60, 40'E of baseline (Random Fill)	969 1/2
RF-115	East Embankment: Station 21+20, 70'E of baseline (Random Fill)	973
RF-116	East Embankment: Station 21+60, 55'E of baseline (Random Fill)	971 1/2
RF-117	East Embankment: Station 22+35, 70'E of baseline (Random Fill)	974
RF-118	East Embankment: Station 23+76, 60'E of baseline (Random Fill)	969 1/2
RF-119	East Embankment: Station 26+00, 60'E of baseline (Random Fill)	969 1/2

Elevation Reference:

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 24

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-120	4/19/04	N	P-3: SP	10.5	119.6	7	116	97	95	A
RF-121	4/19/04	N	P-1: SP	10.8	110.6	7	113	102	95	A
RF-122	4/19/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
RF-123	4/19/04	N	P-5: SP	13.7	110.8	13	111	100	95	A
RF-124	4/19/04	N	P-3: SP	10.5	119.6	10	120	100	95	A
RF-125	4/19/04	N	P-3: SP	10.5	119.6	7	118	99	95	A
RF-126	4/19/04	N	P-3: SP	10.5	119.6	5	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-120	East Embankment: Station 26+40, 30'E of baseline (Random Fill)	963 1/2
RF-121	East Embankment: Station 27+30, 35'E of baseline (Random Fill)	964
RF-122	East Embankment: Station 28+20, 50'E of baseline (Random Fill)	970
RF-123	South Embankment: Station 29+15, 20'S of baseline (Random Fill)	968 1/2
RF-124	South Embankment: Station 32+50, 5'S of baseline (Random Fill)	971 1/2
RF-125	South Embankment: Station 35+50, 15'S of baseline (Random Fill)	972
RF-126	20'N of MH-DW1, Station 2+06, of baseline (Random Fill)	957

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 25

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-127	4/20/04	N	P-1: SP	10.8	110.6	7	112	101	95	A
RF-128	4/20/04	N	P-2: SP	9.4	125.6	10	126	100	95	A
RF-129	4/20/04	N	P-2: SP	9.4	125.6	7	127	101	95	A
RF-130	4/20/04	N	P-3: SP	10.5	119.6	8	120	100	95	A
RF-131	4/20/04	N	P-3: SP	10.5	119.6	9	119	100	95	A
RF-132	4/20/04	N	P-1: SP	10.8	110.6	6	111	101	95	A
RF-133	4/20/04	N	P-1: SP	10.8	110.6	11	113	102	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-127	South Berm at footing N864519, E2033004 (Random Fill)	FG
RF-128	South Berm at footing N863318, E2032998 (Random Fill)	FG
RF-129	South Berm at footing N862587, E2032988 (Random Fill)	FG
RF-130	South Embankment: Station 38+00, 30'S of baseline (Random Fill)	972
RF-131	South Embankment: Station 36+75, 15'S of baseline (Random Fill)	972
RF-132	South Embankment: Station 40+25, 2'S of baseline (Random Fill)	968
RF-133	NW Embankment: Station 2+00, 20'N of MH-DW1 (Random Fill)	955

Elevation Reference: FG=Finished Grade

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Report of Field Compaction Tests

Date: April 22, 2004

Project: SC-04-03359

Report: 26

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-134	4/21/04	N	P-3: SP	10.5	119.6	9	118	99	95	A
RF-135	4/21/04	N	P-3: SP	10.5	119.6	9	116	97	95	A
RF-136	4/21/04	N	P-1: SP	10.8	110.6	6	106	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-134	Station 14+10, 8'NE of MH-DW2 (Random Fill)	954
RF-135	Station 2+25, 60'N of MH-DW1 (Random Fill)	972
RF-136	Station 1+90, 55'S of MH-DW1 (Random Fill)	962 1/2

Elevation Reference:

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Report of Field Compaction Tests

Date: April 26, 2004 **Project:** SC-04-03359 **Report:** 27

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-137	4/22/04	N	P-1: SP	10.8	110.6	6	111	100	95	A
RF-138	4/22/04	N	P-3: SP	10.5	119.6	6	120	100	95	A
RF-139	4/22/04	N	P-1: SP	10.8	110.6	9	106	96	95	A
RF-140	4/22/04	N	P-8: SP-SM	13.5	113.7	9	112	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-137	Northwest embankment: Station 0+75, 100'N of baseline	973.5
RF-138	Northwest embankment: Station 2+00, 33'N of MH-DW1	976
RF-139	Northwest embankment: Station 2+00, 100'S of baseline	965
RF-140	East embankment: Station 19+25, 60'E of baseline	969

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Report of Field Compaction Tests

Date: April 26, 2004 **Project:** SC-04-03359 **Report:** 28

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-141	4/23/04	N	P-3: SP	10.5	119.6	7	120	100	95	A
RF-142	4/23/04	N	P-3: SP	10.5	119.6	4	117	98	95	A
RF-143	4/23/04	N	P-3: SP	10.5	119.6	10	115	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-141	East embankment: Station 19+00, 50'E of baseline (roadway fill)	974.5
RF-142	East embankment: Station 0+00, 100'N of baseline (roadway fill)	985
RF-143	East embankment: Station 1+20, 100'S of baseline (roadway fill)	963.5

Elevation Reference:

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Report of Field Compaction Tests

Date: April 28, 2004 **Project:** SC-04-03359 **Report:** 29

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-144	4/26/04	N	P-3: SP	10.5	119.6	9	117	98	95	A
RF-145	4/26/04	N	P-1: SP	10.8	110.6	7	113	102	95	A
RF-146	4/26/04	N	P-3: SP	10.5	119.6	5	117	98	95	A
RF-147	4/26/04	N	P-3: SP	10.5	119.6	8	115	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-144	NW Embankment: Station 2+02, 10'S of baseline	982 1/2
RF-145	NW Embankment: Station 1+10, 6'N of baseline	984
RF-146	East Access Embankment Ramp: 135'E of baseline on centerline	969 1/2
RF-147	SE Quadrant (Bottom of Pond) N864296 E2031393	947 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 28, 2004

Project: SC-04-03359

Report: 30

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-148	4/27/04	N	P-5: SP	13.7	110.8	6	113	102	95	A
100A	4/27/04	N	P-4: SP	12.7	108.6	9	107	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-148	Northwest Embankment: Station 1+25, 60'N of baseline	990
100A	Retest of #RF-100	971 1/2

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

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Report of Field Compaction Tests

Date: April 30, 2004

Project: SC-04-03359

Report: 31

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-149	4/28/04	N	P-5: SP	13.7	110.8	11	116	103	95	10:45

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-149	Northwest embankment: Station 0+85, 60'N of baseline	998

Elevation Reference:

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Report of Field Compaction Tests

Date: May 3, 2004

Project: SC-04-03359

Report: 32

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-150	4/30/04	N	P-3: SP	10.5	119.6	8	120	100	95	A
RF-151	4/30/04	N	P-2: SP	9.4	125.6	4	131	100	95	A
RF-152	4/30/04	N	P-2: SP	9.4	125.6	7	124	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-150	Northwest embankment: Station 1+00, 8'S of baseline	993.5
RF-151	Northwest embankment: Station 0+10, 90'N of baseline	1006
RF-152	South embankment: Station 41+13, 24'S of baseline	972

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
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Report of Field Compaction Tests

Date: May 4, 2004 **Project:** SC-04-03359 **Report:** 33

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-87R	5/4/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
153	5/4/04	N	P-3: SP	9.4	125.6	4	119	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-87R	South Screeing berm, 863220N 2032984E 1 1/2 ft below fg 50'S 20'W of 87	
153	NE Quad, Pond bottom 864952N 2031446E (in area or quad or pond bottom over excavation)	950

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 38

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-171	5/12/04	N	P-11: Clay	21.9	97.1	22	94	97	95	A
CL-172	5/12/04	N	P-11: Clay	21.9	97.1	23	97	100	95	A
CL-173	5/12/04	N	P-11: Clay	21.9	97.1	23	97	100	95	A
RF-174	5/12/04	N	P-3: SP	10.5	119.6	4	116	97	95	A
CL-175	5/12/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
RF-176	5/12/04	N	P-3: SP	10.5	119.6	6	117	98	95	A
RF-177	5/12/04	N	P-3: SP	10.5	119.6	10	117	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-171	North embankment: 10'S of basline, Station 10+00	957
CL-172	North embankment: 10'S of baseline, Station 3+25	983
CL-173	North embankment: 10'S of baseline, Station 9+15	957
RF-174	North Road: 35'N of baseline, Station 4+00	990
CL-175	North embankment: 5'S of baseline, Station 5+00	969
RF-176	North Road: 50'N of baseline, Station 3+00	992
RF-177	North Road: 50'N of baseline, Station 2+00	994

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Thomas Henkemeyer
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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 41

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-192	5/14/04	N	P-11: Clay	21.9	97.1	26	92	95	95	A
RF-193	5/14/04	N	P-3: SP	10.5	119.6	10	125	105	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-192	East embankment: Station 19+00	958 1/2
RF-193	Roadway: 40'N of Station 5+00	980

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: May 18, 2004 **Project:** SC-04-03359 **Report:** 43

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-198	5/18/04	N	P-3: SP	10.5	119.6	10	114	95	95	A
CL-199	5/18/04	N	P-11: CL	21.9	97.1	24	94	97	95	A
CL-200	5/18/04	N	P-11: CL	21.9	97.1	25	93	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-198	North embankment: Station 0+40, 0' from baseline	1005
CL-199	North embankment: Station 0+40, 0' from baseline	1008
CL-200	North embankment: Station 0+50, 10'E of baseline	1010

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: May 20, 2004 **Project:** SC-04-03359 **Report:** 46

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-213	5/20/04	N	P-11: Clay	21.9	97.1	25	94	97	95	A
RF-214	5/21/04	N	P-1: SP	10.8	110.6	8	109	99	95	A
RF-215	5/21/04	N	P-1: SP	10.8	110.6	7	109	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-213	East embankment: Station 28+00	960
RF-214	East embankment: Station 25+00	955
RF-215	East embankment: Station 24+00	960

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: May 24, 2004 **Project:** SC-04-03359 **Report:** 47

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-216	5/24/04	N	P-2: SP	10.8	125.6	9	125	100	95	A
RF-217	5/24/04	N	P-2: SP	10.8	125.6	8	121	96	95	A
RF-218	5/24/04	N	P-2: SP	10.8	125.6	10	120	96	95	A
RF-219	5/24/04	N	P-2: SP	10.8	125.6	7	122	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-216	East embankment: Station 24+60, 10' East of baseline	960
RF-217	East embankment: Station 24+10, 10'East of baseline	959 1/2
RF-218	East embankment: Station 24+52, 5' East of baseline	962
RF-219	East embankment: Station 24+15, 12' East of baseline	962 1/2

Elevation Reference:

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Report of Field Compaction Tests

Date: June 30, 2004 **Project:** SC-04-03359 **Report:** 50

Client:
Steve Bluhm, PE
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
228	6/30/04	N	P-3 (SP)	10.5	119.6	8	120	100	95	A
229	6/30/04	N	P-3 (SP)	10.5	119.6	8	115	96	95	A
230	6/30/04	N	P-3 (SP)	10.5	119.6	9	114	95	95	A
231	6/30/04	N	P-3 (SP)	10.5	119.6	9	120	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
228	Upstream barrier embankment, Sta. 8+25m 60'S of baseline	957
229	Upstream barrier embankment, Sta. 9+85, 62'S of baseline	955
230	Upstream barrier embankment, Sta. 11+95, 75'S of baseline	949
231	Upstream barrier embankment, Sta. 15+60, 95'W of baseline	945

Elevation Reference:

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Report of Field Compaction Tests

Date: July 7, 2004

Project: SC-04-03359

Report: 51

Client:
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-232	7/6/04	N	P-3: SP	10.5	119.6	3	120	100	95	A
RF-233	7/6/04	N	P-3: SP	10.5	119.6	3	120	100	95	A
RF-234	7/6/04	N	P-3: SP	10.5	119.6	3	116	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-232	Upstream barrier embankment: Station 9+00, 72'S of baseline	952
RF-233	Upstream barrier embankment: Station 10+70, 55'S of baseline	953 1/2
RF-234	Upstream barrier embankment: Station 13+25, 83'SW of baseline	951

Elevation Reference:

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Report of Field Compaction Tests

Date: July 14, 2004 **Project:** SC-04-03359 **Report:** 47

Client:
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
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13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-235	7/13/04	N	P-3 (SP)	10.5	119.6	7	119	99	95	A
RF-236	7/13/04	N	P-3 (SP)	10.5	119.6	7	118	99	95	A
RF-237	7/13/04	N	P-12 (SP)	12.9	110.7	11	107	97	95	A
RF-238	7/13/04	N	P-12 (SP)	12.9	110.7	7	109	98	95	A

Key: N = Nuclear, ASTM D 2922
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A = Test results comply with specifications.
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Test	Test Location	Elevation
RF-235	Upstream barrier embankment, Sta. 12+10, 30'S of baseline	957 1/2
RF-236	Upstream barrier embankment, Sta. 14+00, 33'SW of baseline	956 1/2
RF-237	Upstream barrier embankment, Sta. 13+25, 15'SW of baseline	959
RF-238	Upstream barrier embankment, Sta. 10+00, 12'S of baseline	961

Elevation Reference:

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Report of Field Compaction Tests

Date: July 14, 2004 **Project:** SC-04-03359 **Report:** 47

Client:
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Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-239	7/14/04	N	P-3 (SP)	10.5	119.6	8	120	100	95	A
RF-240	7/14/04	N	P-3 (SP)	10.5	119.6	7	121	101	95	A
RF-241	7/14/04	N	P-3 (SP)	10.5	119.6	5	114	95	95	A

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C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-239	Upstream barrier embankment, Sta. 16+70, 50'W of baseline	953
RF-240	Upstream barrier embankment, Sta. 19+20, 45'W of baseline	953 1/2
RF-241	24" steel discharge pipe backfill, NW corner at slab subgrade	

Elevation Reference:

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Report of Field Compaction Tests

Date: July 16, 2004

Project: SC-04-03359

Report: 47

Client:
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Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-242	7/15/04	N	P-3 (SP)	10.5	119.6	8	115	96	95	A
RF-243	7/15/04	N	P-3 (SP)	10.5	119.6	5	114	95	95	A
RF-244	7/15/04	N	P-12 (SP)	12.9	110.7	8	112	101	95	A
RF-245	7/15/04	N	P-3 (SP)	10.5	119.6	11	120	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-242	Upstream barrier embankment, Sta. 13+60, 18'S of baseline	966 1/2
RF-243	Upstream barrier embankment, Sta. 11+85, 50'S of baseline	967
RF-244	Upstream barrier embankment, Sta. 10+40, 30'S of baseline	967
RF-245	Upstream barrier embankment, Sta. 14+65, 20'W of baseline	964 1/2

Elevation Reference:

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Report of Field Compaction Tests

Date: July 16, 2004 **Project:** SC-04-03359 **Report:** 47

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-246	7/16/04	N	P-12 (SP)	12.9	110.7	7	112	101	95	A
RF-247	7/16/04	N	P-3 (SP)	10.5	119.6	11	118	99	95	A
RF-248	7/16/04	N	P-3 (SP)	10.5	119.6	8	116	97	95	A
RF-249	7/16/04	N	P-3 (SP)	10.5	119.6	6	115	96	95	A
RF-250	7/16/04	N	P-3 (SP)	10.5	119.6	7	120	100	100	A
RF-251	7/16/04	N	P-3 (SP)	10.5	119.6	7	120	100	100	A
RF-252	7/16/04	N	P-3 (SP)	10.5	119.6	8	120	100	100	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-246	Upstream barrier embankment, Sta. 15+50, 28'W of baseline	967
RF-247	Upstream barrier embankment, Sta. 16+95, 82'W of baseline	956
RF-248	Upstream barrier embankment, Sta. 18+10, 93'W of baseline	952
RF-249	Upstream barrier embankment, Sta. 18+50, 20'W of baseline	962
RF-250	NW corner, 1st lowest structural bench, liner subgrade	952
RF-251	NW corner, 2nd middle structural bench, liner subgrade	966
RF-252	NW corner, upper structure bench, liner subgrade	980

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: July 19, 2004

Project: SC-04-03359

Report: 47

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-253	7/17/04	N	P-3: SP	10.5	119.6	5	119	99	95	A
RF-254	7/17/04	N	P-3: SP	10.5	119.6	5	118	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-253	Upstream Barrier Embankment: Station 23+00, 66'W of baseline	946
RF-254	Upstream Barrier Embankment: Station 26+10, 85'W of baseline	945 1/2

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: July 20, 2004 **Project:** SC-04-03359 **Report:** 57

Client:
Steve Bluhm, PE
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Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-255	7/20/04	N	P-3: SP	10.5	119.6	6	114	95	95	A
RF-256	7/20/04	N	P-3: SP	10.5	119.6	5	119	99	95	A
RF-257	7/20/04	N	P-3: SP	10.5	119.6	4	116	97	95	A
RF-258	7/20/04	N	P-13: SP	11.4	112.2	4	112	100	95	A
RF-259	7/20/04	N	P-13: SP	11.4	112.2	7	111	99	95	A
RF-260	7/20/04	N	P-3: SP	10.5	119.6	7	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-255	Upstream Barrier Embankment: Station 12+67, 44'S of baseline	966
RF-256	Upstream Barrier Embankment: Station 11+35, 40'S of baseline	968
RF-257	Upstream Barrier Embankment: Station 13+48, 27'SW of baseline	968 1/2
RF-258	Upstream Barrier Embankment: Station 17+65, 25'W of baseline	971
RF-259	Upstream Barrier Embankment: Station 21+50, 60'W of baseline	947
RF-260	Upstream Barrier Embankment: Station 26+00, 69'W of baseline	949

Elevation Reference:

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Report of Field Compaction Tests

Date: July 21, 2004

Project: SC-04-03359

Report: 58

Client:
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
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13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-261	7/21/04	N	P-3 (SP)	10.5	119.6	12	115	96	95	A
RF-262	7/21/04	N	P-3 (SP)	10.5	119.6	7	116	97	95	A
RF-263	7/21/04	N	P-3 (SP)	10.5	119.6	5	119	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-262	Upstream barrier embankment, Sta. 23+00, 60'W of baseline	952
RF-262	Upstream barrier embankment, Sta. 24+50, 75'W of baseline	952
RF-263	Upstream barrier embankment, Sta. 26+50, 90'W of baseline	950

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: July 22, 2004 **Project:** SC-04-03359 **Report:** 59

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-264	7/22/04	N	P-3 (SP)	10.5	119.6	5	116	97	95	A
RF-265	7/22/04	N	P-3 (SP)	10.5	119.6	5	117	98	95	A
RF-266	7/22/04	N	P-3 (SP)	10.5	119.6	6	114	95	95	A
RF-267	7/22/04	N	P-3 (SP)	10.5	119.6	7	119	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-264	Upstream barrier embankment, Sta. 22+50, 66'W of baseline	958
RF-265	Upstream barrier embankment, Sta. 24+60, 55'W of baseline	957 1/2
RF-266	Upstream barrier embankment, Sta. 26+70, 54'W of baseline	956
RF-267	Upstream barrier embankment, Sta. 27+15, 52'W of baseline	955

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: July 23, 2004 **Project:** SC-04-03359 **Report:** 60

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-268	7/23/04	N	P-3 (SP)	10.5	119.6	6	115	96	95	A
RF-269	7/23/04	N	P-3 (SP)	10.5	119.6	5	115	96	95	A
RF-270	7/23/04	N	P-1 (SP)	10.8	110.6	4	110	99	95	A
RF-271	7/23/04	N	P-1 (SP)	10.8	110.6	9	112	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-268	Upstream barrier embankment, Sta. 27+90, 24'W of baseline	959
RF-269	Upstream barrier embankment, Sta. 26+00, 22'W of baseline	961 1/2
RF-270	Upstream barrier embankment, Sta. 23+20, 20'W of baseline	963
Rf-271	Upstream barrier embankment, Sta. 21+70, 15'W of baseline	964

Elevation Reference:

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Report of Field Compaction Tests

Date: July 27, 2004

Project: SC-04-03359

Report: 61

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-272	7/26/04	N	P-1 (SP)	10.8	110.6	3	109	99	95	A
RF-273	7/26/04	N	P-1 (SP)	10.8	110.6	4	110	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-272	Upstream Barrier Embankment, Sta. 28+50, 25'W of baseline	965
RF-273	Upstream Barrier Embankment, Sta. 25+35, 20'W of baseline	963

Elevation Reference:

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Report of Field Compaction Tests

Date: August 3, 2004 **Project:** SC-04-03359 **Report:** 63

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-280	8/2/04	N	P-3: SP	10.5	119.6	3	120	100	95	A
RF-281	8/2/04	N	P-3: SP	10.5	119.6	3	121	101	95	A
RF-282	8/2/04	N	P-3: SP	10.5	119.6	4	116	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF-280	Upstream barrier embankment: Station 23+40, 25'W of baseline	972
RF-281	Upstream barrier embankment: Station 27+50, 25'W of baseline	972
RF-282	Upstream barrier embankment: Station 17+30, 25'W of baseline	972

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 64

Client:
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Becker, MN 55308

Project Description:
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Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL283	8/5/04	N	P-11: CL	21.9	97.1	22	94	97	95	A
C5284	8/5/04	N	P-6: C5	10.2	125.9	10	126	100	100	A
RF285	8/5/04	N	P-3: SP	10.5	119.6	11	117	98	95	A
CL286	8/5/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL287	8/5/04	N	P-11: CL	21.9	97.1	23	97	100	95	A
CL288	8/5/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
CL289	8/5/04	N	P-11: CL	21.9	97.1	23	96	99	95	A

Key: N = Nuclear, ASTM D 2922
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* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
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C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL283	East embankment: Station 28+00 (upstream barrier)	961
C5284	Manhole #3 (subgrade)	947 1/2
RF285	North embankment: Statiaon 6+00, 75'S (random fill)	957
CL286	East embankment: Station 26+00 (upstream barrier)	961
CL287	East embankment: Station 18+50 (upstream barrier)	963
CL288	East embankment: Station 20+00 (upstream barrier)	960 1/2
CL289	East embankment: Station 28+50 (upstream barrier)	963

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 65

Client:
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF290	8/5/04	N	P-1: SP	10.8	110.6	9	109	99	95	A
CL291	8/5/04	N	P-11: CL	21.9	97.1	24	95	98	95	A
CL292	8/5/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL293	8/6/04	N	P-11: CL	21.9	97.1	25	94	97	95	A
CL294	8/6/04	N	P-11: CL	21.9	97.1	25	95	98	95	A
CL295	8/6/04	N	P-11: CL	21.9	97.1	26	97	100	95	A
CL296	8/6/04	N	P-11: CL	21.9	97.1	25	96	99	95	A

Key: N = Nuclear, ASTM D 2922
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* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF290	Random fill, North embankment: Station 5+00, 50'S of baseline	960
CL291	East embankment: Station 27+00 (upstream barrier)	968
CL292	East embankment: Station 28+00 (upstream barrier)	968
CL293	East embankment: Station 25+25 (upstream barrier)	963
CL294	East embankment: Station 26+25 (upstream barrier)	969
CL295	East embankment: Station 25+00 (upstream barrier)	972
CL296	East embankment: Station 24+25 (upstream barrier)	962

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 66

Client:
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL297	8/6/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL298	8/6/04	N	P-11: CL	21.9	97.1	23	98	101	95	A
CL299	8/6/04	N	P-11: CL	21.9	97.1	24	97	100	95	A
CL300	8/6/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
RF301	8/6/04	N	P-2: SP	9.4	125.6	4	125	100	95	A
RF302	8/6/04	N	P-2: SP	9.4	125.6	4	121	96	95	A
RF303	8/6/04	N	P-2: SP	9.4	125.6	4	126	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL297	East embankment: Station 23+50 (upstream barrier)	963
CL298	East embankment: Station 23+00 (upstream barrier)	970
CL299	East embankment: Station 22+25 (upstream barrier)	963
CL300	East embankment: Station 22+00 (upstream barrier)	961
RF301	Random fill: Station 28+00, 30'E of baseline	978
RF302	Random fill: Station 27+00, 35'E of baseline	976
RF303	Random fill: Station 26+00, 35'E of baseline	975

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 67

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL304	8/7/04	N	P-11: CL	21.9	97.1	25	93	96	95	A
CL305	8/7/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL306	8/7/04	N	P-11: CL	21.9	97.1	23	98	101	95	A
RF307	8/7/04	N	P-1: SP	10.8	110.6	5	110	99	95	A
RF308	8/7/04	N	P-1: SP	10.8	110.6	6	109	99	95	A
RF309	8/7/04	N	P-8: SP-SM	13.5	113.7	6	113	99	95	A
RF310	8/7/04	N	P-4: SP	12.7	108.6	6	107	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL304	East embankment: Station 20+50 (upstream barrier)	963
CL305	East embankment: Station 22+50 (upstream barrier)	971
CL306	East embankment: Station 21+50 (upstream barrier)	965
RF307	Random fill: Top of East embankment: Station 25+00	972
RF308	Random fill: Top of East embankment: Station 22+00	972
RF309	Random fill: Top of East embankment: Station 17+50	971 1/2
RF310	Random fill: Top of North embankment: Station 11+00	970

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 68

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF311	8/7/04	N	P-4: SP	12.7	108.6	6	105	97	95	A
RF312	8/7/04	N	P-1: SP	10.8	110.6	6	110	99	95	A
CL313	8/7/04	N	P-11: CL	21.9	97.1	23	94	97	95	A
CL314	8/7/04	N	P-11: CL	21.9	97.1	22	93	96	95	A
CL315	8/7/04	N	P-11: CL	21.9	97.1	24	94	97	95	A
CL316	8/7/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL317	8/7/04	N	P-11: CL	21.9	97.1	22	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF311	Random fill, top of North embankment: Station 9+00	971
RF312	Random fill, top of North embankment: Station 7+00	970
CL313	East embankment: Station 16+10 (upstream barrier)	961
CL314	East embankment: Station 17+00 (upstream barrier)	962
CL315	East embankment: Station 20+25 (upstream barrier)	968
CL316	East embankment: Station 19+10 (upstream barrier)	964
CL317	East embankment: Station 19+00 (upstream barrier)	970

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 69

Client:
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Sherburne County Generating Facility
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL318	8/9/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL319	8/9/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
RF320	8/9/04	N	P-3: SP	10.5	119.6	8	118	99	95	A
RF321	8/9/04	N	P-3: SP	10.5	119.6	6	119	99	95	A
RF322	8/9/04	N	P-3: SP	10.5	119.6	6	115	96	95	A
RF323	8/9/04	N	P-3: SP	10.5	119.6	5	118	99	95	A
RF324	8/9/04	N	P-3: SP	10.5	119.6	5	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL318	East embankment: Station 18+50 (upstream barrier)	966
CL319	East embankment: Station 18+00 (upstream barrier)	966
RF320	Random fill: Station 25+00, 35'E of baseline	960
RF321	Random fill: Station 24+00, 30'E of baseline	960
RF322	Random fill: Station 23+00, 25'E of baseline	963
RF323	Random fill: Station 22+00, 25'E of baseline	963
RF324	Random fill: Station 21+00, 35'E of baseline	960

Elevation Reference:

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Report of Field Compaction Tests

Date: August 12, 2004

Project: SC-04-03359

Report: 72

Client:
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
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13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF337	8/10/04	N	P-3: SP	10.5	119.6	5	120	100	100	A
RF338	8/10/04	N	P-3: SP	10.5	119.6	5	120	100	100	A
RF339	8/10/04	N	P-3: SP	10.5	119.6	6	120	100	100	A
CL340	8/10/04	N	P-11: CL	21.9	97.1	24	93	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF337	Upper structure pad (footing subgrade)	FSG
RF338	Middle structure pad (footing subgrade)	FSG
RF339	Lower structure pad (footing subgrade)	FSG
CL340	North embankment: Station 7+00, upstream barriers	970

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: August 12, 2004 **Project:** SC-04-03359 **Report:** 74

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL343	8/11/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL344	8/11/04	N	P-11: CL	21.9	97.1	24	96	99	95	A
RF345	8/11/04	N	P-8: SP-SM	13.5	113.7	7	114	100	100	A
CL346	8/11/04	N	P-11: CL	21.9	97.1	25	93	96	95	A
CL347	8/11/04	N	P-11: CL	21.9	97.1	23	93	96	95	A
CL348	8/11/04	N	P-11: CL	21.9	97.1	23	95	98	95	A
CL349	8/11/04	N	P-11: CL	21.9	97.1	26	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL343	North embankment: Station 9+10 (upstream barriers)	965
CL344	North embankment: Station 10+00 (upstream barriers)	961
RF345	Blower building pad (footing subgrade)	FSG
CL346	North embankment: Station 9+00 (upstream barriers)	972
CL347	North embankment: Station 12+00 (upstream barriers)	965
CL348	North embankment: Station 11+00 (upstream barriers)	962
CL349	North embankment: Station 12+40 (upstream barriers)	970

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

Braun Intertec Corporation
1520 24th Avenue N
P.O. Box 189
St. Cloud, MN 56302

Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterlec.com

Report of Field Compaction Tests

Date: August 17, 2004

Project: SC-04-03359

Report: 76

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF352	8/17/04	N	P-3: SP	10.5	119.6	4	121	101	95	A
RF353	8/17/04	N	P-3: SP	10.5	119.6	10	114	95	95	A
RF354	8/17/04	N	P-3: SP	10.5	119.6	8	120	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF352	Upstream barrier embankment: Station 25+25, 20'E of Clay edge	971
RF353	Upstream barrier embankment: Station 26+40, 15'E of Clay edge	975 1/2
RF354	Upstream barrier embankment: Station 27+20, 50'E of Clay edge	976

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: August 23, 2004 **Project:** SC-04-03359 **Report:** 77

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF355	8/20/04	N	P-7: SM	7.1	138.2	4	136	98	95	A
RF356	8/20/04	N	P-3: SP	10.5	119.6	5	116	97	95	A
RF357	8/20/04	N	P-2: SP	9.4	125.6	6	124	99	95	A
RF358	8/20/04	N	P-3: SP	10.5	119.6	6	117	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF355	East embankment: Station 20+15, 29'E of centerline (random fill)	973
RF356	East embankment: Station 22+00, 22'E of centerline (random fill)	972
RF357	East embankment: Station 22+95, 37'E of centerline (random fill)	975
RF358	East embankment: Station 24+60, 12'E of centerline (random fill)	976

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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St. Cloud, MN 56302

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Report of Field Compaction Tests

Date: August 26, 2004

Project: SC-04-03359

Report: 78

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF359	8/25/04	N	P-13: SP	11.4	112.2	5	115	102	95	A
RF360	8/25/04	N	P-13: SP	11.4	112.2	6	114	102	95	A
RF361	8/25/04	N	P-13: SP	11.4	112.2	6	114	102	95	A
RF362	8/25/04	N	P-13: SP	11.4	112.2	6	113	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF359	East embankment upstream barrier: Station 15+62, 15' left of baseline (embankment)	972
RF360	East embankment upstream barrier: Station 16+57, 25' left of baseline (embankment)	976
RF361	East embankment upstream barrier: Station 18+87, 25' left of baseline (embankment)	973
RF362	East embankment upstream barrier: Station 20+42, 45' left of baseline (embankment)	976

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Web: braunintertec.com

Report of Field Compaction Tests

Date: September 28, 2004 **Project:** SC-04-03359 **Report:** 79

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF363	9/21/04	N	P-14: SP	12.5	110.9	9	110	99	95	A
RF364	9/21/04	N	P-14: SP	12.5	110.9	10	109	98	95	A
RF365	9/21/04	N	P-14: SP	12.5	110.9	10	110	99	95	A
RF366	9/21/04	N	P-14: SP	12.5	110.9	11	111	100	95	A

Key: N'= Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF363	90'S of pump house on centerline of drainage pipe trench (8" pipe BF)	958
RF364	290'S of pump house on centerline of drainage pipe trench (8" pipe BF)	958
RF365	75'S of valve junction, centerline of drainage pipe trench (24" pipe BF)	957 1/2
RF366	185'S of valve junction, centerline of drainage pipe trench (24" pipe BF)	957

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Appendix C

Native (On-Site) Clay Test Reports

Permeability Test Data (Compacted Specimens)

Project: XCEL SHERCO POND 3N CONSTRUCTION - P.O.# M63383 Date: 5-20-04

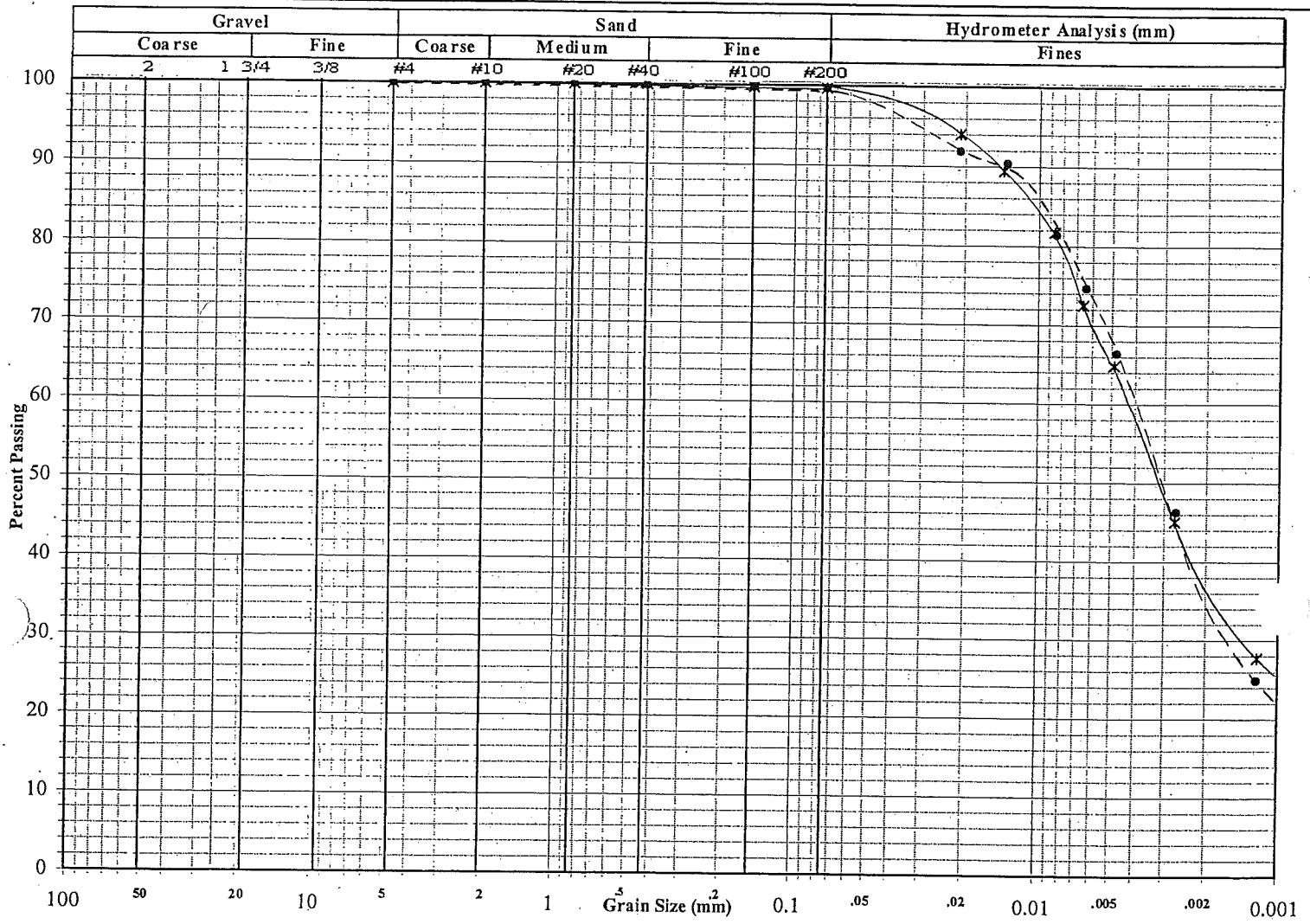
Reported To: McCAIN & ASSOC., INC Job No.: 5014

Sample No./Designation	TP-3	TP-5				
Sample Type, Location Elevation or Depth	BAG 2-3	BAG 2-4				
Soil Classification	LEAN CLAY (CL)	LEAN CLAY (CL)				
In-Place Water Content (%)	31.6	31.4				
Moisture - Density Relation (ASTM: D698)						
Max Dry Density (PCF)	95.5	95.3				
Opt. Water Content (%)	25.9	23.6				
Atterberg Limits						
Liquid Limit	42.1	42.3				
Plastic Limit	22.6	23.5				
Plasticity Index	19.5	18.8				
Permeability Test						
% Saturation (After Test)	102.2	101.2				
Specimen Height (Inches)	2.99	3.00				
Specimen Diameter (Inches)	2.86	2.86				
Dry Density (PCF)	90.7	90.1				
% of Max. Density	95.0	94.5				
Water Content (%)	27.9	25.6				
Type of Test (Head)	FALLING	FALLING				
Max. Head Differential (Ft)	5.0	5.0				
Confining Pressure (Effective-PSI)	2.0	2.0				
Trial No.	17-20	17-22				
Water Temp. (°C)	23	23				
Co-efficient of Permeability K @ 20°C (Cm/Sec)	5.1×10^{-7}	1.7×10^{-6}				
K @ 20°C (Ft/Min)	1.0×10^{-6}	3.3×10^{-6}				

Grain Size Distribution ASTM D422

Project:	Xcel Sherco Poond 3N Construction -P.O.#M63383	Job No. :	5014
Reported To:	Xcel Energy	Test Date:	4/20/04
		Report Date:	4/22/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
X	TP-3		2-3	Bag	Lean Clay (CL)
●	TP-5		2-4	Bag	Lean Clay (CL)
◇					



Other Tests

	X	●	◇
Liquid Limit	42.1	42.3	
Plastic Limit	22.6	23.5	
Plasticity Index	19.5	18.8	
Water Content	31.6	31.4	
Dry Density (PCF)			
Specific Gravity	2.68*	2.68*	
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (PSF)			

Percent Passing

	X	●	◇
Mass (g)	12255	13612	
2"			
1.5"			
1"			
3/4"			
3/8"			
#4	100.0	100.0	
#10	100.0	100.0	
#20	100.0	100.0	
#40	100.0	99.9	
#100	99.8	99.8	
#200	99.7	99.7	

	X	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

9301 Bryant Ave. South Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

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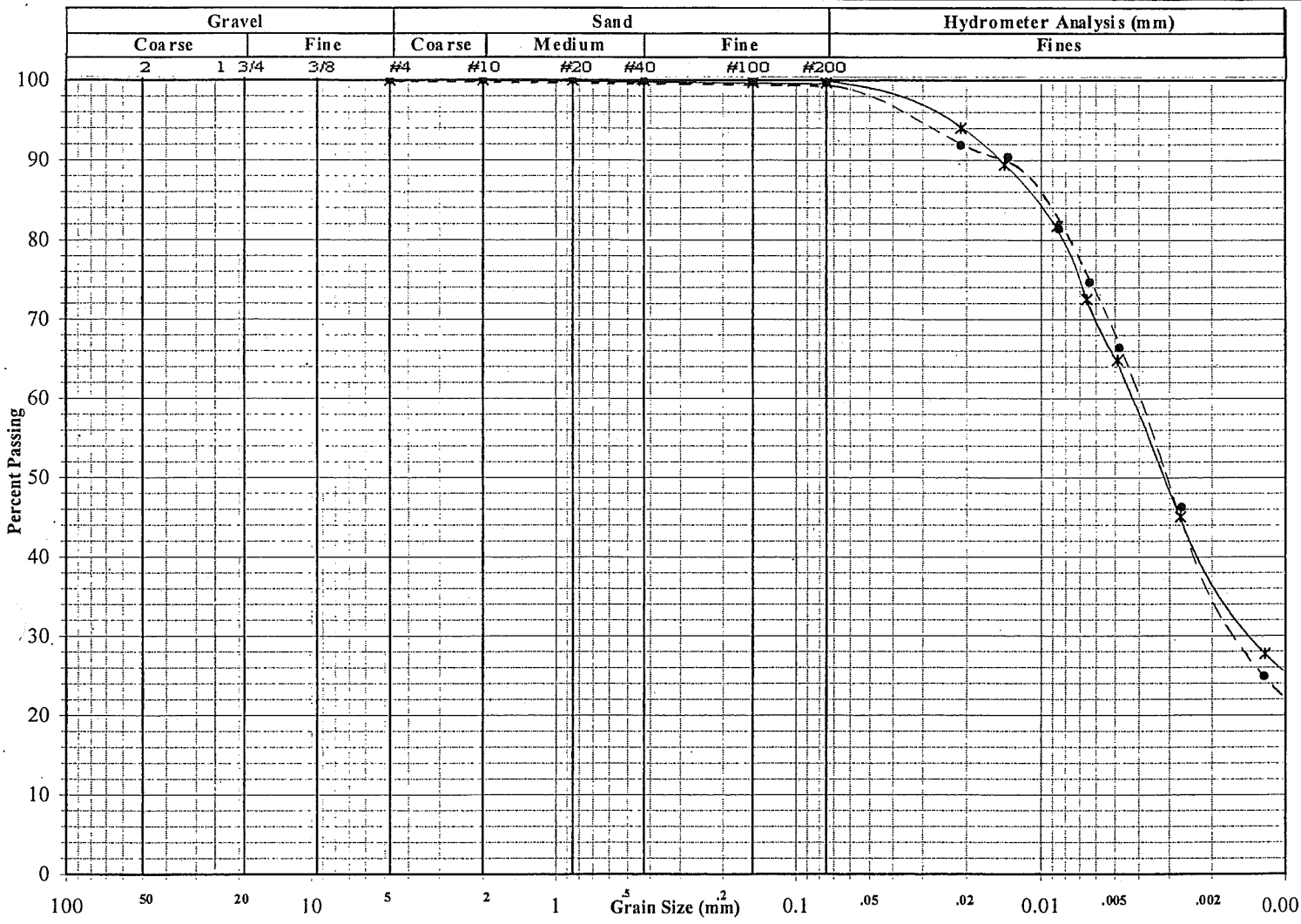
Grain Size Distribution ASTM D422

Project:	Xcel Sherco Poond 3N Construction -P.O.#M63383	Job No. :	5014
Reported To:	Xcel Energy	Test Date:	4/20/04
		Report Date:	4/22/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
X	TP-3		2-3	Bag	Lean Clay (CL)
●	TP-5		2-4	Bag	Lean Clay (CL)
◇					



Other Tests

	X	●	◇
Liquid Limit	42.1	42.3	
Plastic Limit	22.6	23.5	
Plasticity Index	19.5	18.8	
Water Content	31.6	31.4	
Dry Density (PCF)			
Specific Gravity	2.68*	2.68*	
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (PSF)			

Percent Passing

	X	●	◇
Mass (g)	12255	13612	
2"			
1.5"			
1"			
3/4"			
3/8"			
#4	100.0	100.0	
#10	100.0	100.0	
#20	100.0	100.0	
#40	100.0	99.9	
#100	99.8	99.8	
#200	99.7	99.7	

	X	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

9301 Bryant Ave. South Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

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Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 4/21/04

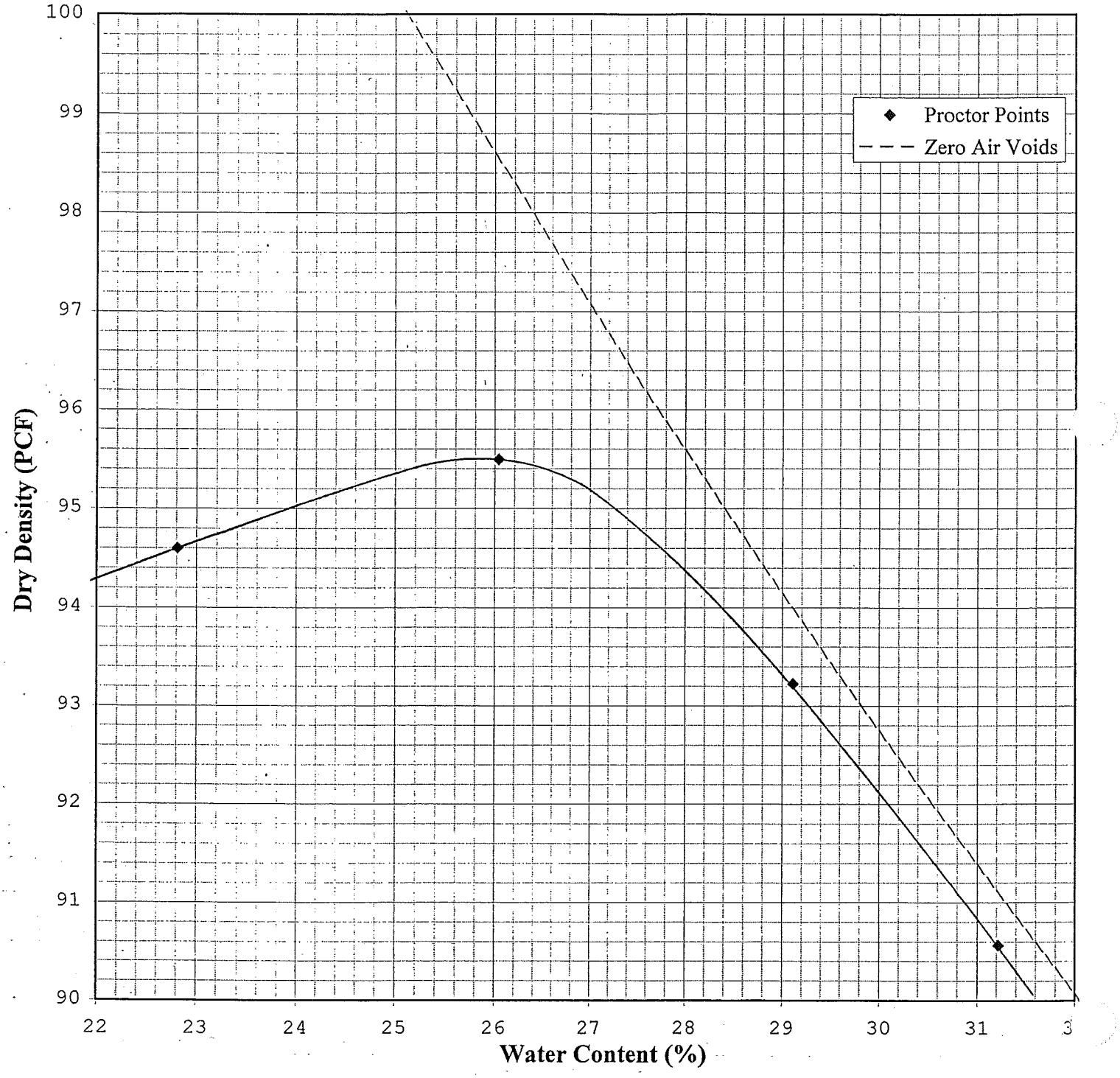
Client: McCain Associates, Inc. Job No. 5014

Boring No. Sample: TP-3 Depth(ft): 2-3 Location:

Soil Type: Lean Clay (CL)

As Received W.C. (%): 31.6 LL: 42.1 PL: 22.6 PI: 19.5 Specific Gravity: 2.68 *Assumed

	◆	△	◆	△
Maximum Dry Density (pcf):	95.5		Opt. Water Content (%):	25.9



9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 4/21/04

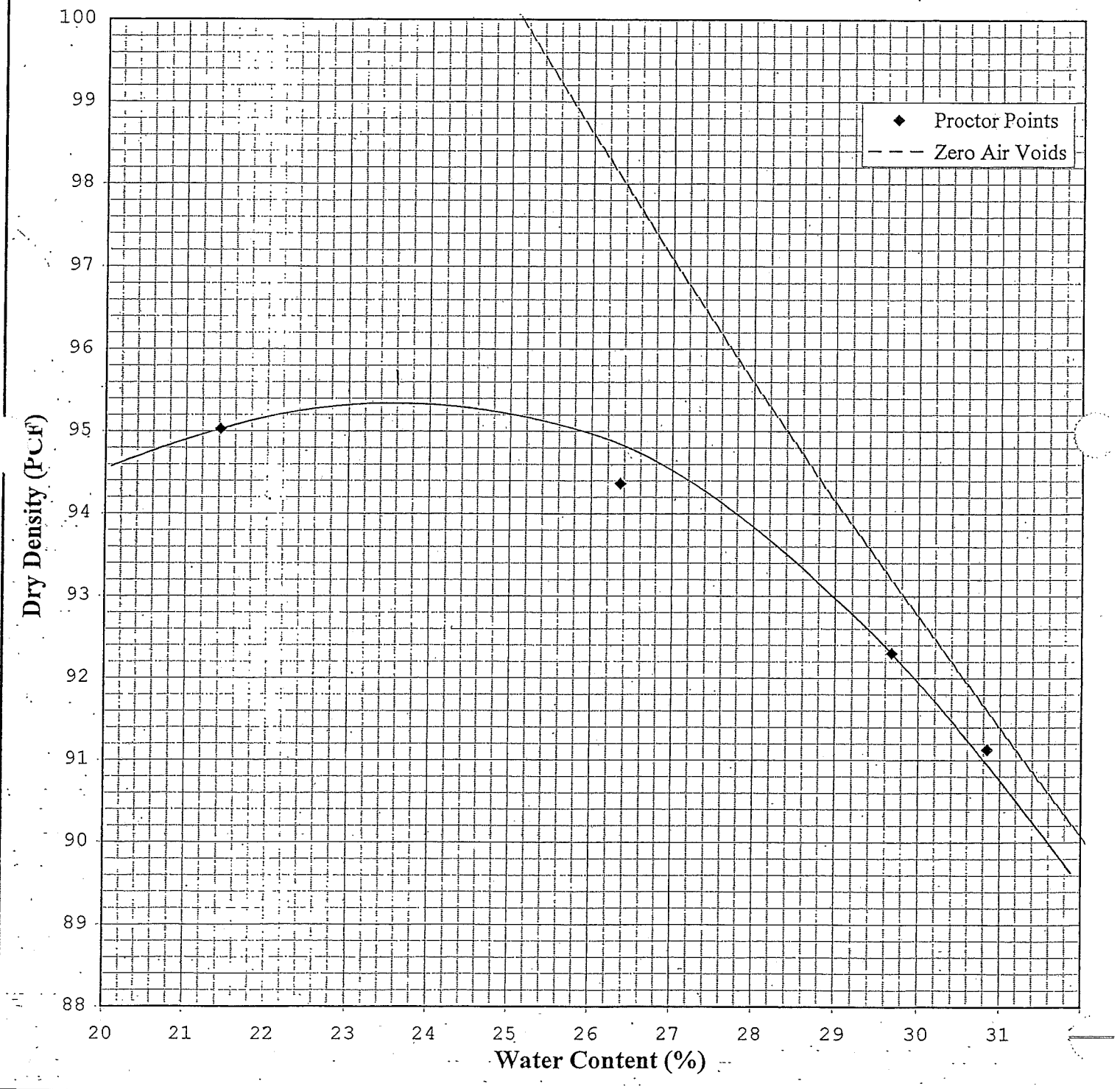
Client: McCain Associates, Inc. Job No. 5014

Boring No. TP-5 Sample: Depth(ft): 2-4 Location:

oil Type: Lean Clay (CL)

As Received W.C. (%): 31.4 LL: 42.3 PL: 23.5 PI: 18.8 Specific Gravity: 2.68 *Assumed

Maximum Dry Density (pcf): ◆ 95.3 △ Opt. Water Content (%): ◆ 23.6 △



9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

Holker Pit (Off-Site) Clay Pre-Qualification Test Reports

Permeability Test Data (Compacted Specimens)

Project: XCEL SHERCO POND 3N CONSTRUCTION – P.O. #M63383 Date: 5-20-04

Reported To: McCAIN & ASSOC., INC. Job No.: 5014

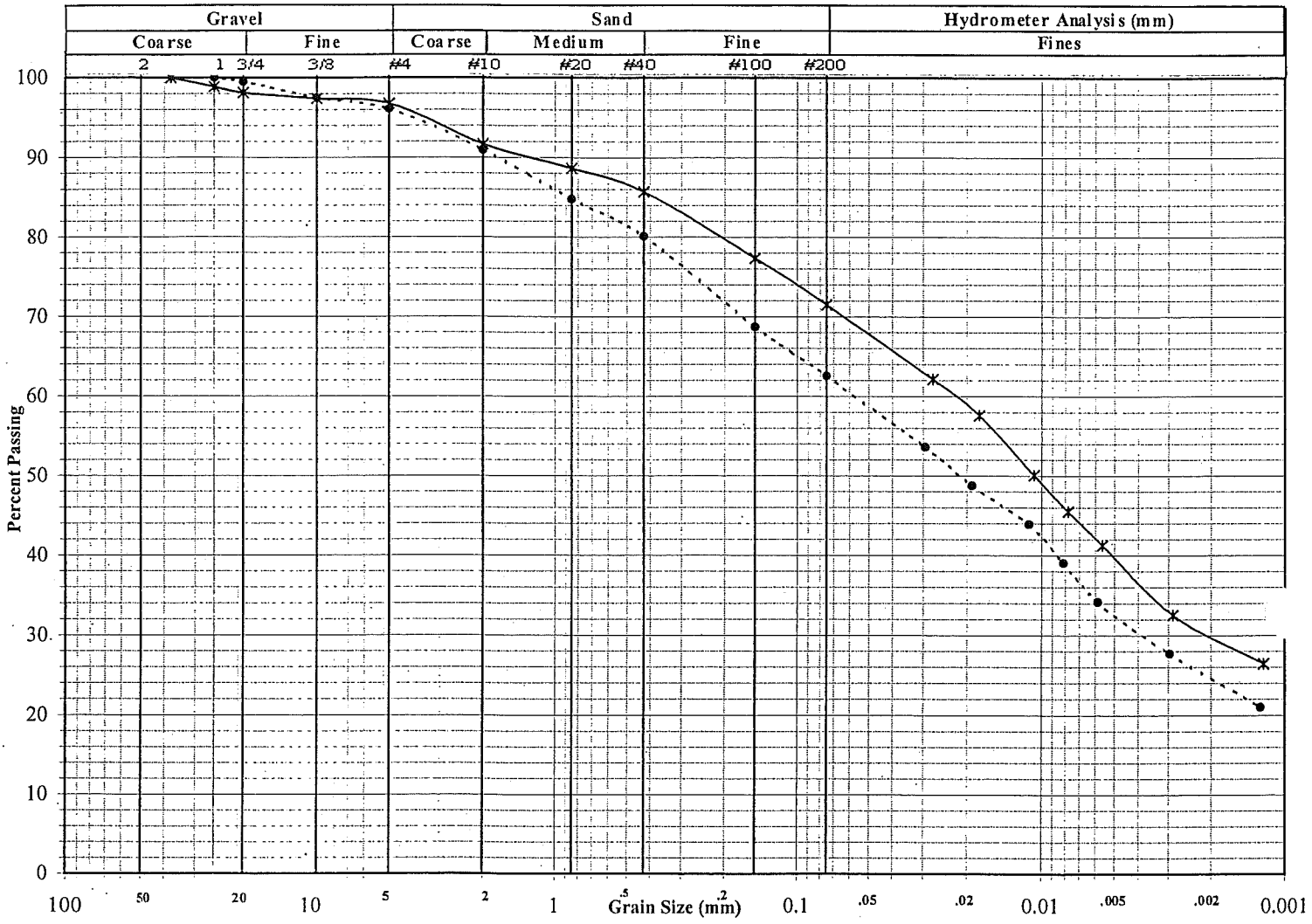
Sample No./Designation	HCL-1	HCL-2	HCL-3	HCL-4		
Sample Type, Location Elevation or Depth	BAG N. 5012663 E. 1543958 @ 3'	BAG N. 5012671 E. 1543958 @ 6'	BAG N. 5012664 E. 1543964 @ 3'	BAG N. 5012686 E. 1543956 @ 1'		
Soil Classification	LEAN CLAY W/SAND AND A TRACE OF GRAVEL (CL)	SANDY LEAN CLAY W/A TRACE OF GRAVEL (CL)	SANDY FAT CLAY W/A LITTLE GRAVEL (CH)	FAT CLAY W/SAND (CH)		
In-Place Water Content (%)	27.3	29.4	27.3	33.7		
Moisture - Density Relation (ASTM: D698)						
Max Dry Density (PCF)	98.4	97.8	98.9	90.3		
Opt. Water Content (%)	23.9	23.7	22.2	29.1		
Atterberg Limits						
Liquid Limit	47.1	46.4	53.2	66.6		
Plastic Limit	20.8	21.8	22.9	27.7		
Plasticity Index	26.3	24.6	30.3	38.9		
Permeability Test						
% Saturation (After Test)	95.7	96.1	95.4	95.8		
Specimen Height (Inches)	2.99	3.00	3.00	3.00		
Specimen Diameter (Inches)	2.85	2.86	2.85	2.85		
Dry Density (PCF)	92.9	93.1	93.7	85.0		
% of Max. Density	94.4	95.2	94.8	94.1		
Water Content (%)	25.6	25.4	24.4	30.1		
Type of Test (Head)	FALLING	FALLING	FALLING	FALLING		
Max. Head Differential (Ft)	5.0	5.0	5.0	5.0		
Confining Pressure (Effective-PSI)	2.0	2.0	2.0	2.0		
Trial No.	12-16	12-16	12-16	12-16		
Water Temp. (°C)	23	23	23	23		
Co-efficient of Permeability						
K @ 20°C (Cm/Sec)	5.8×10^{-8}	2.8×10^{-8}	6.6×10^{-8}	2.3×10^{-8}		
K @ 20°C (Ft/Min)	1.1×10^{-7}	5.6×10^{-8}	1.3×10^{-7}	4.5×10^{-8}		

Grain Size Distribution ASTM D422

Job No. : **5014**

Project:	**XCEL Sherco - Pond 3N Construction - P.O #M63383**	Test Date:	5/10/04
Reported To:	**McCain & Associates, Inc.**	Report Date:	5/11/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
✕	N.5012663 E.15439588	HCL-1	3	Bag	Lean Clay w/Sand and a Trace of Gravel (CL)
●	N.5012671 E.15439598	HCL-2	6	Bag	Sandy Lean Clay w/a Trace of Gravel (CL)
◇					



Other Tests

	✕	●	◇
Liquid Limit	47.1	46.4	
Plastic Limit	20.8	21.8	
Plasticity Index	26.3	24.6	
Water Content	27.3	29.4	
Dry Density (PCF)			
Specific Gravity	2.68*	2.68*	
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (PSF)			

Percent Passing

	✕	●	◇
Mass (g)	9662	10868	
2"			
1.5"	100.0		
1"	98.9	100.0	
3/4"	98.2	99.5	
3/8"	97.4	97.5	
#4	96.8	96.1	
#10	91.7	90.9	
#20	88.7	84.8	
#40	85.7	80.1	
#100	77.3	68.7	
#200	71.5	62.6	

	✕	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

9301 Bryant Ave. South Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

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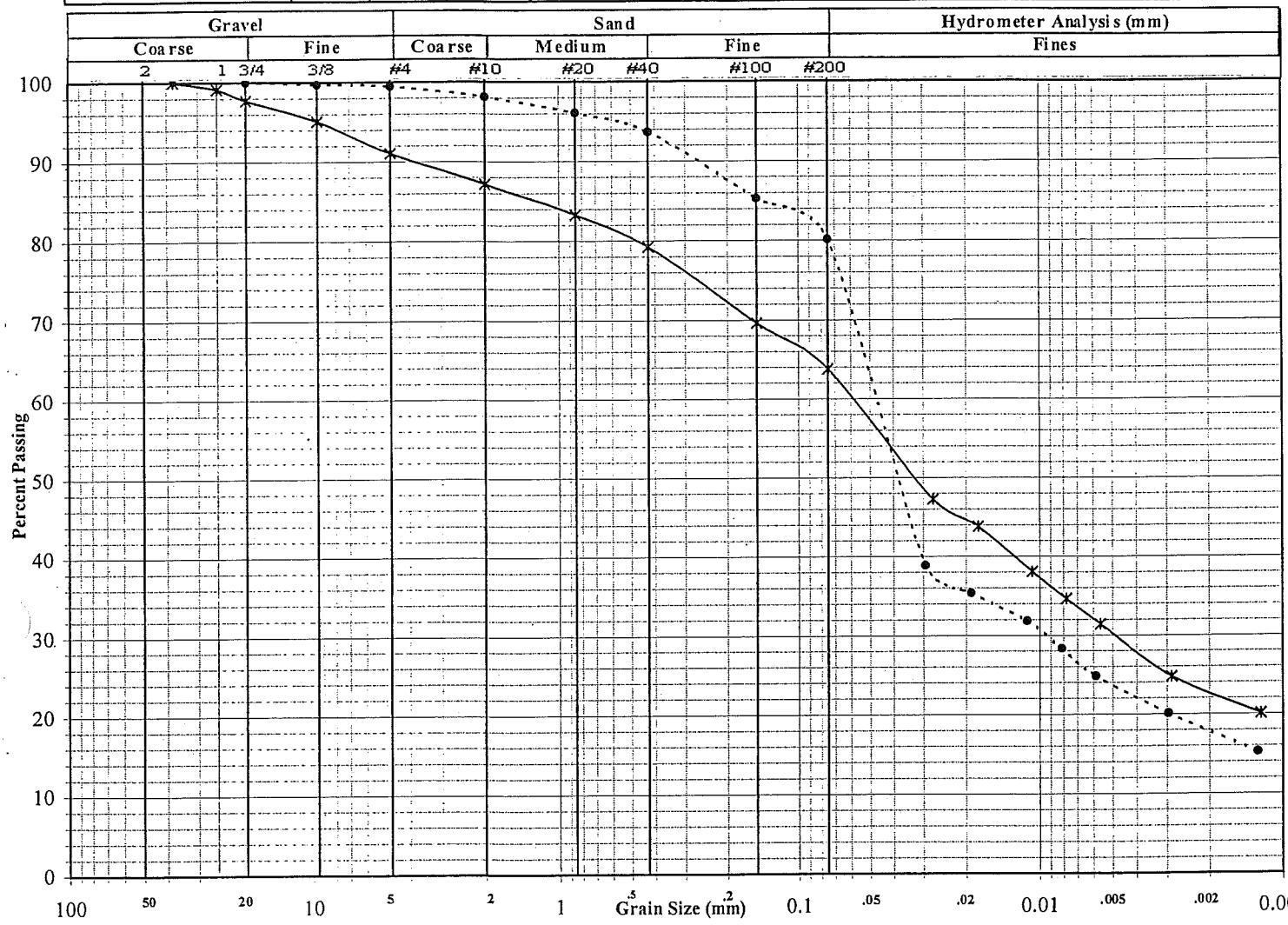
Grain Size Distribution ASTM D422

Project:	XCEL Sherco - Pond 3N Construction - P.O #M63383	Job No. :	5014
Reported To:	McCain & Associates, Inc.	Test Date:	5/10/04
		Report Date:	5/11/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
X	N.5012664 E.15439641	HCL-3	3	Bag	Sandy Fat Clay w/a Little Gravel (CH)
●	N.5012696 E.15439565	HCL-4	6	Bag	Fat Clay w/Sand (CH)
◇					



Other Tests

	X	●	◇
Liquid Limit	53.2	66.6	
Plastic Limit	22.9	27.7	
Plasticity Index	30.3	38.9	
Water Content	27.3	33.7	
Dry Density (PCF)			
Specific Gravity	2.70*	2.70*	
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (PSF)			

Percent Passing

	X	●	◇
Mass (g)	11149	10165	
2"			
1.5"	100.0		
1"	99.1		
3/4"	97.7	100.0	
3/8"	95.1	99.7	
#4	91.1	99.5	
#10	87.2	98.1	
#20	83.3	96.1	
#40	79.2	93.7	
#100	69.6	85.3	
#200	63.8	80.2	

	X	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

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SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

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Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 5/10/04

Client: McCain Associates, Inc. Job No. 5014

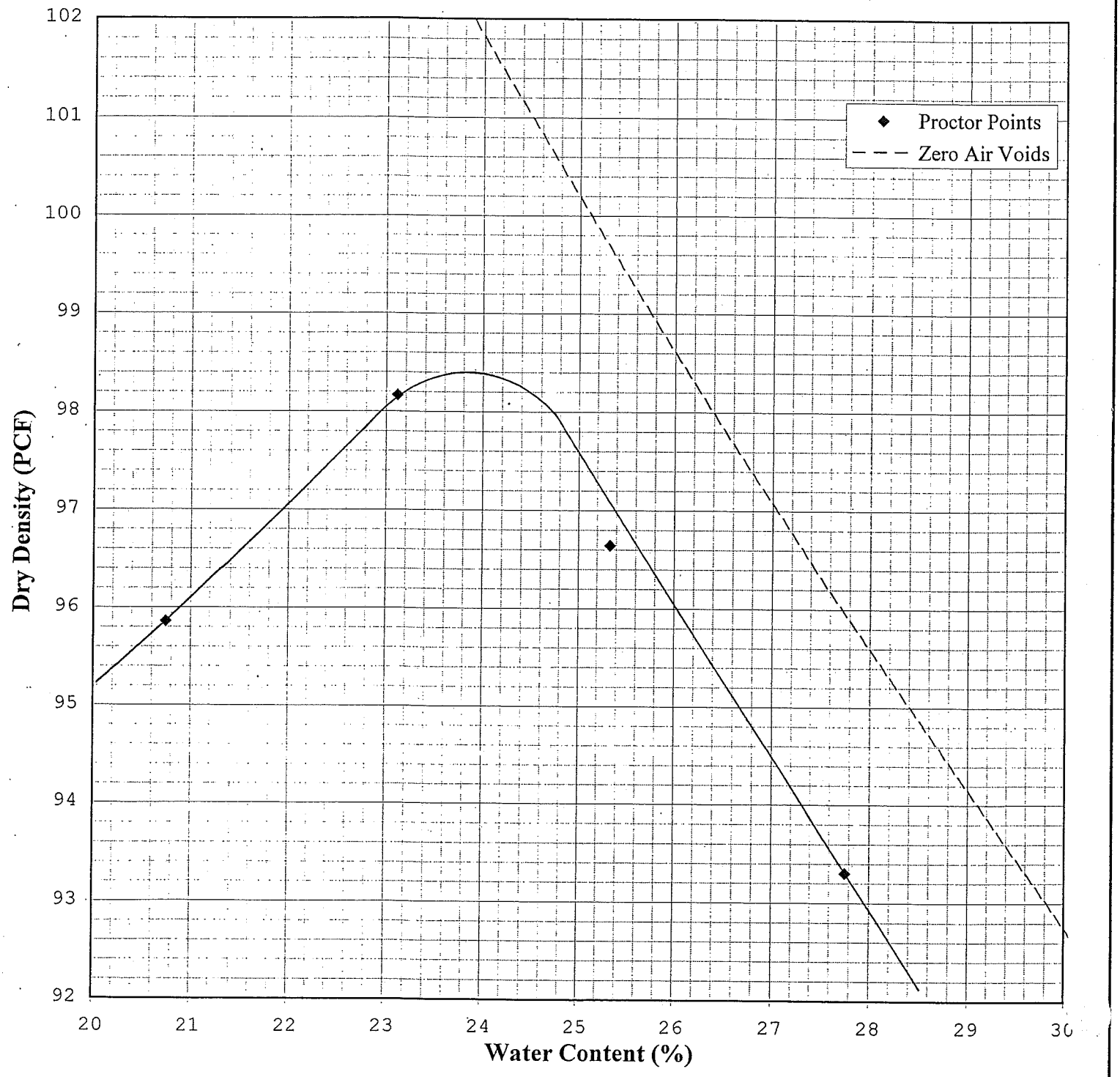
Boring No. Sample: HCL-1 Depth(ft): 3 Location: N.5012663 E.15439558

Soil Type: Lean Clay w/Sand and a Trace of Gravel (CL)

As Received W.C. (%): 27.3 LL: 47.1 PL: 20.8 PI: 26.3 Specific Gravity: 2.68 *Assumed

◆ △ ◆ △

Maximum Dry Density (pcf): 98.4 Opt. Water Content (%): 23.9



9301 Bryant Ave. South Suite 107 SOIL ENGINEERING TESTING, INC. Bloomington, Minnesota 55420-3436

SET-R18a

HCL-1

Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 5/10/04

Client: McCain Associates, Inc. Job No. 5014

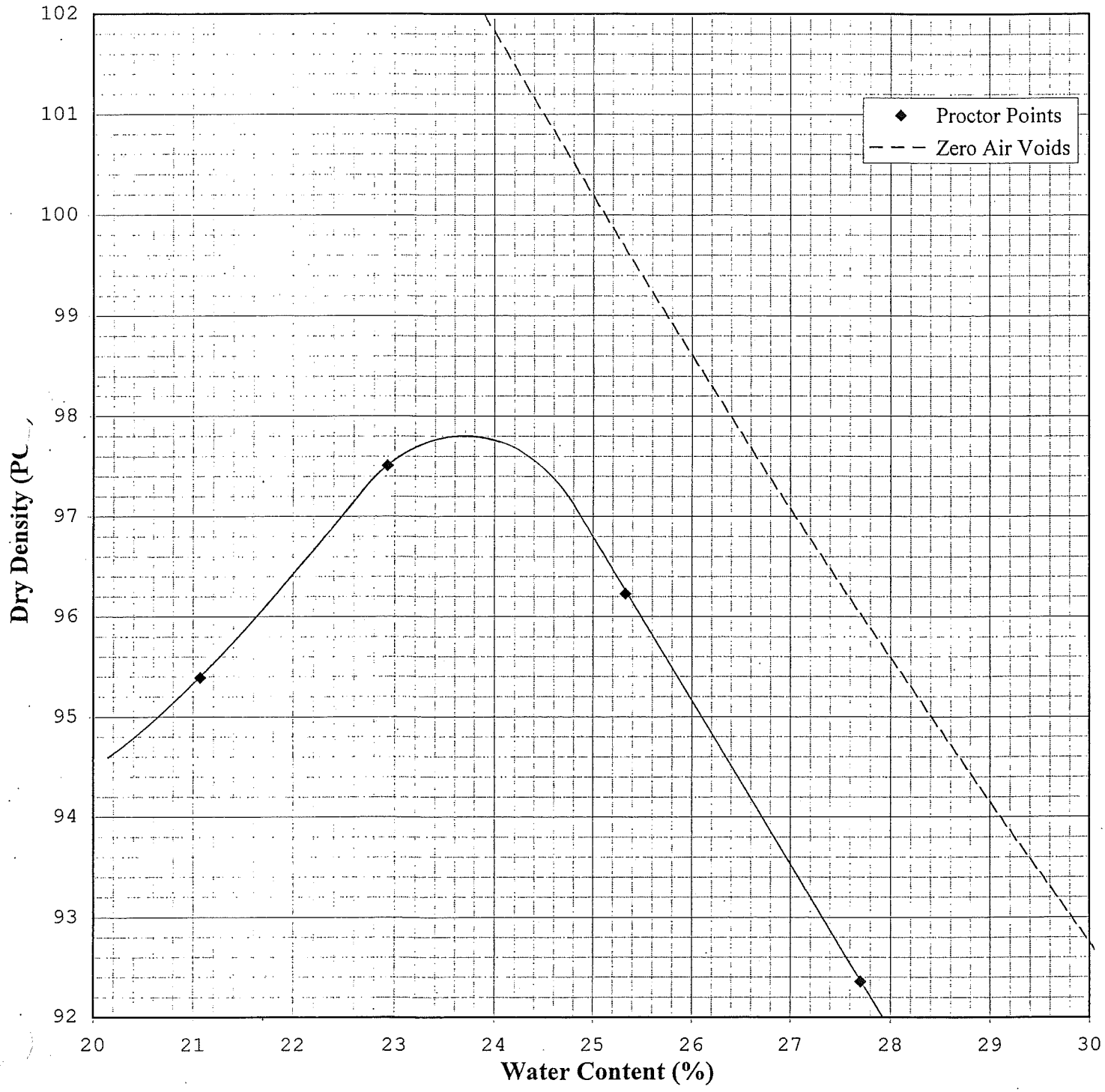
ring No. Sample: HCL-2 Depth(ft): 6 Location: N.5012671 E.15439598

oil Type: Sandy Lean Clay w/a Trace of Gravel (CL)

As Received W.C. (%): 29.4 LL: 46.4 PL: 21.8 PI: 24.6 Specific Gravity: 2.68 *Assumed

◆ △ ◆ △

Maximum Dry Density (pcf): 97.8 _____ Opt. Water Content (%): 23.7 _____



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Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 5/10/04

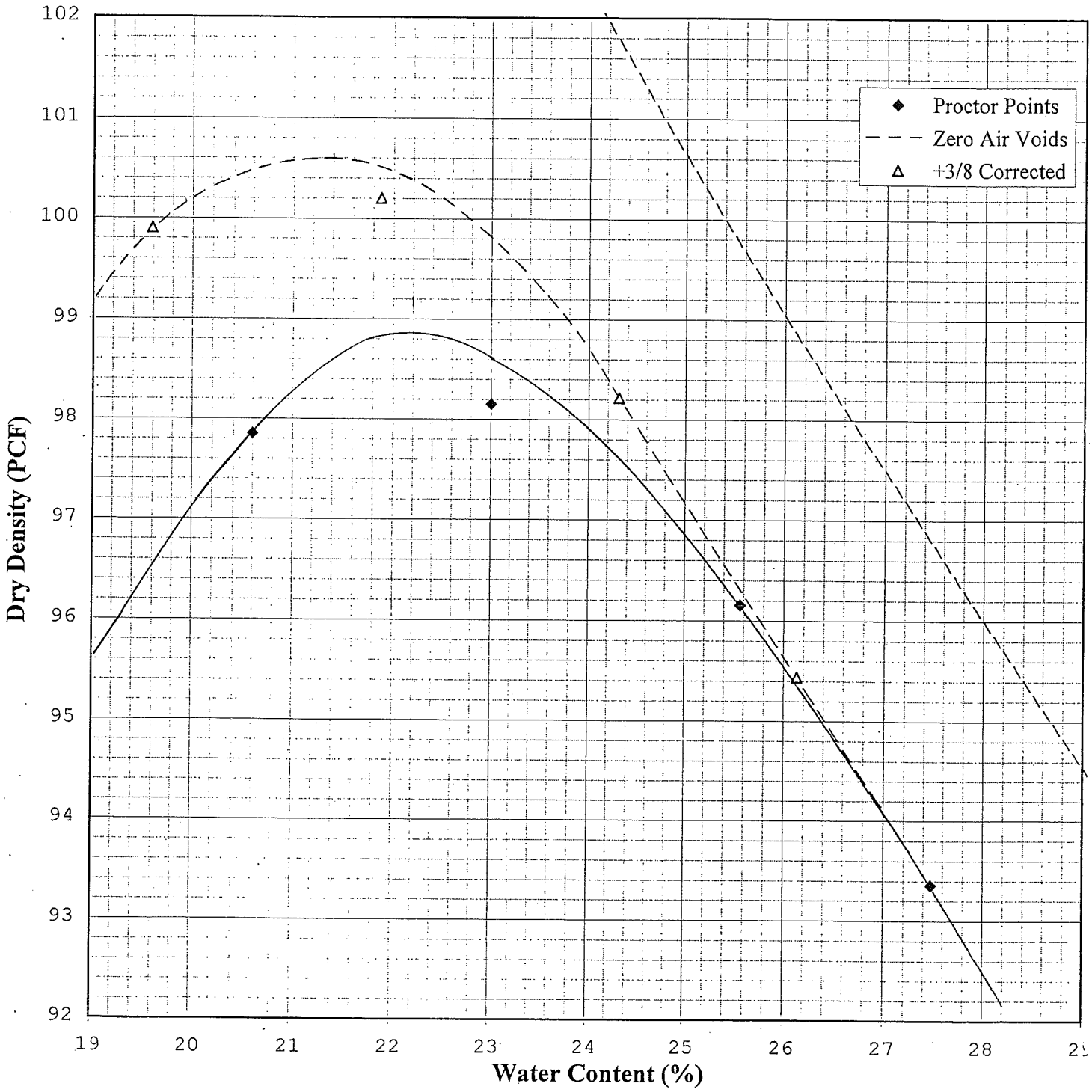
Client: McCain Associates, Inc. Job No. 5014

Boring No. Sample: HCL-3 Depth(ft): 3 Location: N.5012664 E.15439641

Soil Type: Sandy Fat Clay w/a Little Gravel (CH)

As Received W.C. (%): 27.3 LL: 53.2 PL: 22.9 PI: 30.3 Specific Gravity: 2.70 *Assumed

	◆	△	◆	△
Maximum Dry Density (pcf):	98.9	100.6	Opt. Water Content (%): 22.2	21.4



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Moisture Density Curve ASTM: D698, Method B

Project: Xcel Sherco Pond 3N Const. -P.O.#M63383 Date: 5/10/04

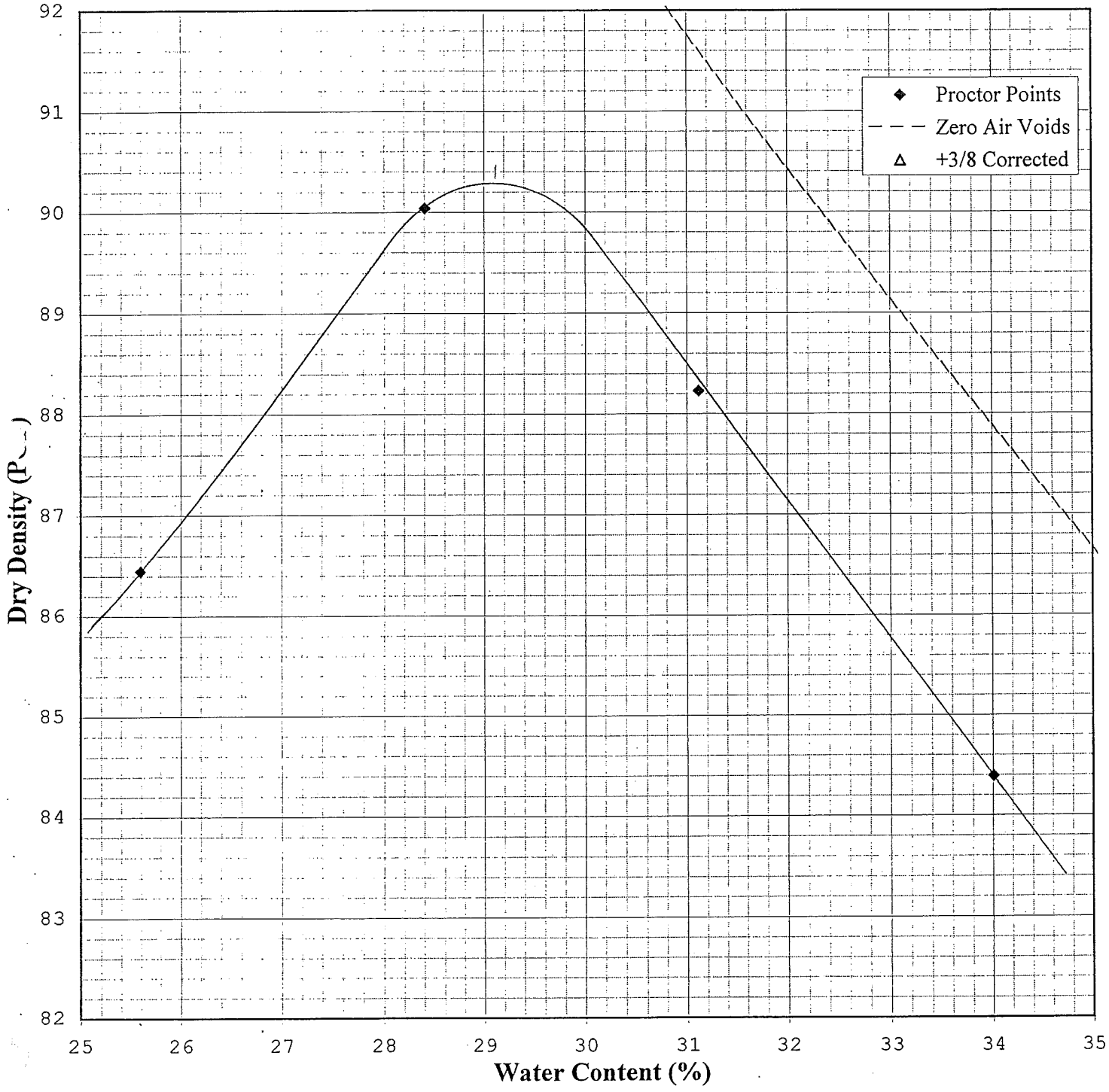
Client: McCain Associates, Inc. Job No. 5014

Boring No. Sample: HCL-4 Depth(ft): 1 Location: N.5012686 E.15439565

Soil Type: Fat Clay w/Sand (CH)

As Received W.C. (%): 33.7 LL: 66.6 PL: 27.7 PI: 38.9 Specific Gravity: 2.70 *Assumed

	◆	△	◆	△
Maximum Dry Density (pcf):	90.3		Opt. Water Content (%):	29.1



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Clay Standard Proctor Test Reports

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-9

Project No.: SC-04-03359 **Date:** 5-7-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: HCL-4B

Elev./Depth: **Sample No.** P-9

Remarks:

MATERIAL DESCRIPTION

Description: CH - FAT CLAY, with a trace of Gravel, brown

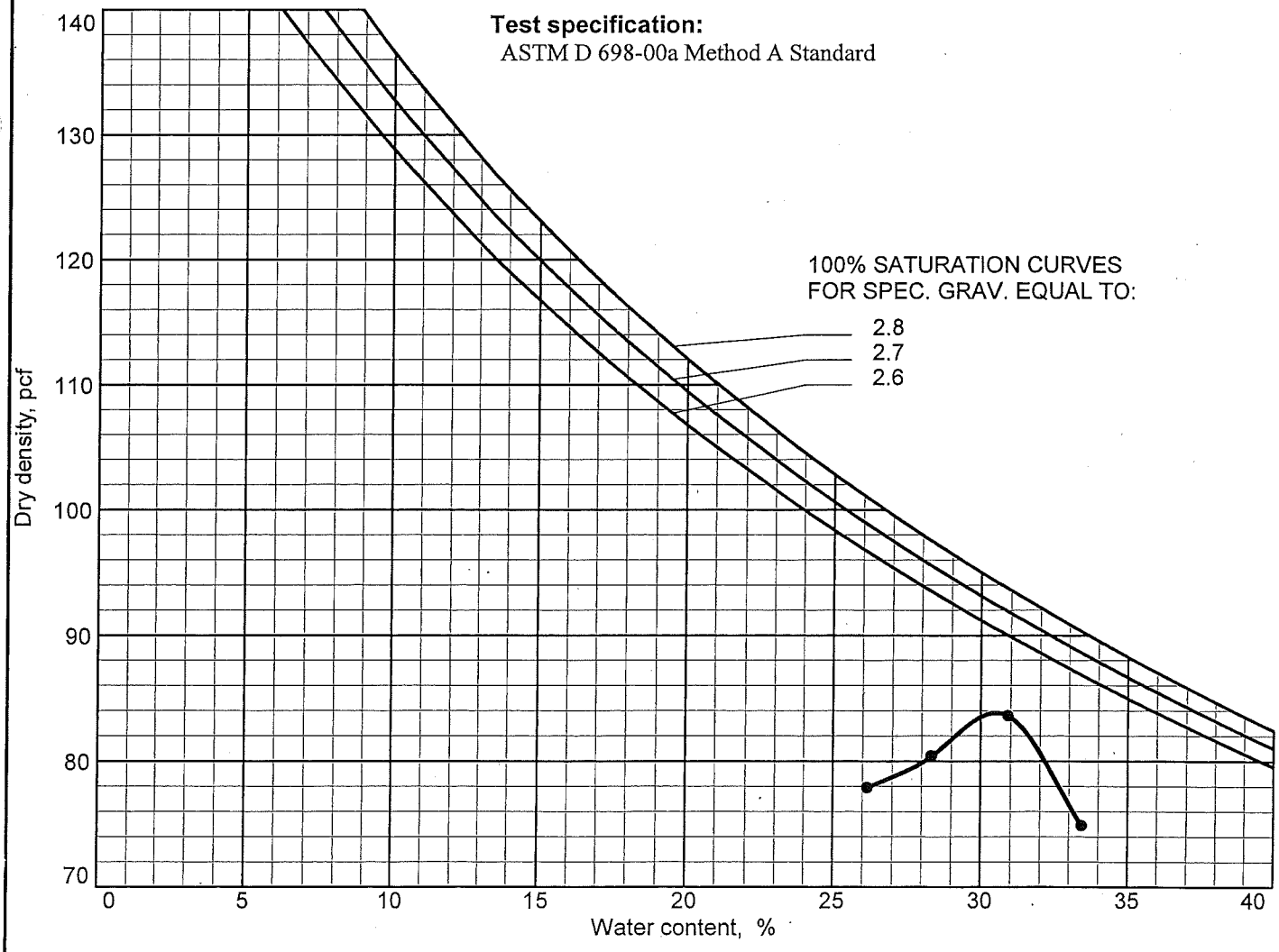
Classifications - **USCS:** CH **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** NotTested

% > No.4 = 0.7 % **% < No.200 =** 75.6 %

TEST RESULTS
Maximum dry density = 83.8 pcf
Optimum moisture = 30.5 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-10

Project No.: SC-04-03359 **Date:** 5-7-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: HCL-3B

Elev./Depth: **Sample No.** P-10

Remarks:

MATERIAL DESCRIPTION

Description: CH - FAT CLAY, with a little Gravel, brown

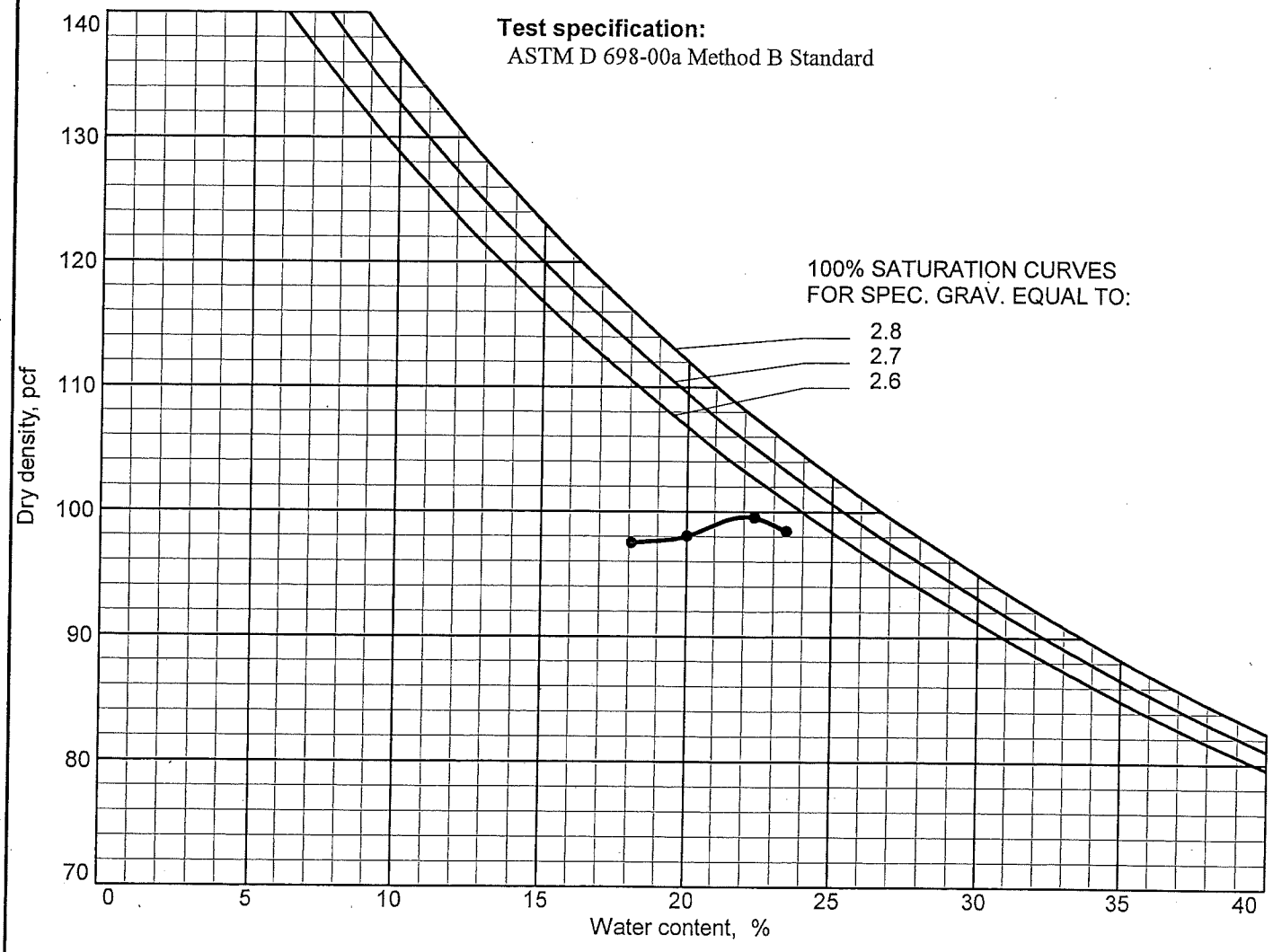
Classifications - **USCS:** CH **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > 3/8 in. = 2.9 % **% < No.200 =** 60.6 %

TEST RESULTS
Maximum dry density = 99.6 pcf
Optimum moisture = 22.1 %



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-11

Project No.: SC-04-03359 **Date:** 5/10/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: HCL-1B

Elev./Depth: **Sample No.** P-11

Remarks:

MATERIAL DESCRIPTION

Description: CH - FAT CLAY, with a little Gravel, brown

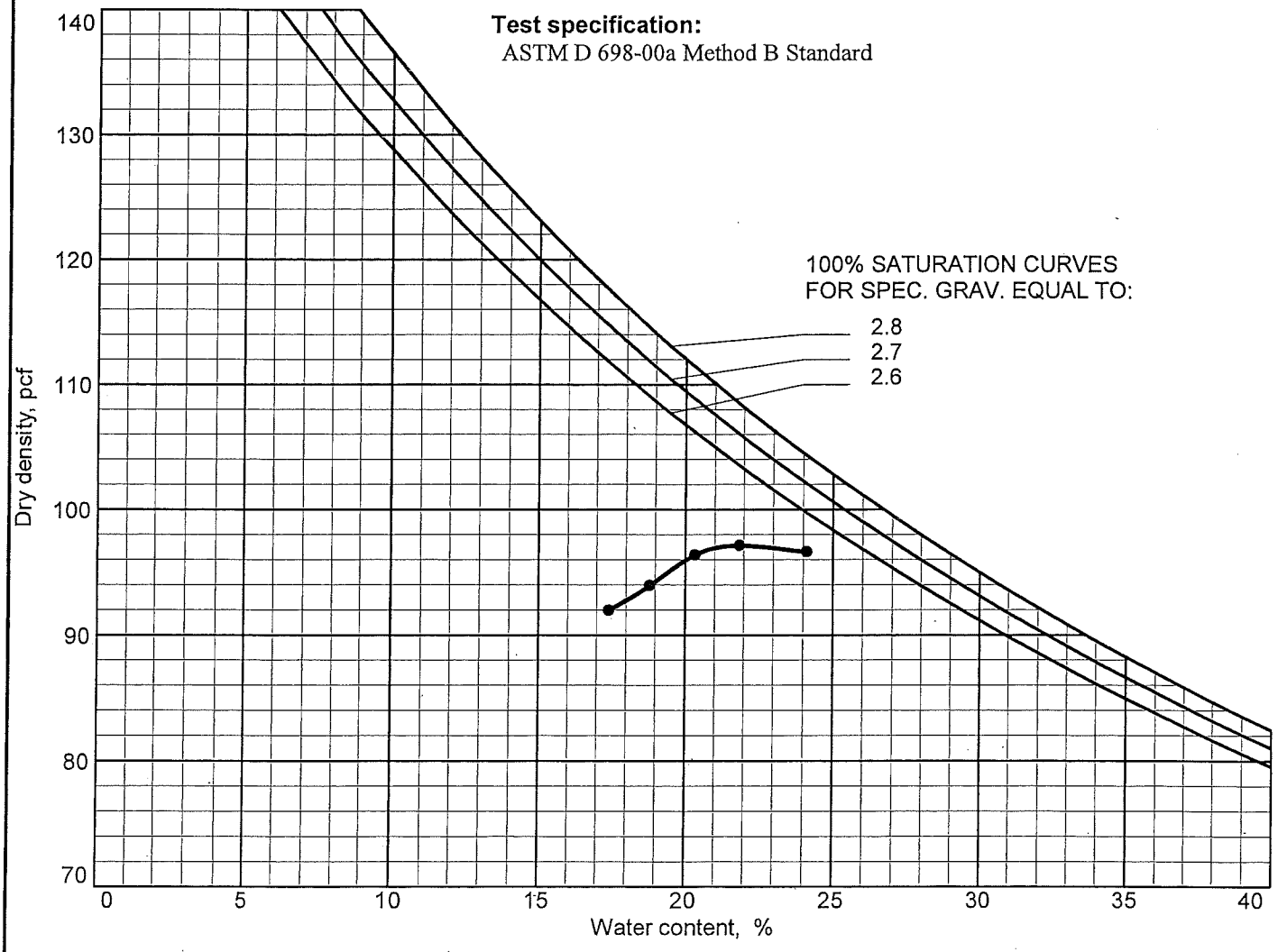
Classifications - **USCS:** CH **AASHTO:**

Nat. Moist. = Not Tested % **Sp.G. =** 2.650

Liquid Limit = Not Tested **Plasticity Index =** Not Tested

% > 3/8 in. = 3.6 % **% < No.200 =** 67.5 %

TEST RESULTS
Maximum dry density = 97.1 pcf
Optimum moisture = 21.9 %



Figure

Clay Anchor Density Test Reports

BRAUN
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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 34

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-154	5/10/04	N	P-11: Clay	21.9	97.1	19	96	99	95	C
154R	5/10/04	N	P-11: Clay	21.9	97.1	24	97	100	95	A
CL-155	5/10/04	N	P-11: Clay	21.9	97.1	20	95	98	95	C
155R	5/10/04	N	P-11: Clay	21.9	97.1	24	96	99	95	A
CL-156	5/10/04	N	P-11: Clay	21.9	97.1	24	99	102	95	A
CL-157	5/10/04	N	P-11: Clay	21.9	97.1	22	95	98	95	A
CL-158	5/10/04	N	P-11: Clay	21.9	97.1	25	95	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results do not comply with moisture specifications.

Test	Test Location	Elevation
CL-154	Northwest embankment: 5'W of toe, Station 56+31	991
154R	Northwest embankment: 5'W of toe, Station 56+31	991
CL-155	Northwest embankment: 5'W of toe, Station 54+01	991
155R	Northwest embankment: 5'W of toe, Station 54+01	991
CL-156	Northwest embankment: 5'W of toe, Station 56+25	991
CL-157	North embankment: 5'S of baseline, Station 2+35	988
CL-158	North embankment: 5'S of baseline, Station 5+00	968

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Web: braunintertec.com

Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 35

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
157R	5/10/04	N	P-11: Clay	21.9	97.1	24	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
157R	North embankment: 5'S of baseline, Station 2+35	988 1/2

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 36

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-159	5/11/04	N	P-11: Clay	21.9	97.1	23	94	97	95	A
CL-160	5/11/04	N	P-11: Clay	21.9	97.1	22	97	100	95	A
CL-161	5/11/04	N	P-11: Clay	21.9	97.1	22	97	100	95	A
CL-162	5/11/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
CL-163	5/11/04	N	P-11: Clay	21.9	97.1	23	97	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-159	Northwest embankment: Sta. 0+35, 25'NW of baseline	998
CL-160	Northwest embankment: Sta. 55+54, on baseline	1004
CL-161	Northwest embankment: Sta. 55+55, 23'NW of baseline	1007
CL-162	North embankment: 5'S of baseline, Sta. 6+10	957
CL-163	Northwest embankment: Sta. 55+56, 10'NW of baseline	1009

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: May 17, 2004

Project: SC-04-03359

Report: 37

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-164	5/12/04	N	P-10: CH	22.1	99.7	22	102	102	95	A
CL-165	5/12/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
CL-166	5/12/04	N	P-11: Clay	21.9	97.1	23	98	101	95	A
CL-167	5/12/04	N	P-11: Clay	21.9	97.1	22	96	99	95	A
CL-168	5/12/04	N	P-10: CH	22.1	99.7	22	105	105	95	A
CL-169	5/12/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
CL-170	5/12/04	N	P-11: Clay	21.9	97.1	22	95	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-164	East embankment: 10'W of baseline, Station 15+00	956
CL-165	East embankment: 10'W of baseline, Station 16+50	956
CL-166	East embankment: 10'W of baseline, Station 20+00	956
CL-167	East embankment: 5'W of baseline, Station 22+10	956
CL-168	North embankment: 5'S of baseline, Station 1+85	992
CL-169	North embankment: 5'S of baseline, Station 4+00	977
CL-170	North embankment: 5'S of baseline, Station 8+00	957

Elevation Reference:

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Report of Field Compaction Tests

Date: May 17, 2004

Project: SC-04-03359

Report: 38

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-171	5/12/04	N	P-11: Clay	21.9	97.1	22	94	97	95	A
CL-172	5/12/04	N	P-11: Clay	21.9	97.1	23	97	100	95	A
CL-173	5/12/04	N	P-11: Clay	21.9	97.1	23	97	100	95	A
RF-174	5/12/04	N	P-3: SP	10.5	119.6	4	116	97	95	A
CL-175	5/12/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
RF-176	5/12/04	N	P-3: SP	10.5	119.6	6	117	98	95	A
RF-177	5/12/04	N	P-3: SP	10.5	119.6	10	117	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-171	North embankment: 10'S of basline, Station 10+00	957
CL-172	North embankment: 10'S of baseline, Station 3+25	983
CL-173	North embankment: 10'S of baseline, Station 9+15	957
RF-174	North Road: 35'N of baseline, Station 4+00	990
CL-175	North embankment: 5'S of baseline, Station 5+00	969
RF-176	North Road: 50'N of baseline, Station 3+00	992
RF-177	North Road: 50'N of baseline, Station 2+00	994

Elevation Reference:

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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 39

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-178	5/13/04	N	P-11: Clay	21.9	97.1	22	95	98	95	A
CL-179	5/13/04	N	P-11: Clay	21.9	97.1	22	96	99	95	A
CL-180	5/13/04	N	P-11: Clay	21.9	97.1	22	98	101	95	A
CL-181	5/13/04	N	P-11: Clay	21.9	97.1	25	92	95	95	A
CL-182	5/13/04	N	P-11: Clay	21.9	97.1	24	94	97	95	A
CL-183	5/13/04	N	P-11: Clay	21.9	97.1	24	93	96	95	A
CL-184	5/13/04	N	P-11: Clay	21.9	97.1	24	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-178	East embankment: on baseline, Station 16+00	957 1/2
CL-179	East embankment: on baseline, Station 18+50	956 1/2
CL-180	East embankment: on baseline, Station 21+00	956
CL-181	North embankment: on baseline, Station 2+25	989
CL-182	North embankment: on baseline, Station 4+00	979
CL-183	North embankment: on baseline, Station 6+00	961 1/2
CL-184	North embankment: on baseline, Station 7+00	959

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 40

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-185	5/13/04	N	P-11: CL	21.9	97.1	23	93	96	95	A
CL-186	5/13/04	N	P-11: CL	21.9	97.1	21	97	100	95	A
CL-187	5/14/04	N	P-11: CL	21.9	97.1	22	95	98	95	A
CL-188	5/14/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL-189	5/14/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL-190	5/14/04	N	P-11: CL	21.9	97.1	24	92	95	95	A
CL-191	5/14/04	N	P-11: CL	21.9	97.1	23	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-185	North embankment: Station 11+00	
CL-186	North embankment: Station 12+00	
CL-187	East embankment: Station 15+50, on baseline	958
CL-188	East embankment: Station 22+50, on baseline	958
CL-189	North embankment: Station 9+00, on baseline	959
CL-190	East embankment: Station 14+00, on baseline	958
CL-191	East embankment: Station 17+50	958 1/2

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

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Report of Field Compaction Tests

Date: May 17, 2004 **Project:** SC-04-03359 **Report:** 41

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-192	5/14/04	N	P-11: Clay	21.9	97.1	26	92	95	95	A
RF-193	5/14/04	N	P-3: SP	10.5	119.6	10	125	105	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-192	East embankment: Station 19+00	958 1/2
RF-193	Roadway: 40'N of Station 5+00	980

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: May 17, 2004

Project: SC-04-03359

Report: 42

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-194	5/7/04	N	P-11: Clay	22.0	97.1	27	94	97	95	A
CL-195	5/7/04	N	P-11: Clay	22.0	97.1	25	95	98	95	A
CL-196	5/7/04	N	P-11: Clay	22.0	97.1	26	92	95	95	A
CL-197	5/7/04	N	P-11: Clay	22.0	97.1	23	98	101	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-194	East embankment: Station 16+00	959
CL-195	East embankment: Station 19+00	959
CL-196	North embankment: Station 13+00	958
CL-197	North embankment: Station 11+00	959 1/2

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Thomas Henkemeyer
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Report of Field Compaction Tests

Date: May 18, 2004 **Project:** SC-04-03359 **Report:** 43

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-198	5/18/04	N	P-3: SP	10.5	119.6	10	114	95	95	A
CL-199	5/18/04	N	P-11: CL	21.9	97.1	24	94	97	95	A
CL-200	5/18/04	N	P-11: CL	21.9	97.1	25	93	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-198	North embankment: Station 0+40, 0' from baseline	1005
CL-199	North embankment: Station 0+40, 0' from baseline	1008
CL-200	North embankment: Station 0+50, 10'E of baseline	1010

Elevation Reference:

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Report of Field Compaction Tests

Date: May 20, 2004 **Project:** SC-04-03359 **Report:** 44

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-201	5/19/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL-202	5/19/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
CL-203	5/19/04	N	P-11: CL	21.9	97.1	24	98	101	95	A
CL-204	5/19/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL-205	5/19/04	N	P-11: CL	21.9	97.1	23	98	101	95	A
CL-206	5/19/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL-207	5/19/04	N	P-11: CL	21.9	97.1	25	93	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-201	North embankment: Station 5+00	972
CL-202	North embankment: Station 8+00	960
CL-203	North embankment: Station 12+00	959 1/2
CL-204	East embankment: Station 16+00	960
CL-205	East embankment: Station 18+00	959 1/2
CL-206	East embankment: Station 21+00	960
CL-207	East embankment: Station 27+50	957

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Report of Field Compaction Tests

Date: May 20, 2004 **Project:** SC-04-03359 **Report:** 45

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-208	5/19/04	N	P-11: CL	21.9	97.1	24	88	91	95	B
CL-208R	5/19/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL-209	5/19/04	N	P-11: CL	21.9	97.1	25	93	96	95	A
CL-210	5/19/04	N	P-11: CL	21.9	97.1	23	94	97	95	A
CL-211	5/19/04	N	P-11: CL	21.9	97.1	23	94	97	95	A
CL-212	5/19/04	N	P-11: CL	21.9	97.1	24	94	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-208	East embankment: Station 26+50	957
CL-208R	East embankment: Station 26+50	957
CL-209	East embankment: Station 28+00	957
CL-210	East embankment: Station 27+00	958 1/2
CL-211	East embankment: Station 27+85	959
CL-212	East embankment: Station 28+60	969

Elevation Reference:

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Report of Field Compaction Tests

Date: May 20, 2004 **Project:** SC-04-03359 **Report:** 46

Client:
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Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-213	5/20/04	N	P-11: Clay	21.9	97.1	25	94	97	95	A
RF-214	5/21/04	N	P-1: SP	10.8	110.6	8	109	99	95	A
RF-215	5/21/04	N	P-1: SP	10.8	110.6	7	109	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-213	East embankment: Station 28+00	960
RF-214	East embankment: Station 25+00	955
RF-215	East embankment: Station 24+00	960

Elevation Reference:

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Report of Field Compaction Tests

Date: May 27, 2004 **Project:** SC-04-03359 **Report:** 48

Client:
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Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-220	5/26/04	N	P-11: Clay	21.9	97.1	24	99	102	95	A
CL-221	5/26/04	N	P-11: Clay	21.9	97.1	22	97	100	95	A
CL-222	5/26/04	N	P-11: Clay	21.9	97.1	22	96	99	95	A
CL-223	5/26/04	N	P-11: Clay	21.9	97.1	22	97	100	95	A
CL-224	5/26/04	N	P-11: Clay	21.9	97.1	22	97	100	95	A
CL-225	5/26/04	N	P-11: Clay	21.9	97.1	23	96	99	95	A
CL-226	5/26/04	N	P-11: Clay	21.9	97.1	23	95	98	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
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C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-220	East embankment: Station28+60	972
CL-221	East embankment: Station 23+80	960
CL-222	East embankment: Station 24+00	957
CL-223	East embankment: SE Corner, Station 28+80	962
CL-224	East embankment: Station 25+00	958
CL-225	East embankment: Station 25+75	958
CL-226	East embankment: Station 26+00	959

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Report of Field Compaction Tests

Date: June 30, 2004 **Project:** SC-04-03359 **Report:** 49

Client:
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL-227	5/28/04	N	P-11: Clay	21.9	97.1	28	92	95	95	A

Key: N = Nuclear, ASTM D 2922
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* = O.M. and M.L.D.D. rounded to nearest 0.1

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C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
CL-227	East bank, Station 26+00	959

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Upstream Clay Barrier Density Test Reports

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 64

Client:
Steve Bluhm, PE
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Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL283	8/5/04	N	P-11: CL	21.9	97.1	22	94	97	95	A
C5284	8/5/04	N	P-6: C5	10.2	125.9	10	126	100	100	A
RF285	8/5/04	N	P-3: SP	10.5	119.6	11	117	98	95	A
CL286	8/5/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL287	8/5/04	N	P-11: CL	21.9	97.1	23	97	100	95	A
CL288	8/5/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
CL289	8/5/04	N	P-11: CL	21.9	97.1	23	96	99	95	A

Key: N = Nuclear, ASTM D 2922
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A = Test results comply with specifications.
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C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL283	East embankment: Station 28+00 (upstream barrier)	961
C5284	Manhole #3 (subgrade)	947 1/2
RF285	North embankment: Statiaon 6+00, 75'S (random fill)	957
CL286	East embankment: Station 26+00 (upstream barrier)	961
CL287	East embankment: Station 18+50 (upstream barrier)	963
CL288	East embankment: Station 20+00 (upstream barrier)	960 1/2
CL289	East embankment: Station 28+50 (upstream barrier)	963

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Report of Field Compaction Tests

Date: August 10, 2004

Project: SC-04-03359

Report: 65

Client:
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF290	8/5/04	N	P-1: SP	10.8	110.6	9	109	99	95	A
CL291	8/5/04	N	P-11: CL	21.9	97.1	24	95	98	95	A
CL292	8/5/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL293	8/6/04	N	P-11: CL	21.9	97.1	25	94	97	95	A
CL294	8/6/04	N	P-11: CL	21.9	97.1	25	95	98	95	A
CL295	8/6/04	N	P-11: CL	21.9	97.1	26	97	100	95	A
CL296	8/6/04	N	P-11: CL	21.9	97.1	25	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF290	Random fill, North embankment: Station 5+00, 50'S of baseline	960
CL291	East embankment: Station 27+00 (upstream barrier)	968
CL292	East embankment: Station 28+00 (upstream barrier)	968
CL293	East embankment: Station 25+25 (upstream barrier)	963
CL294	East embankment: Station 26+25 (upstream barrier)	969
CL295	East embankment: Station 25+00 (upstream barrier)	972
CL296	East embankment: Station 24+25 (upstream barrier)	962

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 66

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL297	8/6/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL298	8/6/04	N	P-11: CL	21.9	97.1	23	98	101	95	A
CL299	8/6/04	N	P-11: CL	21.9	97.1	24	97	100	95	A
CL300	8/6/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
RF301	8/6/04	N	P-2: SP	9.4	125.6	4	125	100	95	A
RF302	8/6/04	N	P-2: SP	9.4	125.6	4	121	96	95	A
RF303	8/6/04	N	P-2: SP	9.4	125.6	4	126	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL297	East embankment: Station 23+50 (upstream barrier)	963
CL298	East embankment: Station 23+00 (upstream barrier)	970
CL299	East embankment: Station 22+25 (upstream barrier)	963
CL300	East embankment: Station 22+00 (upstream barrier)	961
RF301	Random fill: Station 28+00, 30'E of baseline	978
RF302	Random fill: Station 27+00, 35'E of baseline	976
RF303	Random fill: Station 26+00, 35'E of baseline	975

Elevation Reference:

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Report of Field Compaction Tests

Date: August 10, 2004

Project: SC-04-03359

Report: 67

Client:
Steve Bluhm, PE
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Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL304	8/7/04	N	P-11: CL	21.9	97.1	25	93	96	95	A
CL305	8/7/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL306	8/7/04	N	P-11: CL	21.9	97.1	23	98	101	95	A
RF307	8/7/04	N	P-1: SP	10.8	110.6	5	110	99	95	A
RF308	8/7/04	N	P-1: SP	10.8	110.6	6	109	99	95	A
RF309	8/7/04	N	P-8: SP-SM	13.5	113.7	6	113	99	95	A
RF310	8/7/04	N	P-4: SP	12.7	108.6	6	107	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL304	East embankment: Station 20+50 (upstream barrier)	963
CL305	East embankment: Station 22+50 (upstream barrier)	971
CL306	East embankment: Station 21+50 (upstream barrier)	965
RF307	Random fill: Top of East embankment: Station 25+00	972
RF308	Random fill: Top of East embankment: Station 22+00	972
RF309	Random fill: Top of East embankment: Station 17+50	971 1/2
RF310	Random fill: Top of North embankment: Station 11+00	970

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recycled paper with soy ink

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 68

Client:
Steve Bluhm, PE
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13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF311	8/7/04	N	P-4: SP	12.7	108.6	6	105	97	95	A
RF312	8/7/04	N	P-1: SP	10.8	110.6	6	110	99	95	A
CL313	8/7/04	N	P-11: CL	21.9	97.1	23	94	97	95	A
CL314	8/7/04	N	P-11: CL	21.9	97.1	22	93	96	95	A
CL315	8/7/04	N	P-11: CL	21.9	97.1	24	94	97	95	A
CL316	8/7/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL317	8/7/04	N	P-11: CL	21.9	97.1	22	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF311	Random fill, top of North embankment: Station 9+00	971
RF312	Random fill, top of North embankment: Station 7+00	970
CL313	East embankment: Station 16+10 (upstream barrier)	961
CL314	East embankment: Station 17+00 (upstream barrier)	962
CL315	East embankment: Station 20+25 (upstream barrier)	968
CL316	East embankment: Station 19+10 (upstream barrier)	964
CL317	East embankment: Station 19+00 (upstream barrier)	970

Elevation Reference:

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St. Cloud, MN 56302

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 69

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL318	8/9/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL319	8/9/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
RF320	8/9/04	N	P-3: SP	10.5	119.6	8	118	99	95	A
RF321	8/9/04	N	P-3: SP	10.5	119.6	6	119	99	95	A
RF322	8/9/04	N	P-3: SP	10.5	119.6	6	115	96	95	A
RF323	8/9/04	N	P-3: SP	10.5	119.6	5	118	99	95	A
RF324	8/9/04	N	P-3: SP	10.5	119.6	5	114	95	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL318	East embankment: Station 18+50 (upstream barrier)	966
CL319	East embankment: Station 18+00 (upstream barrier)	966
RF320	Random fill: Station 25+00, 35'E of baseline	960
RF321	Random fill: Station 24+00, 30'E of baseline	960
RF322	Random fill: Station 23+00, 25'E of baseline	963
RF323	Random fill: Station 22+00, 25'E of baseline	963
RF324	Random fill: Station 21+00, 35'E of baseline	960

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

recycled paper with soy ink

BRAUN INTERTEC

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Phone: 320.253.9940
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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 70

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL325	8/9/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL326	8/9/04	N	P-11: CL	21.9	97.1	22	95	98	95	A
CL327	8/9/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL328	8/9/04	N	P-11: CL	21.9	97.1	24	96	99	95	A
CL329	8/9/04	N	P-11: CL	21.9	97.1	22	97	100	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL325	East embankment: Station 17+50 (upstream barrier)	966
CL326	East embankment: Station 16+00 (upstream barrier)	968
CL327	East embankment: Station 15+00 (upstream barrier)	963
CL328	East embankment: Station 14+50 (upstream barrier)	961
CL329	East embankment: Station 15+20 (upstream barrier)	971

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: August 12, 2004 **Project:** SC-04-03359 **Report:** 71

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL330	8/10/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL331	8/10/04	N	P-11: CL	21.9	97.1	22	95	98	95	A
CL332	8/10/04	N	P-11: CL	21.9	97.1	22	97	100	95	A
CL333	8/10/04	N	P-11: CL	21.9	97.1	23	96	99	95	A
CL334	8/10/04	N	P-11: CL	21.9	97.1	23	93	96	95	A
CL335	8/10/04	N	P-11: CL	21.9	97.1	23	94	97	95	A
CL336	8/10/04	N	P-11: CL	21.9	97.1	23	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL330	North embankment: Station 13+20, upstream barriers	963
CL331	East embankment: Station 14+10, upstream barriers	969
CL332	North embankment: Station 13+00, upstream barriers	966
CL333	North embankment: Station 5+50, upstream barriers	969
CL334	North embankment: Station 6+50, upstream barriers	965
CL335	North embankment: Station 6+00, upstream barriers	970
CL336	North embankment: Station 7+00, upstream barriers	962

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Thomas Henkemeyer
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Report of Field Compaction Tests

Date: August 12, 2004 **Project:** SC-04-03359 **Report:** 72

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF337	8/10/04	N	P-3: SP	10.5	119.6	5	120	100	100	A
RF338	8/10/04	N	P-3: SP	10.5	119.6	5	120	100	100	A
RF339	8/10/04	N	P-3: SP	10.5	119.6	6	120	100	100	A
CL340	8/10/04	N	P-11: CL	21.9	97.1	24	93	96	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
RF337	Upper structure pad (footing subgrade)	FSG
RF338	Middle structure pad (footing subgrade)	FSG
RF339	Lower structure pad (footing subgrade)	FSG
CL340	North embankment: Station 7+00, upstream barriers	970

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: August 12, 2004

Project: SC-04-03359

Report: 73

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL341	8/11/04	N	P-11: CL	21.9	97.1	25	88	91	95	B
CL341A	8/11/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL342	8/11/04	N	P-11: CL	21.9	97.1	22	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL341	North embankment: Station 8+00 (upstream barriers)	964
CL341A	Retest of #341	964
CL342	North embankment: Station 8+10 (upstream barriers)	971

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: August 12, 2004 **Project:** SC-04-03359 **Report:** 74

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL343	8/11/04	N	P-11: CL	21.9	97.1	24	93	96	95	A
CL344	8/11/04	N	P-11: CL	21.9	97.1	24	96	99	95	A
RF345	8/11/04	N	P-8: SP-SM	13.5	113.7	7	114	100	100	A
CL346	8/11/04	N	P-11: CL	21.9	97.1	25	93	96	95	A
CL347	8/11/04	N	P-11: CL	21.9	97.1	23	93	96	95	A
CL348	8/11/04	N	P-11: CL	21.9	97.1	23	95	98	95	A
CL349	8/11/04	N	P-11: CL	21.9	97.1	26	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
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A = Test results comply with specifications.
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C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL343	North embankment: Station 9+10 (upstream barriers)	965
CL344	North embankment: Station 10+00 (upstream barriers)	961
RF345	Blower building pad (footing subgrade)	FSG
CL346	North embankment: Station 9+00 (upstream barriers)	972
CL347	North embankment: Station 12+00 (upstream barriers)	965
CL348	North embankment: Station 11+00 (upstream barriers)	962
CL349	North embankment: Station 12+40 (upstream barriers)	970

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

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Report of Field Compaction Tests

Date: August 12, 2004 **Project:** SC-04-03359 **Report:** 75

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL350	8/11/04	N	P-11: CL	21.9	97.1	22	94	97	95	A
CL351	8/11/04	N	P-11: CL	21.9	97.1	23	94	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL350	North embankment: Station 11+00 (upstream barriers)	970
CL351	North embankment: Station 10+00 (upstream barriers)	968

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Clay Anchor and Upstream Barrier Permeability and Index Test Reports

Permeability Test Data

(Undisturbed / In-situ Samples)

Project: XCEL SHERCO POND 3N CONSTRUCTION – P.O. #M63383 Date: 6-24-04

Reported To: McCAIN & ASSOC., INC. Job No.: 5014-A

Boring No.				
Sample No.	ST-1	ST-2	ST-3	
Depth (Ft)	1009	958.0-957.5	960.0-959.5	
Location	N.W. CLAY BLANKET	STA. 15+00 6'E. OF BASELINE	STA. 22+00 5'E. OF BASELINE	
Type of Sample	3T	3T	3T	
Soil Type	SANDY LEAN CLAY W/A LITTLE GRAVEL (CL)	→	→	
Atterberg Limits				
Liquid Limit	44.4	45.0	40.4	
Plastic Limit	20.8	20.5	19.6	
Plasticity Index	23.6	24.5	20.8	
Permeability Test				
% Saturation (After Test)	97.5	97.8	97.7	
Height (Inches)	2.85	2.83	2.85	
Diameter (Inches)	2.84	2.88	2.86	
Dry Density (pcf)	94.8	93.7	101.4	
Water Content (%)	25.2	27.7	22.6	
Type of Test (Head)	FALLING	FALLING	FALLING	
Max. Head Differential (ft)	5.0	5.0	5.0	
Confining Pressure (Effective-psi)	2.0	2.0	2.0	
Trial No.	12-16	12-16	12-16	
Water Temp. (°C)	23	23	23	
Coefficient of Permeability				
K @ 20°C (cm/sec)	1.7×10^{-8}	6.8×10^{-8}	9.8×10^{-9}	
K @ 20°C (ft/min)	3.4×10^{-8}	1.3×10^{-7}	1.9×10^{-8}	

Permeability Test Data

(Undisturbed / In-situ Samples)

Project: XCEL SHERCO POND 3N CONSTRUCTION UPSTREAM CLAY BARRIER – P.O. # M63383 Date: 8-27-04

Reported To: McCAIN & ASSOC., INC. Job No.: 5014-B

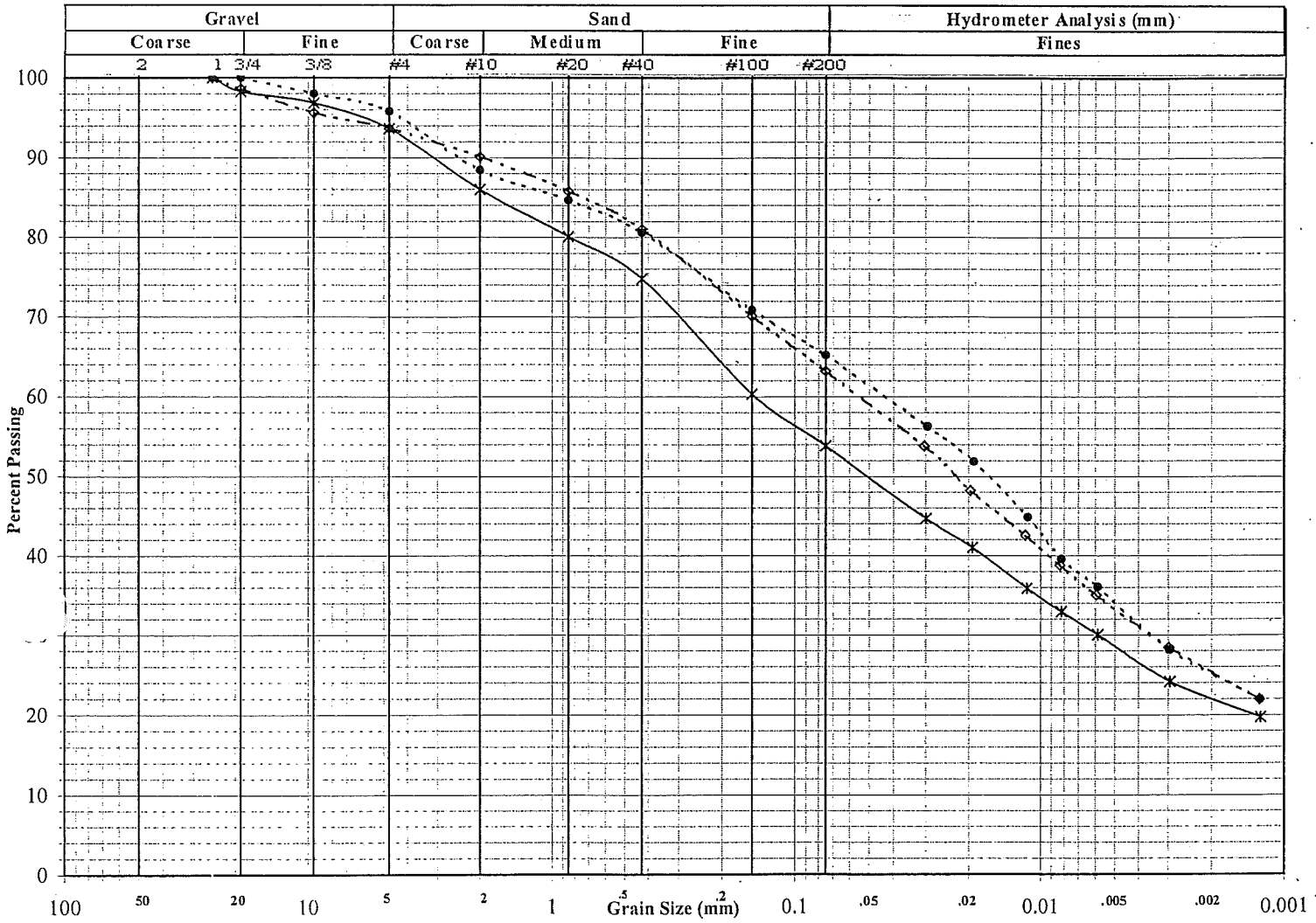
Boring No.				
Sample No.	ST-4	ST-5	ST-6	ST-7
Depth (Ft)				
Location	STA. 21+23, 9' W. OF BASELINE, ELV. 968.5	STA. 27+58, 14' W. OF BASELINE, ELV. 971.5	STA. 14+70, 2' W. OF BASELINE, ELV. 966.0	STA. 8+65, 14' W. OF BASELINE, ELV. 963.0
Type of Sample	3T	3T	3T	3T
Soil Type	SANDY LEAN CLAY W/A LITTLE GRAVEL (CL)	SANDY LEAN CLAY W/A LITTLE GRAVEL (CL)	SANDY LEAN CLAY W/A LITTLE GRAVEL (CL)	SANDY LEAN CLAY W/A LITTLE GRAVEL (CL)
Atterberg Limits				
Liquid Limit	43.1	45.1	43.8	38.7
Plastic Limit	19.9	21.3	23.0	19.1
Plasticity Index	23.2	23.8	20.8	19.6
Permeability Test				
% Saturation (After Test)	95.6	96.0	95.5	96.1
Height (Inches)	2.53	2.48	2.31	3.05
Diameter (Inches)	2.86	2.87	2.88	2.87
Dry Density (pcf)	98.4	94.4	100.2	95.5
Water Content (%)	23.1	27.2	23.2	26.2
Type of Test (Head)	FALLING	FALLING	FALLING	FALLING
Max. Head Differential (ft)	5.0	5.0	5.0	5.0
Confining Pressure (Effective-psi)	2.0	2.0	2.0	2.0
Trial No.	12-16	12-16	12-16	12-16
Water Temp. (°C)	23	23	23	23
Coefficient of Permeability				
K @ 20°C (cm/sec)	1.8×10^{-8}	9.9×10^{-9}	1.2×10^{-8}	3.4×10^{-8}
K @ 20°C (ft/min)	3.5×10^{-8}	1.9×10^{-8}	2.3×10^{-8}	6.7×10^{-8}

Grain Size Distribution ASTM D422

Job No. : **5014-B**

Project:	**Xcel Sherco Pond 3N Construction**	Test Date:	8/10/04
Reported To:	**McCain & Associates, Inc.**	Report Date:	8/16/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
		ST-4		3T	Sandy Lean Clay w/a little gravel (CL)
●		ST-5		3T	Sandy Lean Clay w/a little gravel (CL)
◇		ST-6		3T	Sandy Lean Clay w/a little gravel (CL)



Other Tests

	✳	●	◇
Liquid Limit	43.1	45.1	43.8
Plastic Limit	19.9	21.3	23.0
Plasticity Index	23.2	23.8	20.8
Water Content	23.8	21.0	22.4
Dry Density (PCF)			
Specific Gravity	2.68*	2.68*	2.68*
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Hydrometer			
Qu (PSF)			

Percent Passing

	✳	●	◇
Mass (g)	367	210	435
2"			
1.5"			
1"	100.0		100.0
3/4"	98.3	100.0	98.6
3/8"	96.8	98.0	95.6
#4	93.6	95.8	93.7
#10	86.0	88.4	90.1
#20	80.1	84.7	85.8
#40	74.8	80.6	81.1
#100	60.3	70.9	70.1
#200	53.9	65.2	63.2

	✳	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

9301 Bryant Ave. South Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

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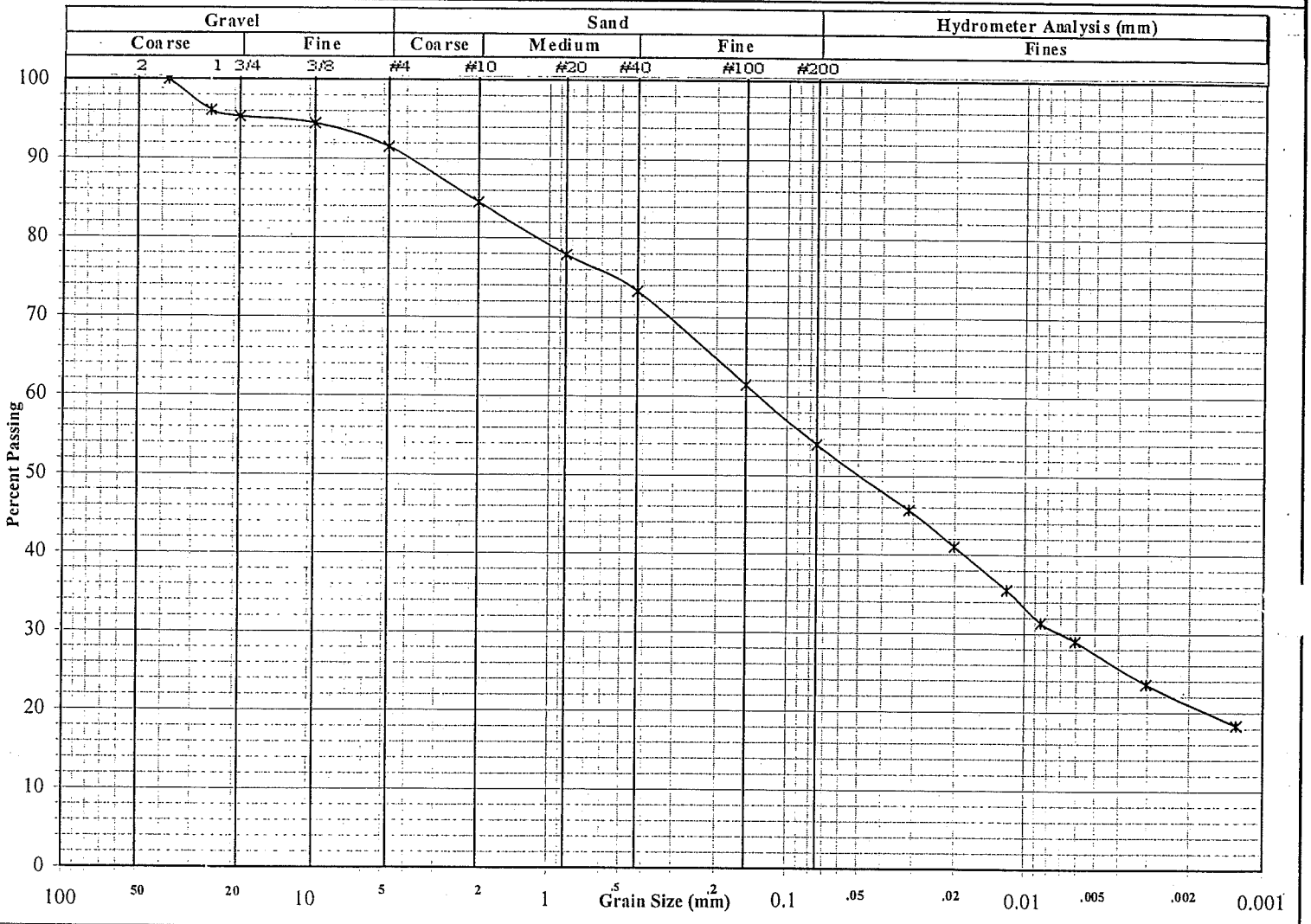
Grain Size Distribution ASTM D422

Job No.: 5014-B

Project:	Xcel Sherco Pond 3N Construction P.O. # M63383
Reported To:	McCain & Associates, Inc.
Test Date:	8/17/04
Report Date:	8/19/04

	Location/ Boring No.	Sample No.	Depth (ft)	Sample Type	Soil Classification
✕		ST-7		3T	Sandy Lean Clay w/a little gravel (CL)
●					
◇					



Other Tests

	✕	●	◇
Liquid Limit	38.7		
Plastic Limit	19.1		
Plasticity Index	19.6		
Water Content	26.1		
Dry Density (PCF)	95.5		
Specific Gravity	2.68*		
Porosity			
Organic Content			
pH			
Shrinkage Limit			
Penetrometer			
Qu (PSF)			

Percent Passing

	✕	●	◇
Mass (g)	1246		
2"			
1.5"	100.0		
1"	96.1		
3/4"	95.3		
3/8"	94.5		
#4	91.5		
#10	84.5		
#20	77.9		
#40	73.3		
#100	61.5		
#200	53.9		

	✕	●	◇
D_{60}			
D_{30}			
D_{10}			
C_u			
C_C			

Remarks:

*Assumed Value

9301 Bryant Ave. South Suite 107

SOIL ENGINEERING TESTING, INC.

Bloomington, Minnesota 55420-3436

File: 5014-

Appendix D

Gradation Test Reports

BRAUN
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1520 24th Avenue N
P.O. Box 189
St. Cloud, MN 56302

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Gradation Testing
ASTM C 136 & C 117

Date: April 8, 2004 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.: G-1
Sampled By: Braun Intertec
Date Sampled: 4/6/04
Date Received: 4/6/04
Date Tested: 4/7/04
Classification: Granular Drainage
Sample Location: On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	97	
#10	94	
#20	83	
#40	44	
#80	5	
#200	2.7	0-5

Remarks: This sample does meet project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

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St. Cloud, MN 56302

Phone: 320.253.9940
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Gradation Testing
ASTM C 136 & C 117

Date: April 8, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-2
Sampled By:	Braun Intertec
Date Sampled:	4/6/04
Date Received:	4/6/04
Date Tested:	4/7/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	95	
#10	86	
#20	67	
#40	34	
#80	4	
#200	2.7	0-5

Remarks: This sample does meet project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

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Gradation Testing
ASTM C 136 & C 117

Date: April 15, 2004 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-3
Sampled By:	Braun Intertec
Date Sampled:	4/8/04
Date Received:	4/8/04
Date Tested:	4/14/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	95	
#10	83	
#20	60	
#40	25	
#80	3	
#200	2.2	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Gradation Testing
ASTM C 136 & C 117

Date: 4/23/04

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-4
Sampled By:	Braun Intertec
Date Sampled:	4/13/04
Date Received:	4/13/04
Date Tested:	4/19/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	94	
#10	85	
#20	66	
#40	31	
#80	4	
#200	2.5	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Gradation Testing
ASTM C 136 & C 117

Date: 4/23/04

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-6
Sampled By:	Braun Intertec
Date Sampled:	4/19/04
Date Received:	4/19/04
Date Tested:	4/20/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	100	
#4	97	
#10	92	
#20	79	
#40	47	
#80	5	
#200	2.6	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
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Gradation Testing
ASTM C 136 & C 117

Date: 4/29/04

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.: G-7
Sampled By: Braun Intertec
Date Sampled: 4/21/04
Date Received: 4/21/04
Date Tested: 4/23/04
Classification: Granular Drainage
Sample Location: On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	100	
#4	93	
#10	91	
#20	74	
#40	41	
#80	6	
#200	3.1	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Thomas Henkemeyer
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Gradation Testing
ASTM C 136 & C 117

Date: 4/29/04 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-8
Sampled By:	Braun Intertec
Date Sampled:	4/23/04
Date Received:	4/23/04
Date Tested:	4/26/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	100	
#4	90	
#10	88	
#20	69	
#40	37	
#80	6	
#200	3.1	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
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Gradation Testing
ASTM C 136 & C 117

Date: April 30, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-9
Sampled By:	Braun Intertec
Date Sampled:	4/28/04
Date Received:	4/28/04
Date Tested:	4/29/04
Classification:	Granular Drainage
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	96	
#10	86	
#20	65	
#40	35	
#80	7	
#200	3.9	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Thomas Henkemeyer
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Gradation Testing

ASTM C 136 & C 117

Date: May 6, 2004 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-10
Sampled By:	Braun Intertec
Date Sampled:	4/30/04
Date Received:	4/30/04
Date Tested:	5/3/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	95	
#10	86	
#20	67	
#40	31	
#80	4	
#200	2.5	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Thomas Henkemeyer
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Gradation Testing
ASTM C 136 & C 117

Date: May 7, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-11
Sampled By:	Braun Intertec
Date Sampled:	5/5/04
Date Received:	5/5/04
Date Tested:	5/6/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	99	
#4	95	
#10	86	
#20	67	
#40	31	
#80	4	
#200	2.5	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Thomas Henkemeyer
Project Manager

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Gradation Testing
ASTM C 136 & C 117

Date: May 10, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-12
Sampled By:	Braun Intertec
Date Sampled:	5/6/04
Date Received:	5/6/04
Date Tested:	5/7/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	100	
#4	96	
#10	92	
#20	74	
#40	38	
#80	6	
#200	3.3	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
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Date: May 10, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-13
Sampled By:	Braun Intertec
Date Sampled:	5/6/04
Date Received:	5/6/04
Date Tested:	5/7/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	100
3/8"	100	
#4	95	
#10	86	
#20	65	
#40	32	
#80	5	
#200	2.9	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 17, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-14
Sampled By:	Braun Intertec
Date Sampled:	5/11/04
Date Received:	5/11/04
Date Tested:	5/12/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
3/8"	100	
#4	97	
#10	89	
#20	73	
#40	42	
#80	8	
#200	4.9	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 17, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-15
Sampled By:	Braun Intertec
Date Sampled:	5/12/04
Date Received:	5/12/04
Date Tested:	5/13/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
3/8"	100	
#4	94	
#10	83	
#20	62	
#40	29	
#80	3	
#200	1.8	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 20, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-16
Sampled By:	Braun Intertec
Date Sampled:	5/14/04
Date Received:	5/14/04
Date Tested:	5/19/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
½"	100	
3/8"	99	
#4	97	
#10	89	
#20	69	
#40	36	
#80	5	
#200	2.5	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 20, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-17
Sampled By:	Braun Intertec
Date Sampled:	5/17/04
Date Received:	5/17/04
Date Tested:	5/19/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
½"	100	
3/8"	100	
#4	98	
#10	92	
#20	74	
#40	37	
#80	6	
#200	2.9	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 24, 2004 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-18
Sampled By:	Braun Intertec
Date Sampled:	5/18/04
Date Received:	5/18/04
Date Tested:	5/20/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
½"	100	
3/8"	100	
#4	98	
#10	92	
#20	78	
#40	45	
#80	9	
#200	5.0	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: May 24, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-19
Sampled By:	Braun Intertec
Date Sampled:	5/19/04
Date Received:	5/19/04
Date Tested:	5/21/04
Classification:	Granular Drainage
Sample Location:	Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
½"	100	
3/8"	100	
#4	96	
#10	89	
#20	71	
#40	39	
#80	7	
#200	3.9	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: June 16, 2004 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Field Data:

Sample No.:	G-20
Sampled By:	Braun Intertec
Date Sampled:	6/15/04
Date Received:	6/15/04
Date Tested:	6/16/04
Classification:	Granular Drainage
Sample Location:	Pond Bottom, N 865248 & E2031689

Laboratory Results:

Sieve Size	% Passing	Specifications
½"	100	
3/8"	99	
#4	96	
#10	86	
#20	65	
#40	36	
#80	6	
#200	3.1	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: July 1, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-21
Sampled By:	Braun Intertec
Date Sampled:	6-30-04
Date Received:	6-30-04
Date Tested:	6-30-04
Classification:	Granular Drainage
Sample Location:	Pond Bottom, N 864814, E2031439

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	
3/8"	99	
#4	94	
#10	82	
#20	60	
#40	28	
#80	5	
#200	2.6	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing

ASTM C 136 & C 117

Date:	July 15, 2004	**Project No.:**	SC-04-03359
Client:	Steve Bluhm, PE Xcel Energy, Inc. Sherburne County Generating Facility 13999 Industrial Boulevard Becker, MN 55308	**Description:**	Xcel Sherco Pond 3N Construction 13999 Industrial Boulevard Becker, Minnesota

Field Data:

Sample No.:	G-22
Sampled By:	Braun Intertec
Date Sampled:	7-14-04
Date Received:	7-14-04
Date Tested:	7-13-04
Classification:	Granular Drainage Material
Sample Location:	Pond Floor, SE quadrant, 30'N of South embankment subgrade toe, on 942 subgrade contour line – N 864,002 E 2,031,856

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	
3/8"	99	
#4	96	
#10	90	
#20	75	
#40	45	
#80	8	
#200	3.8	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Gradation Testing
ASTM C 136 & C 117

Date: July 28, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-23
Sampled By:	Braun Intertec
Date Sampled:	7-26-04
Date Received:	7-26-04
Date Tested:	7-27-04
Classification:	Granular Drainage Material
Sample Location:	Pond Bottom, N864962, E2030993

Laboratory Results:

Sieve Size	% Passing	Specifications
1/2"	100	
3/8"	99	
#4	95	
#10	88	
#20	74	
#40	43	
#80	7	
#200	4.1	0-5

Remarks: This sample meets project requirements for Granular Drainage Material.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

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Permeability Test Reports

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Constant Head Permeability-ASTM D2434

Date: 19-Apr-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

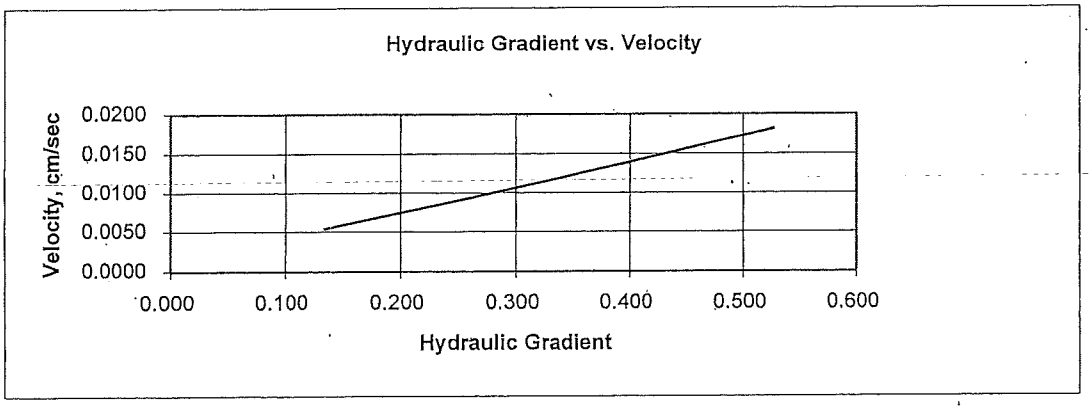
Background Information

Sample No:	G-3	Date Sampled:	08-Apr-04
Classification:	Poorly Graded Sand	Date tested:	16-Apr-04
Sample Location:	Onsite Stockpile	Sampled by:	na
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	112.2	Maximum Density:	na
Void ratio:	0.47	% of Maximum:	na
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	20.5	1.5	0.13	0.0054	4.0E-02
2	20.5	2.9	0.26	0.0093	3.6E-02
3	20.5	5.9	0.53	0.0181	3.4E-02
4	20.5	12.8	1.14	0.0381	3.3E-02



Average coefficient of permeability (@20°C) 3.6E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 26-Apr-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

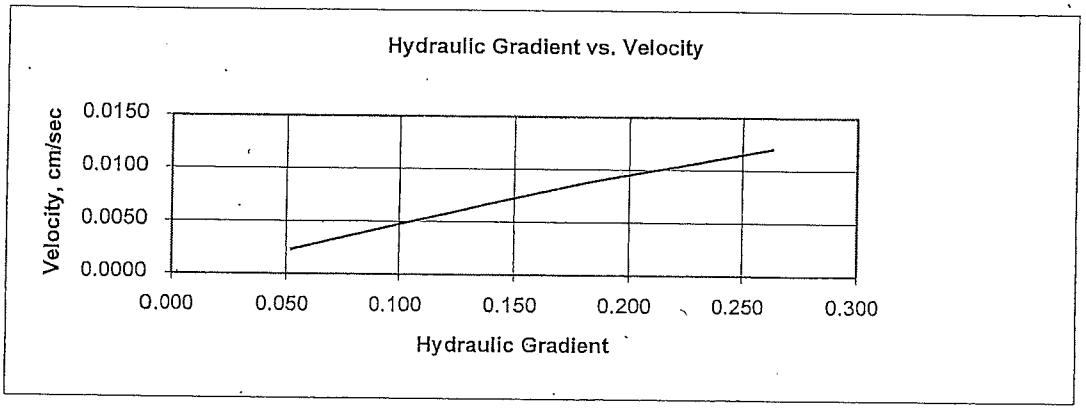
Background Information

Sample No:	G-4	Date Sampled:	20-Apr-04
Classification:	Poorly Graded Sand	Date tested:	21-Apr-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	108.7	Maximum Density:	110.9
Void ratio:	0.52	% of Maximum:	98.0%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	0.6	0.05	0.0023	4.3E-02
2	22.0	2.0	0.18	0.0086	4.6E-02
3	22.0	3.0	0.26	0.0121	4.4E-02
4	22.0	7.6	0.68	0.0308	4.3E-02



Average coefficient of permeability (@20°C) 4.4E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 26-Apr-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

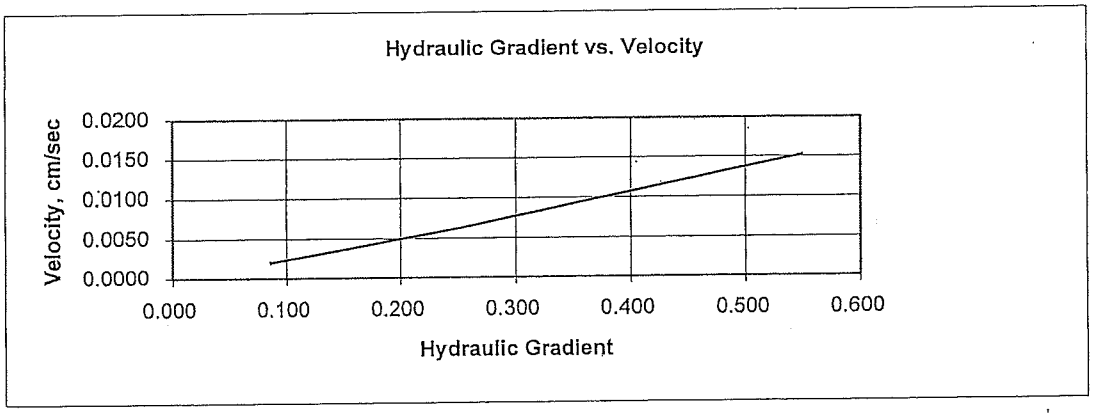
Background Information

Sample No:	G-6	Date Sampled:	20-Apr-04
Classification:	Poorly Graded Sand	Date tested:	21-Apr-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	108.9	Maximum Density:	110.3
Void ratio:	0.52	% of Maximum:	98.7%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	1.0	0.08	0.0020	2.2E-02
2	22.0	2.9	0.25	0.0064	2.4E-02
3	22.0	6.2	0.55	0.0152	2.6E-02
4	22.0	9.7	0.87	0.0218	2.4E-02



Average coefficient of permeability (@20°C) 2.4E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 03-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

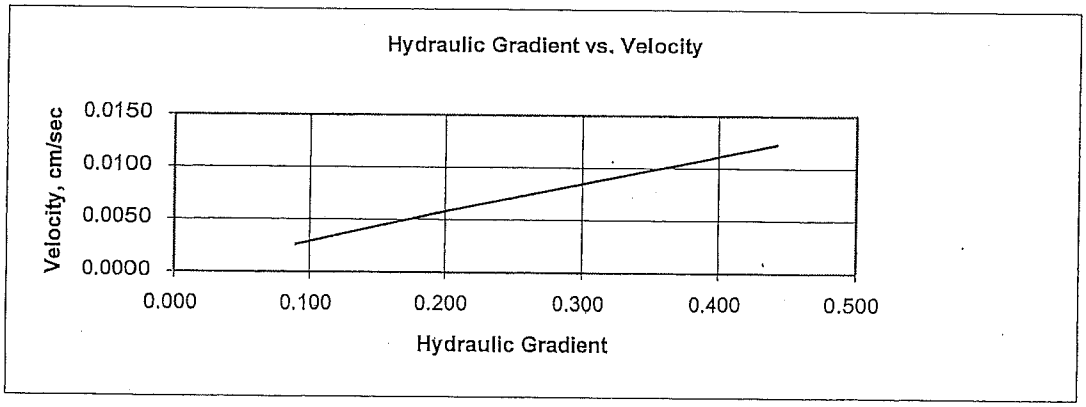
Background Information

Sample No:	G-7	Date Sampled:	23-Apr-04
Classification:	Poorly Graded Sand	Date tested:	01-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	107.8	Maximum Density:	110.3
Void ratio:	0.53	% of Maximum:	97.7%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	1.0	0.09	0.0026	2.8E-02
2	22.0	2.3	0.21	0.0059	2.7E-02
3	22.0	5.0	0.44	0.0123	2.7E-02
4	22.0	7.5	0.67	0.0183	2.6E-02



Average coefficient of permeability (@20°C) 2.7E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 03-May-04 **Project Number:** SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

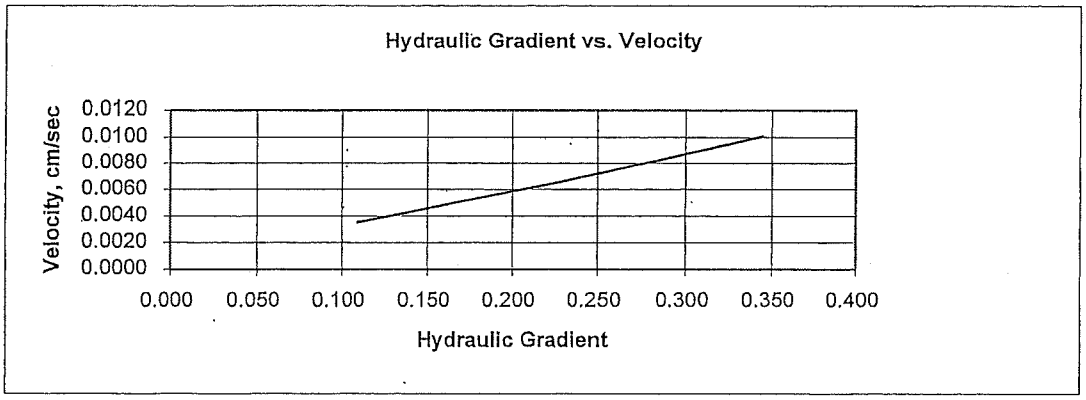
Background Information

Sample No:	G-8	Date Sampled:	23-Apr-04
Classification:	Poorly Graded Sand	Date tested:	01-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	109.0	Maximum Density:	110.3
Void ratio:	0.52	% of Maximum:	98.8%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	1.2	0.11	0.0035	3.1E-02
2	22.0	2.6	0.23	0.0066	2.7E-02
3	22.0	3.9	0.35	0.0101	2.8E-02
4	22.0	5.9	0.52	0.0144	2.6E-02



Average coefficient of permeability (@20°C) 2.8E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 18-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

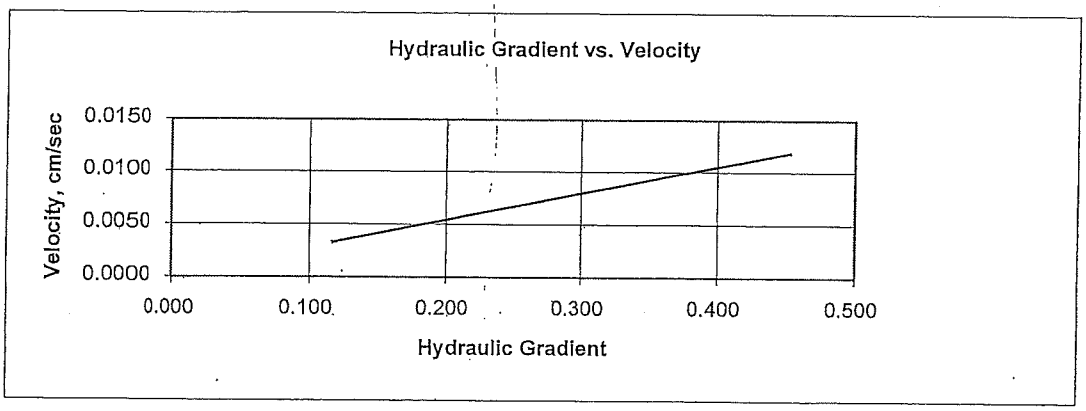
Background Information

Sample No:	G-9	Date Sampled:	05-May-04
Classification:	Poorly Graded Sand	Date tested:	14-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	112.2	Maximum Density:	113.7
Void ratio:	0.47	% of Maximum:	98.7%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.3	0.12	0.0033	2.7E-02
2	21.5	3.0	0.27	0.0072	2.6E-02
3	21.5	5.1	0.45	0.0119	2.5E-02
4	21.5	8.9	0.80	0.0211	2.6E-02



Average coefficient of permeability (@20°C) 2.6E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 18-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

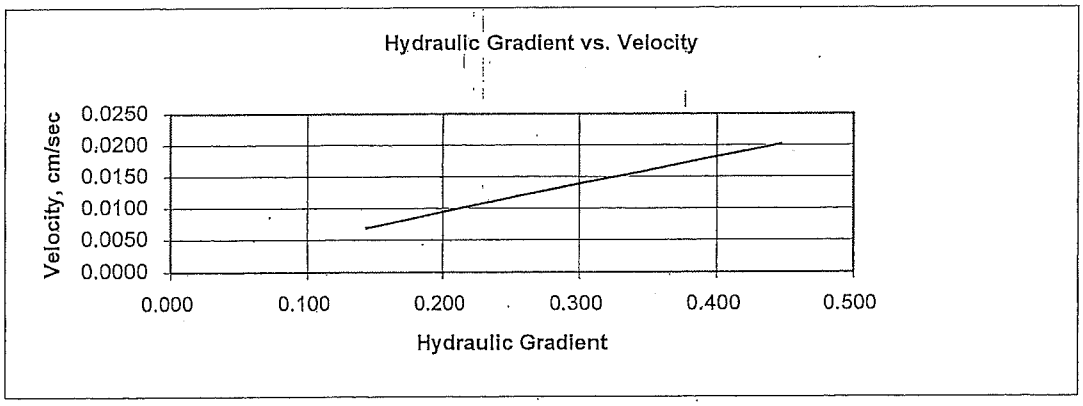
Background Information

Sample No:	G-10	Date Sampled:	30-Apr-04
Classification:	Poorly Graded Sand	Date tested:	14-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	112.4	Maximum Density:	113.7
Void ratio:	0.47	% of Maximum:	98.9%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.6	0.14	0.0068	4.6E-02
2	21.5	2.9	0.26	0.0122	4.5E-02
3	21.5	5.0	0.45	0.0202	4.4E-02
4	21.5	9.3	0.83	0.0378	4.4E-02



Average coefficient of permeability (@20°C) 4.5E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 18-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

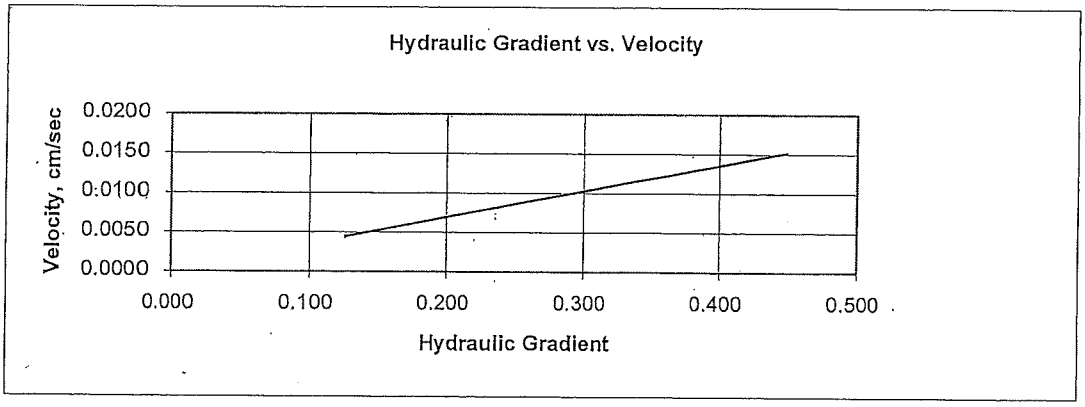
Background Information

Sample No:	G-11	Date Sampled:	05-May-04
Classification:	Poorly Graded Sand	Date tested:	14-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	112.4	Maximum Density:	113.7
Void ratio:	0.47	% of Maximum:	98.9%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.4	0.13	0.0044	3.4E-02
2	21.5	2.9	0.26	0.0090	3.3E-02
3	21.5	5.0	0.45	0.0152	3.3E-02
4	21.5	8.5	0.76	0.0256	3.3E-02



Average coefficient of permeability (@20°C) 3.3E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 18-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

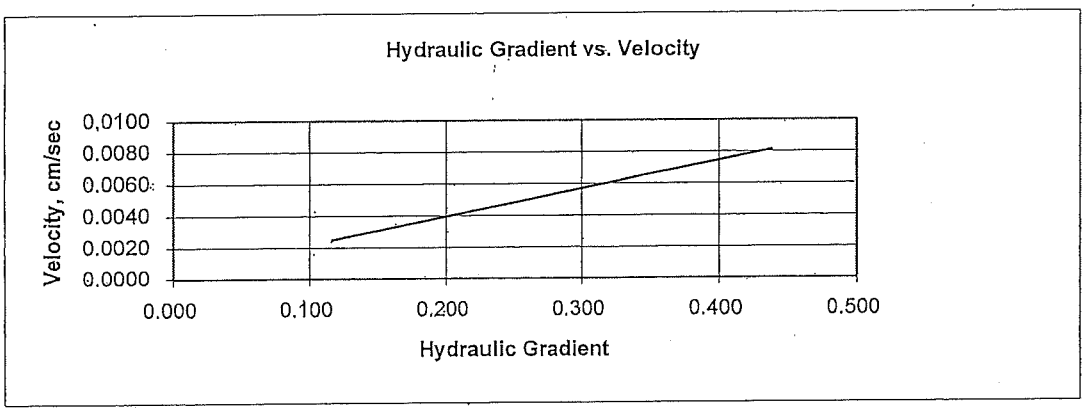
Background Information

Sample No:	G-12	Date Sampled:	06-May-04
Classification:	Poorly Graded Sand	Date tested:	17-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	110.8	Maximum Density:	113.7
Void ratio:	0.49	% of Maximum:	97.5%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.3	0.12	0.0025	2.1E-02
2	21.5	3.1	0.27	0.0052	1.9E-02
3	21.5	4.9	0.44	0.0081	1.8E-02
4	21.5	8.1	0.72	0.0139	1.9E-02



Average coefficient of permeability (@20°C) 1.9E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 18-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

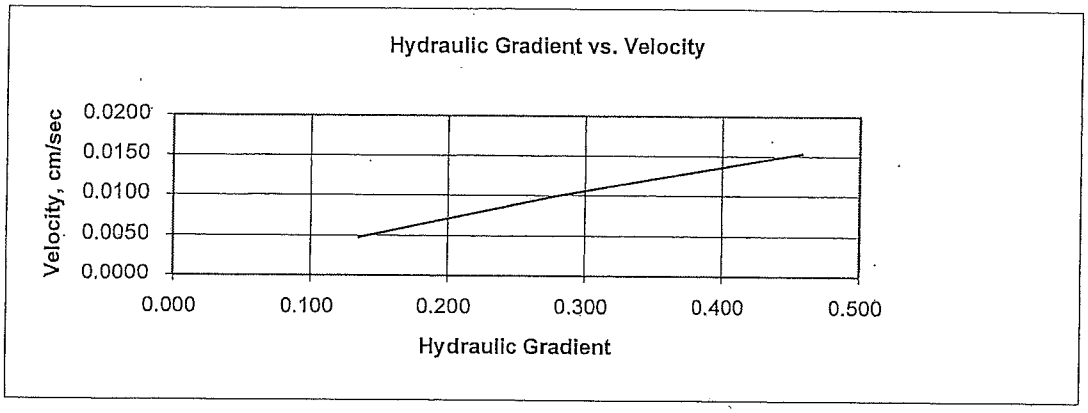
Background Information

Sample No:	G-13	Date Sampled:	07-May-04
Classification:	Poorly Graded Sand	Date tested:	17-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	112.5	Maximum Density:	113.7
Void ratio:	0.47	% of Maximum:	99.0%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.5	0.13	0.0048	3.4E-02
2	21.5	3.1	0.28	0.0099	3.4E-02
3	21.5	5.1	0.46	0.0154	3.2E-02
4	21.5	9.2	0.82	0.0276	3.2E-02



Average coefficient of permeability (@20°C) 3.3E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 20-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

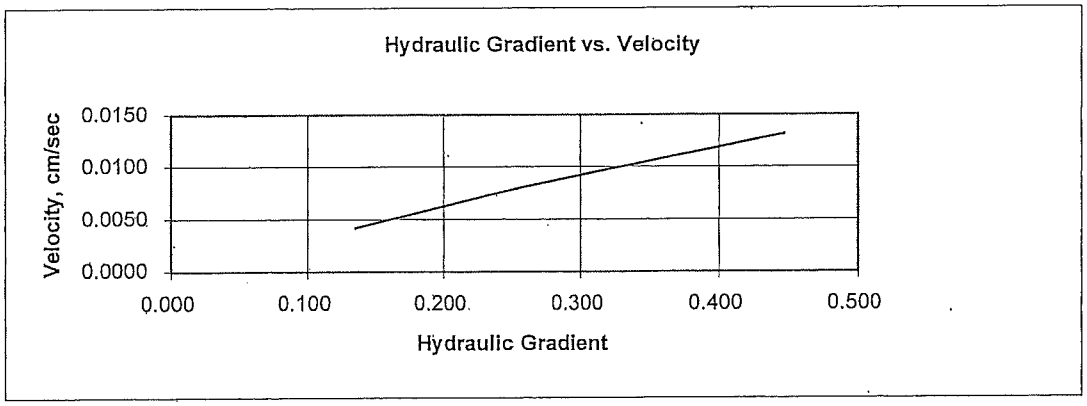
Background Information

Sample No:	G-14	Date Sampled:	14-May-04
Classification:	Poorly Graded Sand	Date tested:	19-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	108.1	Maximum Density:	113.7
Void ratio:	0.53	% of Maximum:	95.1%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.5	0.13	0.0042	3.0E-02
2	21.5	2.9	0.26	0.0081	3.0E-02
3	21.5	5.0	0.45	0.0132	2.8E-02
4	21.5	9.6	0.85	0.0244	2.8E-02



Average coefficient of permeability (@20°C) 2.9E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 27-May-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

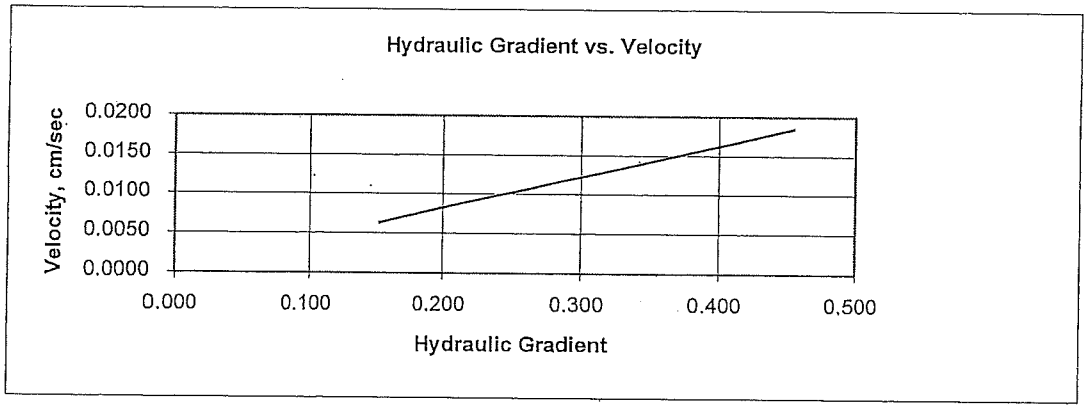
Background Information

Sample No:	G-15	Date Sampled:	14-May-04
Classification:	Poorly Graded Sand	Date tested:	19-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	113.1	Maximum Density:	113.7
Void ratio:	0.46	% of Maximum:	99.5%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.7	0.15	0.0063	4.0E-02
2	21.5	2.6	0.23	0.0095	4.0E-02
3	21.5	5.1	0.46	0.0185	3.9E-02
4	21.5	9.2	0.82	0.0329	3.9E-02



Average coefficient of permeability (@20°C) 3.9E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 20-May-04 **Project Number:** SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

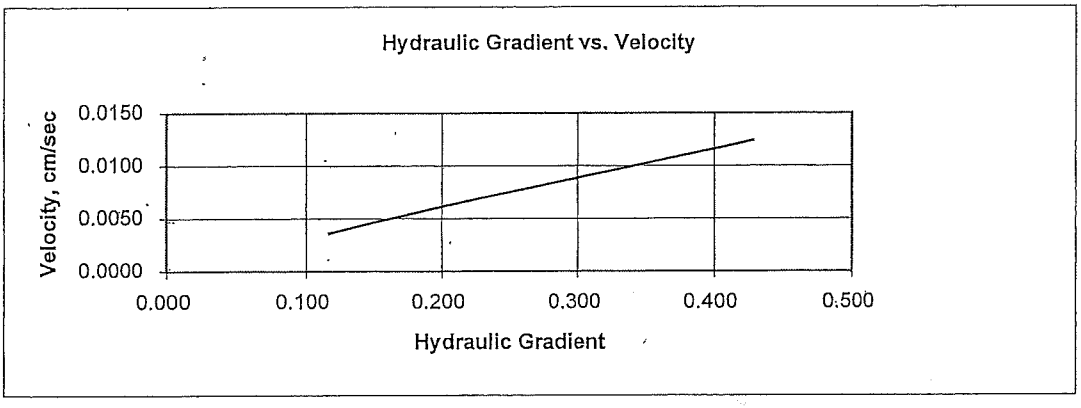
Background Information

Sample No:	G-16	Date Sampled:	14-May-04
Classification:	Poorly Graded Sand	Date tested:	19-May-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	111.7	Maximum Density:	113.7
Void ratio:	0.48	% of Maximum:	98.3%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.3	0.12	0.0036	3.0E-02
2	21.5	2.3	0.21	0.0063	3.0E-02
3	21.5	4.8	0.43	0.0124	2.8E-02
4	21.5	8.5	0.76	0.0225	2.9E-02



Average coefficient of permeability (@20°C) 2.9E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 07-Jun-04 **Project Number:** SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

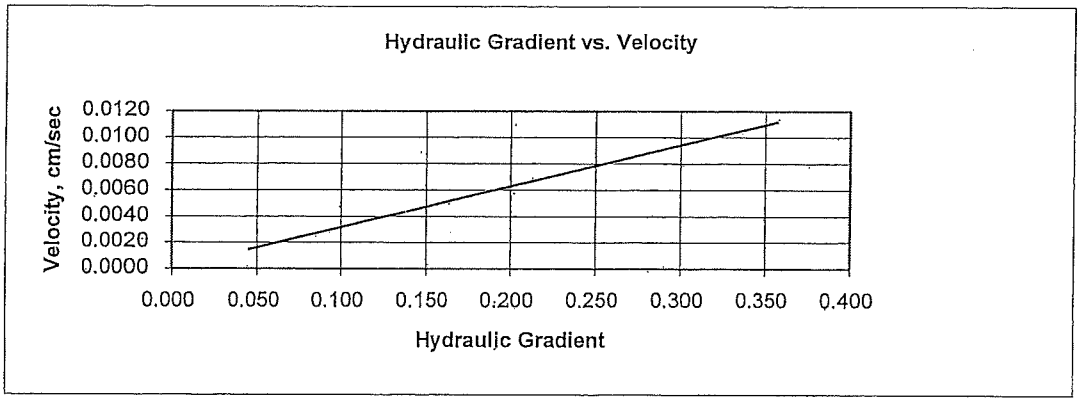
Background Information

Sample No:	G-17	Date Sampled:	17-May-04
Classification:	Poorly Graded Sand	Date tested:	07-Jun-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	111.6	Maximum Density:	113.7
Void ratio:	0.48	% of Maximum:	98.2%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.4	0.5	0.04	0.0014	3.1E-02
2	21.4	1.6	0.14	0.0045	3.1E-02
3	21.4	4.0	0.36	0.0112	3.0E-02
4	21.4	8.0	0.72	0.0225	3.0E-02



Average coefficient of permeability (@20°C) 3.1E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

BRAUN INTERTEC

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Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Constant Head Permeability-ASTM D2434

Date: 07-Jun-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

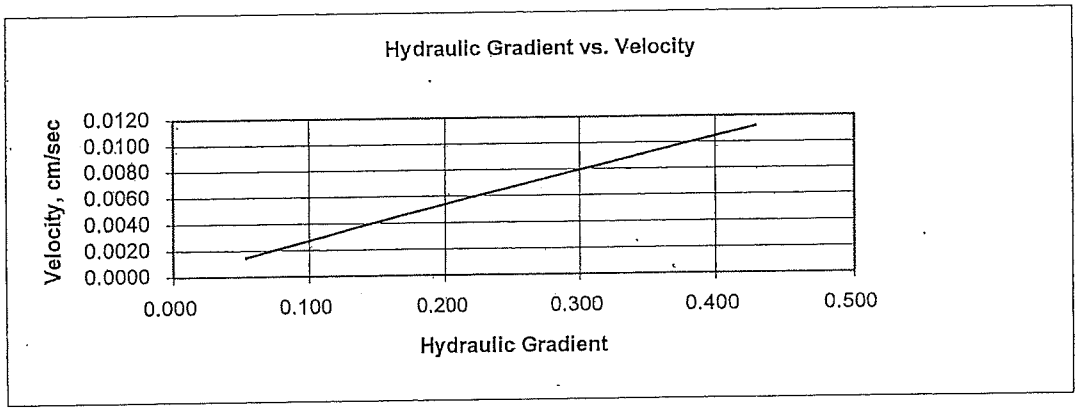
Background Information

Sample No:	G-18	Date Sampled:	18-May-04
Classification:	Poorly Graded Sand	Date tested:	04-Jun-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	107.7	Maximum Density:	113.7
Void ratio:	0.53	% of Maximum:	94.8%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.6	0.6	0.05	0.0014	2.6E-02
2	21.6	1.9	0.17	0.0045	2.6E-02
3	21.6	4.8	0.43	0.0112	2.5E-02
4	21.6	9.8	0.88	0.0225	2.5E-02



Average coefficient of permeability (@20°C) 2.6E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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INTERTEC

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Constant Head Permeability-ASTM D2434

Date: 07-Jun-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

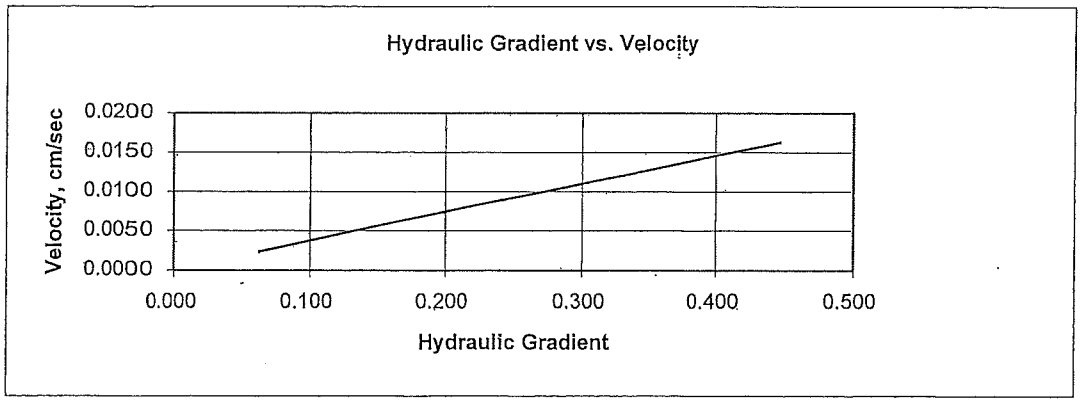
Background Information

Sample No:	G-19	Date Sampled:	19-May-04
Classification:	Poorly Graded Sand	Date tested:	04-Jun-04
Sample Location:	Onsite Stockpile	Sampled by:	amt
Sample type:	remold	Depth:	na

Test Results

Dry Density(pcf):	106.9	Maximum Density:	113.7
Void ratio:	0.55	% of Maximum:	94.0%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.6	0.7	0.06	0.0024	3.6E-02
2	21.6	1.9	0.17	0.0062	3.6E-02
3	21.6	5.0	0.45	0.0163	3.5E-02
4	21.6	10.2	0.91	0.0326	3.5E-02



Average coefficient of permeability (@20°C) 3.6E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 05-Oct-04 **Project Number:** SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

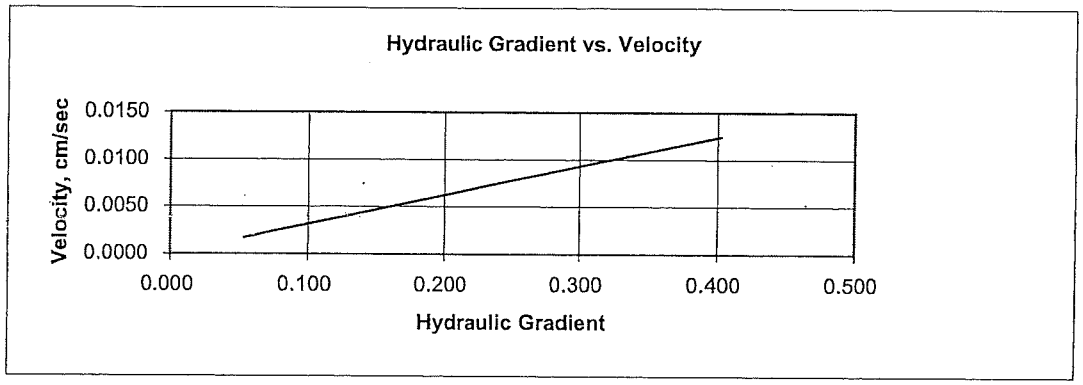
Background Information

Sample No:	G-20	Date Sampled:	15-Jun-05
Classification:	Poorly Graded Sand	Date tested:	14-Jul-04
Sample Location:	N865248, E2031689	Sampled by:	amt
Sample type:	Remolded	Depth:	na

Test Results

Dry Density(pcf):	111.3	Maximum Density:	112.2
Void ratio:	0.49	% of Maximum:	99.2%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.6	0.6	0.05	0.0017	3.1E-02
2	21.6	1.8	0.16	0.0050	3.0E-02
3	21.6	4.5	0.40	0.0124	3.0E-02
4	21.6	9.0	0.81	0.0253	3.0E-02



Average coefficient of permeability (@20°C) = 3.0E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 05-Oct-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

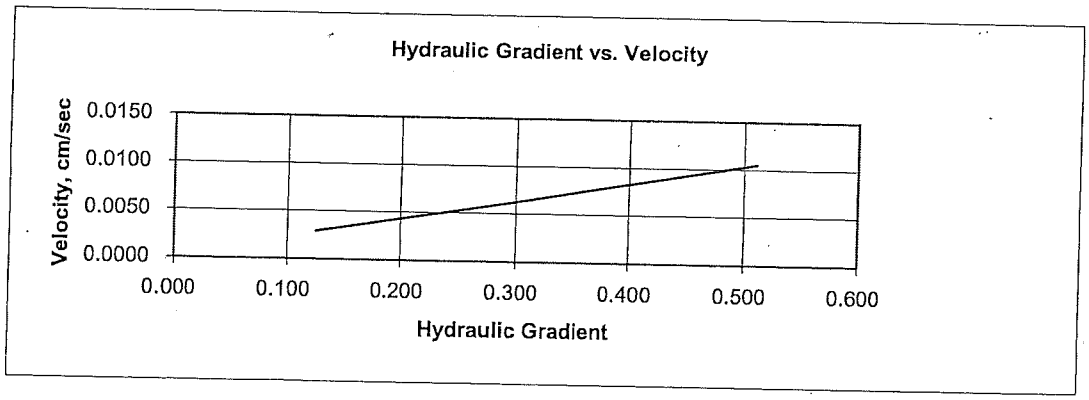
Background Information

Sample No:	G-21	Date Sampled:	30-Jun-04
Classification:	Poorly Graded Sand	Date tested:	07-Jul-04
Sample Location:	N864814, E2031439	Sampled by:	na
Sample type:	Remolded	Depth:	na

Test Results

Dry Density(pcf):	111.7	Maximum Density:	112.2
Void ratio:	0.48	% of Maximum:	99.5%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	1.4	0.13	0.0029	2.2E-02
2	22.0	3.1	0.28	0.0058	2.0E-02
3	22.0	5.7	0.51	0.0105	2.0E-02
4	22.0	13.5	1.21	0.0242	1.9E-02



Average coefficient of permeability (@20°C) = 2.0E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 05-Oct-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

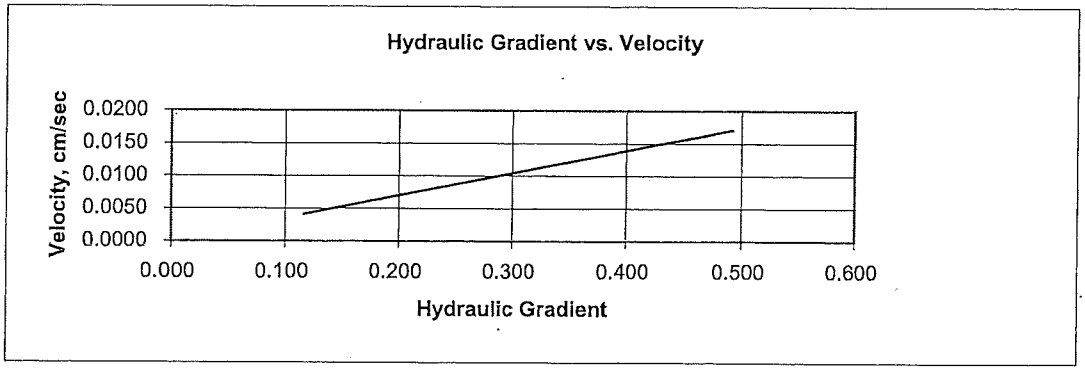
Background Information

Sample No:	G-22	Date Sampled:	14-Jul-04
Classification:	Poorly Graded Sand	Date tested:	27-Jul-04
Sample Location:	N864002, E2031856	Sampled by:	na
Sample type:	Remolded	Depth:	na

Test Results

Dry Density(pcf):	110.5	Maximum Density:	112.2
Void ratio:	0.50	% of Maximum:	98.5%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	22.0	1.3	0.12	0.0041	3.4E-02
2	22.0	3.0	0.27	0.0093	3.3E-02
3	22.0	5.5	0.49	0.0171	3.3E-02
4	22.0	11.5	1.03	0.0354	3.3E-02



Average coefficient of permeability (@20°C) = 0.03326186 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

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Constant Head Permeability-ASTM D2434

Date: 05-Oct-04

Project Number: SC-04-03359

Client: Steve Bluhm
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project: Xcel Sherco Pond 3N Const.
Becker, MN

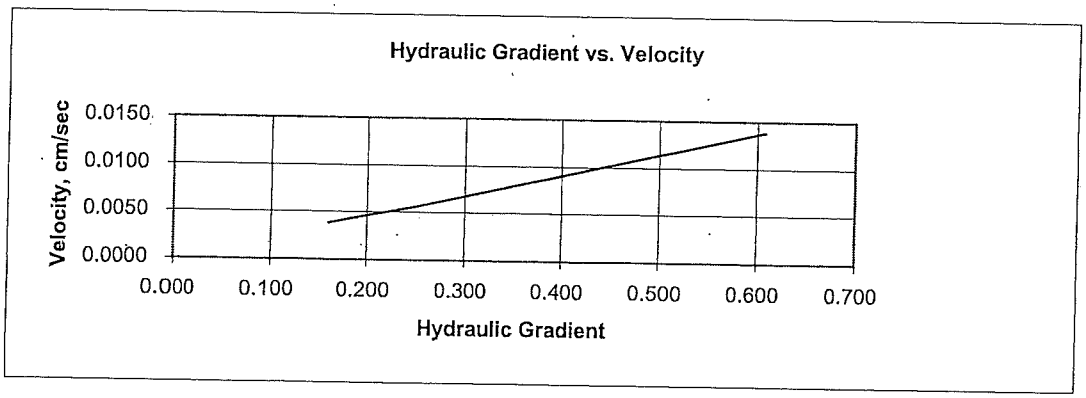
Background Information

Sample No:	G-23	Date Sampled:	15-Jun-04
Classification:	Poorly Graded Sand	Date tested:	13-Aug-04
Sample Location:	N865248, E2031689	Sampled by:	na
Sample type:	Remolded	Depth:	na

Test Results

Dry Density(pcf):	110.6	Maximum Density:	112.2
Void ratio:	0.50	% of Maximum:	98.6%
Type of Permeant:	Tap Water		

Trial	Temp, C	Head (cm)	Hydraulic Gradient	Velocity (cm/sec)	Coefficient of Permeability (cm/sec)
1	21.5	1.8	0.16	0.0038	2.3E-02
2	21.5	2.8	0.25	0.0056	2.2E-02
3	21.5	6.8	0.61	0.0138	2.2E-02
4	21.5	10.3	0.92	0.0210	2.2E-02



Average coefficient of permeability (@20°C) = 2.2E-02 cm/sec

Remarks:

Sincerely,
Braun Intertec Corporation

Thomas L. Henkemeyer
Project Manager

Density Test Reports under Discharge Structures

BRAUN INTERTEC

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Report of Field Compaction Tests

Date: August 2, 2004 **Project:** SC-04-03359 **Report:** 62

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
DS-274	7/29/04	N	P-14: SP	12.5	110.9	10	111	100	100	A
DS-275	7/29/04	N	P-14: SP	12.5	110.9	11	111	100	100	A
DS-276	7/30/04	N	P-14: SP	12.5	110.9	8	111	100	100	A
DS-277	7/30/04	N	P-14: SP	12.5	110.9	7	112	101	100	A
DS-278	7/30/04	N	P-14: SP	12.5	110.9	8	113	102	100	A
DS-279	7/30/04	N	P-14: SP	12.5	110.9	7	112	101	100	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
DS-274	NW corner, 1st lowest structural bench, 18' above liner	-0.5
DS-275	NW corner, 1st lowest structural bench, 24' above liner	Grade
DS-276	NW corner, 2nd middle structural bench, 24' above liner	Grade
DS-277	NW corner, 3rd upper strucutural bench, 24' above liner	Grade
DS-278	NW corner, lower catwalk structural subgrade, 24' above liner	Grade
DS-279	NW corner, upper catwalk structural subgrade, 24' above liner	Grade

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

Recycled paper with soy ink

Appendix E

Coarse and Fine Aggregate Filter Test Reports

BRAUN
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Phone: 320.253.9940
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Gradation Testing
ASTM C 136 & C 117

Date: June 16, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	CA-1
Sampled By:	Braun Intertec
Date Sampled:	6-15-04
Date Received:	6-15-04
Date Tested:	6-15-04
Classification:	Granular Drainage Aggregate
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
1"	100	100
3/4"	96	80-100
3/8"	43	35-50
#4	8	0-10
#10	1	0-5

Remarks: This sample meets project requirements for Granular Drainage Aggregate.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

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1520 24th Avenue N
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Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterteC.com

Gradation Testing
ASTM C 136 & C 117

Date: June 16, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	FA-1
Sampled By:	Braun Intertec
Date Sampled:	6-15-04
Date Received:	6-15-04
Date Tested:	6-16-04
Classification:	Fine Filter Aggregate
Sample Location:	On-Site Stockpile

Laboratory Results:

Sieve Size	% Passing	Specifications
3/8"	100	100
#4	39	10-50
#10	4	0-5
#200	0.2	0-2

Remarks: This sample meets project requirements for Fine Filter Aggregate.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

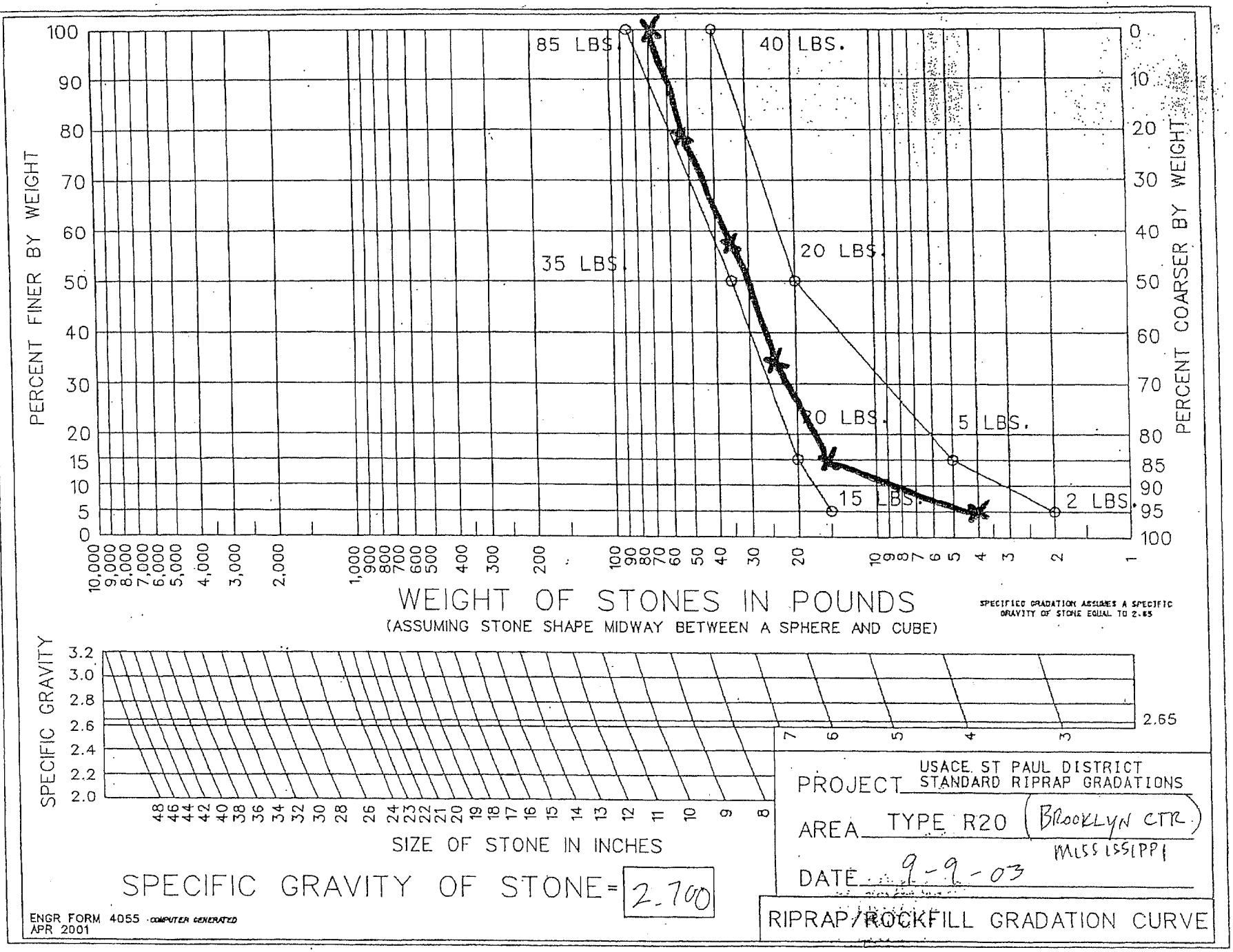
Thomas Henkemeyer
Project Manager

Printed on recycled paper with soy ink

Appendix F

Rip-Rap Test Reports

PLATE


PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
85 LBS.
40 LBS.
35 LBS.
20 LBS.
10 LBS.
5 LBS.
15 LBS.
2 LBS.
WEIGHT OF STONES IN POUNDS
(ASSUMING STONE SHAPE MIDWAY BETWEEN A SPHERE AND CUBE)
SPECIFIED GRADATION ASSUMES A SPECIFIC GRAVITY OF STONE EQUAL TO 2.65
SPECIFIC GRAVITY
2.65
SIZE OF STONE IN INCHES
SPECIFIC GRAVITY OF STONE = 2.700
USACE ST PAUL DISTRICT
PROJECT STANDARD RIPRAP GRADATIONS
AREA TYPE R20 (BROOKLYN CTR. MISSISSIPPI)
DATE 9-9-03
RIPRAP/ROCKFILL GRADATION CURVE
ENGR FORM 4055 · COMPUTER GENERATED
APR 2001

Aggregate Quality Tests*

Specify Gravity:
- ASTM Method C 127, C 128: 2.685 (Bulk)
- ASTM Method C 127, C 128: 2.701 (SSD)

Absorption:
- ASTM Method C 127, C 128: .6%

Soundness:
- ASTM Method C 88-91: $Na\ So_4$: .31%
- ASTM Method C 88-91: $Mg\ SO_4$: .4%

L.A. Abrasion Loss:
- ASTM Method C 535: 15.2%

Mill Abrasion (Arema): 3.2%

Unit Weight (Dry rodded, Jigging)
- ASTM Method C 29: 101.5 pcf

Percent Voids:
- ASTM Method C 29: 39.9%

Note: Test Reference C 29 Using CA-50 Washed Concrete Aggregate

Flakiness Index: 23.5%

Flat/Elongated Pieces:
- ASTM Method D 4791: 2.5%

- Superpave 5:1 ratio

Course Aggregate Angularity:
- ASTM Method D 5821: 100%

Fine Aggregate Angularity:
- AASHTO Method TP 33: 49.3%

Sand Equivalent:
- ASTM Method 2419: 72%

Clay Lumps and Friable Particles:
- ASTM Method C 142: .07%

Moisture/Density Relation (Proctor):
- ASTM Method D 698 (Optimum Moisture): 6.5%
- ASTM Method D 698 (Optimum Density): 133.2 pcf

Potential Alkali-Silica Reactivity:
- ASTM Method C 289

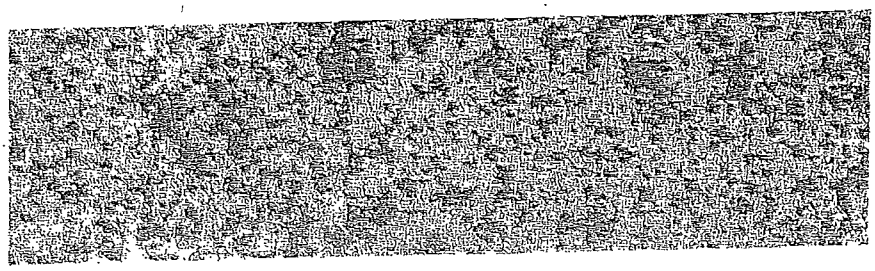
- Reduction in Alkalinity: 18.3 (mM/L)
- Dissolved Silica: 17.9 (mM/L)
- ASTM Method C 1260

- Mortar Bar Method (14 Day Expansions): .068%

Note: Aggregates considered innocuous

Average of All Tests For Both Quarries

Martin Marietta has published these test results as a guide to our aggregate quality. The results are averages of numerous tests. Contractors and specifiers must perform their own tests and are responsible for mix design and specification compliance.



Appendix G

Class 5 Standard Proctor Test Reports

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-6

Project No.: SC-04-03359 **Date:** 4/14/04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: MH-DW1 - Stockpile

Elev./Depth: **Sample No.** P-6

Remarks:

MATERIAL DESCRIPTION

Description: Class 5

Classifications - **USCS:** **AASHTO:** Class 5

Nat. Moist. = 6.2 %

Sp.G. = 2.650

Liquid Limit = Not Tested

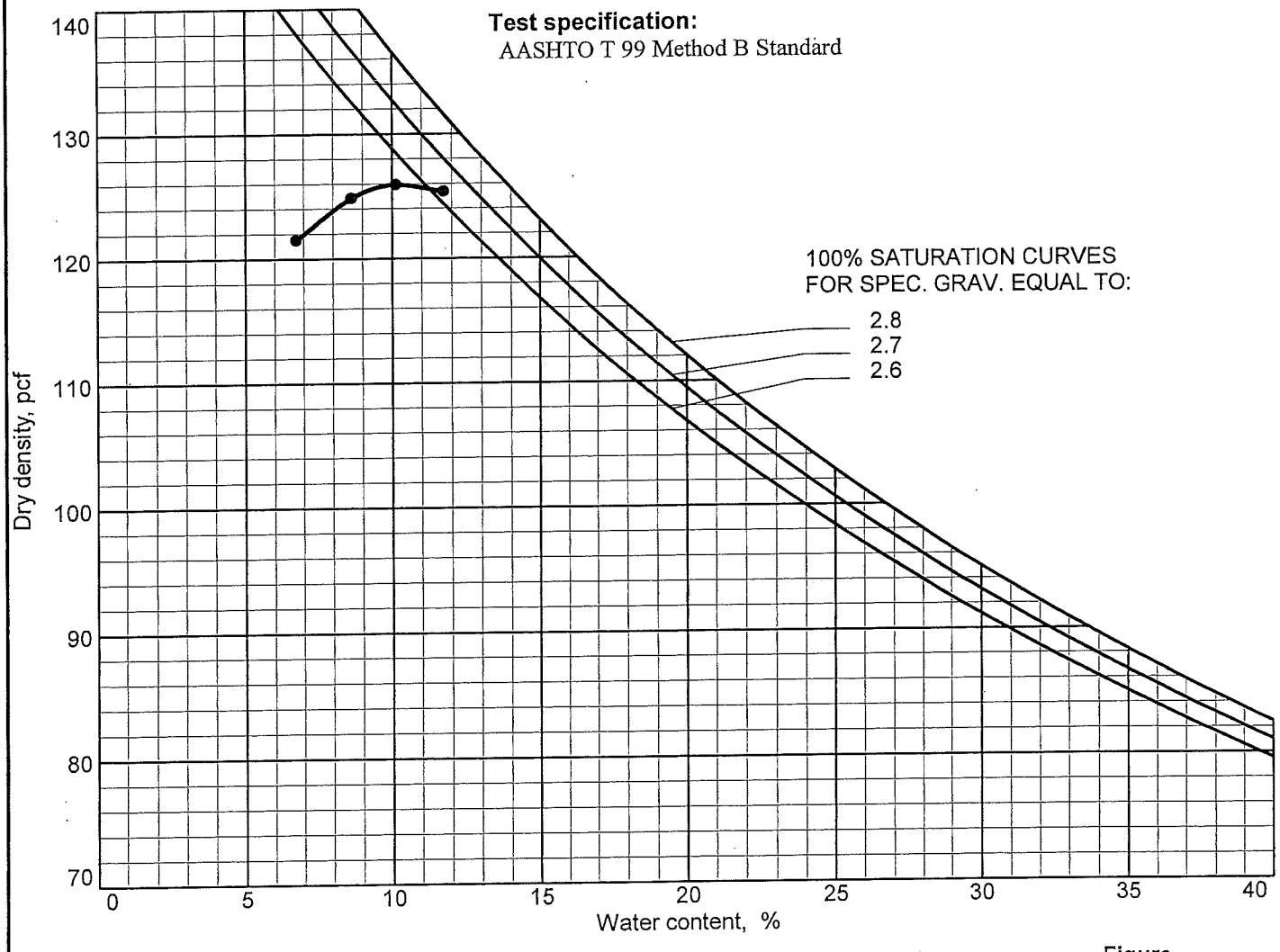
Plasticity Index = Not Tested

% > No.4 = 24.0 %

% < No.200 = 7.2 %

TEST RESULTS
Maximum dry density = 125.9 pcf
Optimum moisture = 10.2 %

Test specification:
AASHTO T 99 Method B Standard



Figure

MOISTURE-DENSITY RELATIONSHIP

Curve No.: P-15

Project No.: SC-04-03359 Date: 8-27-04

Project: Xcel Energy, Scrubber Solids Pond 3 North, Becker, MN

Location: North west corner of north enbankment

Elev./Depth: F-CL-5 Sample No. P-15

Remarks:

MATERIAL DESCRIPTION

Description: Class 5

Classifications - USCS: AASHTO:

Nat. Moist. = N/T %

Liquid Limit = N/T

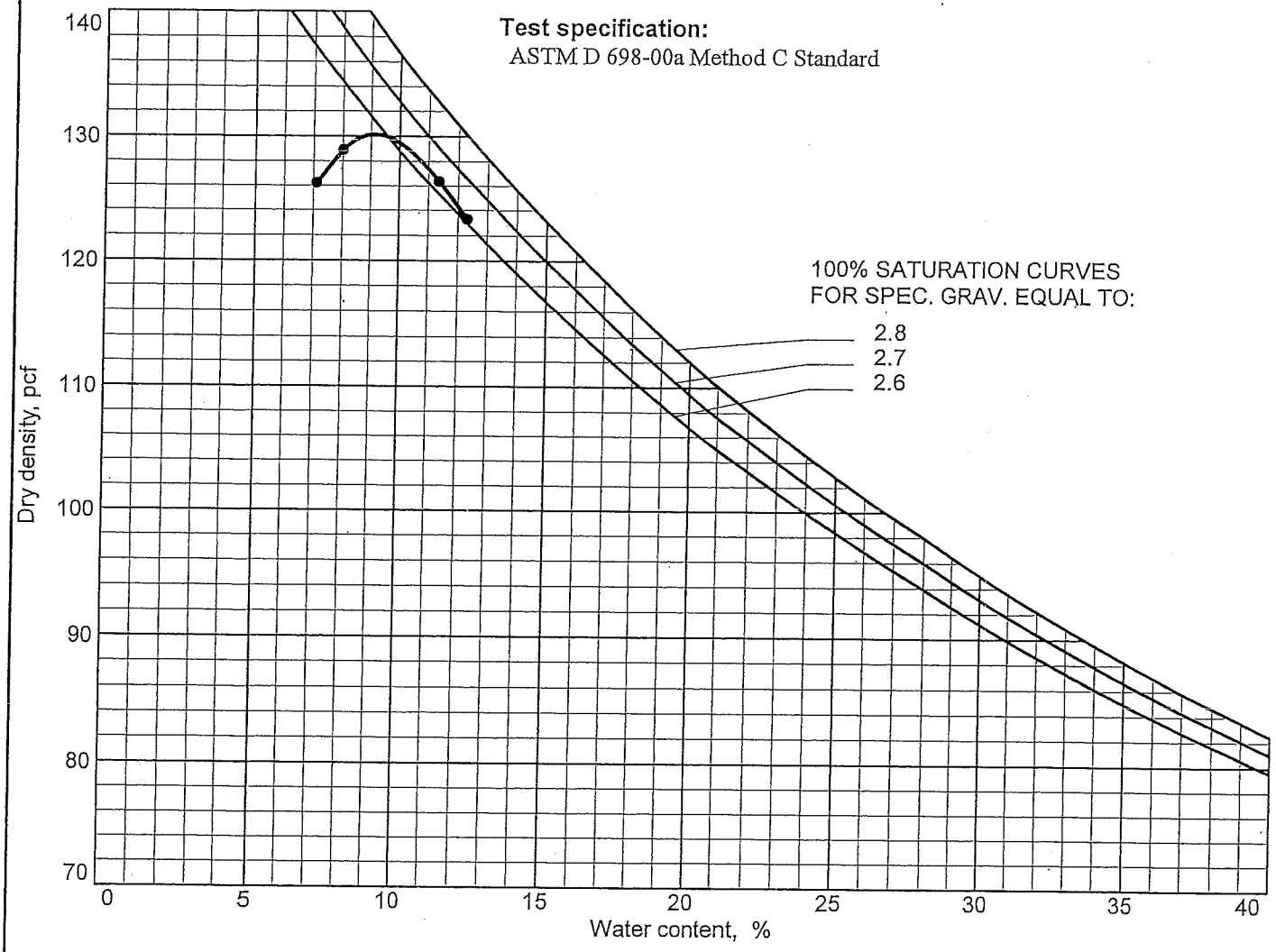
% > 3/4 in. = %

Sp.G. = 2.65

Plasticity Index = N/T

% < No.200 =

TEST RESULTS
Maximum dry density = 130.1 pcf
Optimum moisture = 9.1 %



Figure

Class 5 Gradation Test Reports

BRAUN
INTERTEC

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Phone: 320.253.9940
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Gradation Testing
ASTM C 136 & C 117

Date: 4/23/04 **Project No.:** SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-5
Sampled By:	Braun Intertec
Date Sampled:	4/14/04
Date Received:	4/14/04
Date Tested:	4/19/04
Classification:	Class 5
Sample Location:	Stockpile MH-DW1

Laboratory Results:

Sieve Size	% Passing	Specifications
1"	100	100
3/4"	96	90-100
5/8"	93	
1/2"	90	
3/8"	87	50-90
#4	78	35-80
#10	63	20-65
#20	47	
#40	32	10-35
#100	12	
#200	8.5	3-10

Remarks: This sample meets project requirements for Mn/DOT Specification 3138 for Class 5 aggregate.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

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P.O. Box 189
St. Cloud, MN 56302

Phone: 320.253.9940
Fax: 320.253.3054
Web: braunintertec.com

Gradation Testing
ASTM C 136 & C 117

Date: September 2, 2004

Project No.: SC-04-03359

Client: Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard

Becker, Minnesota

Field Data:

Sample No.:	G-24
Sampled By:	Braun Intertec
Date Sampled:	8-26-04
Date Received:	8-26-04
Date Tested:	8-27-04
Classification:	Class 5
Sample Location:	Station 2+00

Laboratory Results:

Sieve Size	% Passing	Specifications
1"	100	100
3/4"	97	90-100
5/8"	96	
1/2"	93	
3/8"	89	50-90
#4	79	35-80
#10	60	20-65
#20	43	
#40	30	10-35
#100	13	
#200	9.5	3-10

Remarks: This sample meets project requirements for Mn/DOT Specification 3138 for Class 5 aggregate.

c: D. Scott Schwake, PE; McCain and Associates, Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

recycled paper with soy ink

Class 5 Density Test Reports

BRAUN
INTERTEC

Braun Intertec Corporation
1520 24th Avenue N
P.O. Box 189
St. Cloud, MN 56302

Phone: 320.253.9940
Fax: 320.253.3054
Web: brauninterteс.com

Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 18

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
C5-1	4/15/04	N	P-6: C5	10.2	125.9	10	125	99	95	A
RF-86	4/15/04	N	P-5: SP	13.7	110.8	11	104	94	95	B
RF-87	4/15/04	N	P-7: SM	7.1	138.2	11	126	91	95	B
RF-88	4/15/04	N	P-2: SP	10.2	125.9	11	126	100	95	A
RF-89	4/15/04	N	P-2: SP	10.2	125.9	9	127	101	95	A
RF-90	4/15/04	N	P-5: SP	13.7	110.8	11	112	101	95	A
RF-91	4/15/04	N	P-3: SP	10.5	119.6	12	119	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
C5-1	MH-DW1	936
RF-86	South Berm: N864312, E2032998, 2 1/2' below footing (Random Fill)	
RF-87	South Berm: N863272, E2033004, 1 1/2' below footing (Random Fill)	
RF-88	South Berm: N862964, E2032935, 2 1/2' below footing (Random Fill)	
RF-89	South Berm: N862682, E2032991, 2' below footing (Random Fill)	
RF-90	South Embankment: Station 30+15, 25'S of baseline	962
RF-91	South Embankment: Station 29+00, 5'S of baseline	967

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

BRAUN
INTERTEC

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1520 24th Avenue N
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St. Cloud, MN 56302

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Report of Field Compaction Tests

Date: April 22, 2004 **Project:** SC-04-03359 **Report:** 22

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
13999 Industrial Boulevard
Becker, Minnesota

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
RF-108	4/16/04	N	P-3: SP	10.5	119.6	6	117	98	95	A
RF-109	4/16/04	N	P-3: SP	10.5	119.6	9	118	99	95	A
RF-110	4/16/04	N	P-3: SP	10.5	119.6	8	114	95	95	A
RF-111	4/16/04	N	P-3: SP	10.5	119.6	5	115	96	95	A
RF-112	4/16/04	N	P-3: SP	10.5	119.6	7	115	96	95	A
C5-2	4/16/04	N	P-6: Class 5	10.2	125.9	7	122	97	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Test Location	Elevation
RF-108	South Embankment: Station 35+00, 5'S of baseline (Random Fill)	969
RF-109	South Embankment: Station 33+80, 22'S of baseline (Random Fill)	971 1/2
RF-110	South Embankment: Station 32+20, 6'S of baseline (Random Fill)	971
RF-111	South Embankment: Station 31+00, 18'S of baseline (Random Fill)	967 1/2
RF-112	South Embankment: Station 29+40, 25'S of baseline (Random Fill)	967
C5-2	Bottom of MH-DW2 (Class 5)	936

Elevation Reference:

c: D. Scott Schwake, PE; McCain and Assoc., Inc.

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

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Report of Field Compaction Tests

Date: August 10, 2004 **Project:** SC-04-03359 **Report:** 64

Client:
Steve Bluhm, PE
Xcel Energy, Inc.
Sherburne County Generating Facility
13999 Industrial Boulevard
Becker, MN 55308

Project Description:
Xcel Sherco Pond 3N Construction
Xcel Energy
13999 Industrial Boulevard
Becker, MN

Test	Date	Type	Soil ID and Classification	Optimum Moisture* (%)	Max. Lab Dry Density* (pcf)	Inplace Moisture (%)	Inplace Dry Density (pcf)	Relative Compaction (%)	Specified Minimum Compact. (%)	Comments
CL283	8/5/04	N	P-11: CL	21.9	97.1	22	94	97	95	A
C5284	8/5/04	N	P-6: C5	10.2	125.9	10	126	100	100	A
RF285	8/5/04	N	P-3: SP	10.5	119.6	11	117	98	95	A
CL286	8/5/04	N	P-11: CL	21.9	97.1	22	96	99	95	A
CL287	8/5/04	N	P-11: CL	21.9	97.1	23	97	100	95	A
CL288	8/5/04	N	P-11: CL	21.9	97.1	22	98	101	95	A
CL289	8/5/04	N	P-11: CL	21.9	97.1	23	96	99	95	A

Key: N = Nuclear, ASTM D 2922
SC = Sand Cone, ASTM D 1556
* = O.M. and M.L.D.D. rounded to nearest 0.1

A = Test results comply with specifications.
B = Test results do not comply with specifications.
C = Test results comply with air-voids specifications.

Test	Location	Elevation
CL283	East embankment: Station 28+00 (upstream barrier)	961
C5284	Manhole #3 (subgrade)	947 1/2
RF285	North embankment: Statiaon 6+00, 75'S (random fill)	957
CL286	East embankment: Station 26+00 (upstream barrier)	961
CL287	East embankment: Station 18+50 (upstream barrier)	963
CL288	East embankment: Station 20+00 (upstream barrier)	960 1/2
CL289	East embankment: Station 28+50 (upstream barrier)	963

Elevation Reference:

c: McCain & Assoc., Inc. - D. Scott Schwake, PE

Braun Intertec Corporation

Thomas Henkemeyer
Project Manager

Appendix H

Pond Bottom Survey Data

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

Bogart, Pederson & Associates, Inc.

LAND SURVEYING
CIVIL ENGINEERING
MAPPING

13076 First Street
Becker, MN 55308-9322

Tel : 1-763-262-8822
1-888-210-8301
Fax: 1-763-262-8844

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E. Cannon 11-2-06

Michael E. Cannon MN Reg. 40035

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5676	863979.178	2030856.467	940.00
5677	863979.095	2030906.500	940.82
5678	863979.162	2030956.496	942.12
5679	863978.993	2031006.486	943.05
5680	863966.522	2031056.117	943.81
5681	863979.081	2031106.488	944.94
5682	863979.111	2031156.502	945.99
5683	863979.026	2031206.472	947.06
5684	863979.042	2031256.424	947.93
5685	863978.931	2031306.502	948.84
5686	863979.049	2031356.565	949.88
5687	863975.108	2031403.353	949.86
5688	863979.047	2031456.554	949.98
5689	863979.229	2031506.549	949.08
5690	863979.163	2031556.439	948.12
5691	863979.093	2031606.532	947.06
5692	863979.147	2031656.359	946.06
5693	863979.263	2031706.561	944.79
5694	863979.134	2031756.586	943.95
5695	863979.222	2031806.511	942.89
5696	863979.065	2031856.518	941.86
5697	863979.070	2031906.571	940.53
5698	863979.145	2031956.433	940.18
5701	864029.063	2030856.494	939.83
5702	864029.164	2030906.491	941.00
5703	864029.060	2030956.571	941.93
5704	864029.237	2031006.477	942.83
5705	864029.042	2031056.535	943.83
5706	864029.029	2031106.511	944.90
5707	864029.242	2031156.538	945.98
5708	864029.142	2031206.500	946.97
5709	864029.118	2031256.498	948.00
5710	864029.066	2031306.503	948.95
5711	864029.148	2031356.599	949.99
5712	864025.016	2031403.516	949.94
5713	864029.178	2031456.628	949.88

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION	ELEVATION DIFFERENCE
10676	863979.110	2030856.442	944.19	4.19
10677	863979.166	2030906.415	943.41	2.60
10678	863979.078	2030956.567	944.22	2.10
10679	863979.048	2031006.409	944.95	1.89
10680	863979.143	2031056.578	946.19	2.39
10681	863979.072	2031106.540	947.00	2.05
10682	863979.036	2031156.421	947.98	1.99
10683	863979.136	2031206.463	949.19	2.13
10684	863979.092	2031256.543	950.17	2.24
10685	863979.149	2031306.468	951.35	2.50
10686	863979.106	2031356.431	952.22	2.34
10687	863979.177	2031406.506	953.07	3.21
10688	863979.175	2031456.529	952.13	2.15
10689	863979.159	2031506.511	951.07	1.99
10690	863979.093	2031556.389	950.12	2.00
10691	863980.517	2031606.558	949.15	2.09
10692	863982.253	2031656.566	948.04	1.98
10693	863984.864	2031706.597	947.20	2.40
10694	863986.396	2031756.474	946.14	2.19
10695	863987.295	2031806.444	945.69	2.80
10696	863989.828	2031856.549	945.24	3.38
10697	863985.656	2031906.499	944.85	4.32
10698	863978.911	2031956.502	955.26	15.08
10701	864029.074	2030856.455	942.05	2.22
10702	864029.152	2030906.535	943.16	2.16
10703	864029.096	2030956.531	944.01	2.08
10704	864029.289	2031006.403	945.10	2.27
10705	864029.090	2031056.486	946.10	2.27
10706	864028.868	2031106.468	946.98	2.09
10707	864029.323	2031156.507	948.15	2.17
10708	864029.209	2031206.480	948.96	1.99
10709	864029.148	2031256.516	950.13	2.13
10710	864029.075	2031306.542	951.42	2.47
10711	864029.075	2031356.621	951.93	1.94
10712	864029.145	2031406.605	953.07	3.12
10713	864029.152	2031456.497	952.12	2.24

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5714	864029.023	2031506.428	948.84
5715	864029.059	2031556.464	947.84
5716	864029.189	2031606.432	946.87
5717	864029.153	2031656.486	945.92
5718	864029.065	2031706.495	944.82
5719	864029.182	2031756.443	943.79
5720	864029.000	2031806.502	942.99
5721	864029.072	2031856.533	941.87
5722	864029.247	2031906.519	940.88
5723	864029.178	2031956.500	939.98
5726	864079.044	2030856.489	940.01
5727	864079.127	2030906.560	940.93
5728	864079.126	2030956.424	941.90
5729	864078.220	2031006.221	942.81
5730	864079.176	2031056.511	943.92
5731	864079.032	2031106.491	944.94
5732	864079.088	2031156.368	945.88
5733	864079.034	2031206.557	947.05
5734	864079.056	2031256.448	947.97
5735	864079.079	2031306.544	948.93
5736	864079.067	2031356.407	950.00
5737	864075.116	2031403.549	949.86
5738	864079.164	2031456.498	949.82
5739	864079.236	2031506.358	948.81
5740	864079.223	2031556.503	947.82
5741	864079.087	2031606.435	946.95
5742	864079.139	2031656.406	946.04
5743	864079.140	2031706.482	945.01
5744	864079.172	2031756.368	943.91
5745	864079.148	2031806.347	942.84
5746	864079.117	2031856.480	941.95
5747	864079.195	2031906.391	941.01
5748	864079.196	2031956.615	939.98
5751	864129.147	2030856.479	939.99
5752	864129.152	2030906.493	940.89
5753	864129.165	2030956.461	942.00
5754	864129.195	2031006.538	942.87
5755	864129.097	2031056.256	943.94
5756	864129.188	2031106.481	944.98
5757	864129.209	2031156.412	945.98
5758	864129.130	2031206.545	946.99
5759	864129.035	2031256.516	947.86
5760	864129.227	2031306.571	948.98
5761	864129.118	2031356.486	950.05
5762	864128.936	2031406.288	950.92
5763	864129.120	2031456.510	949.89
5764	864129.102	2031506.505	948.87
5765	864129.067	2031556.458	947.78
5766	864129.124	2031606.392	946.93
5767	864129.155	2031656.451	946.02
5768	864129.209	2031706.437	945.02
5769	864129.118	2031756.509	943.94

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10714	864028.986	2031506.393	951.07
10715	864029.031	2031556.404	950.06
10716	864029.137	2031606.462	948.89
10717	864029.099	2031656.358	947.92
10718	864029.122	2031706.510	946.98
10719	864029.131	2031756.426	946.00
10720	864028.880	2031806.495	945.07
10721	864029.130	2031856.417	943.89
10722	864029.286	2031906.463	943.11
10723	864029.134	2031956.504	952.56
10726	864079.019	2030844.222	942.30
10727	864079.210	2030906.595	943.03
10728	864079.160	2030956.380	944.01
10729	864078.210	2031006.264	945.26
10730	864079.188	2031056.478	946.30
10731	864079.030	2031106.449	947.26
10732	864079.082	2031156.369	947.92
10733	864079.079	2031206.527	949.28
10734	864079.126	2031256.503	950.14
10735	864079.039	2031306.567	951.13
10736	864079.065	2031356.474	952.18
10737	864079.059	2031406.495	952.96
10738	864079.162	2031456.522	952.10
10739	864079.254	2031506.344	951.19
10740	864079.191	2031556.505	950.13
10741	864078.995	2031606.523	949.04
10742	864079.087	2031656.415	948.11
10743	864079.143	2031706.509	946.98
10744	864079.159	2031756.401	946.15
10745	864079.194	2031806.378	945.19
10746	864079.029	2031856.582	944.01
10747	864079.204	2031906.387	943.05
10748	864079.141	2031956.547	952.13
10751	864129.196	2030843.909	942.46
10752	864129.213	2030906.500	942.88
10753	864129.219	2030956.444	944.17
10754	864129.123	2031006.503	945.18
10755	864129.093	2031056.183	946.14
10756	864129.152	2031106.471	947.06
10757	864129.236	2031156.452	947.97
10758	864129.060	2031206.519	949.22
10759	864128.993	2031256.503	949.90
10760	864129.241	2031306.480	951.12
10761	864129.124	2031356.433	952.26
10762	864128.889	2031406.329	952.96
10763	864129.115	2031456.477	952.11
10764	864129.057	2031506.527	950.94
10765	864128.983	2031556.364	950.14
10766	864129.211	2031606.392	949.13
10767	864129.245	2031656.402	948.09
10768	864129.159	2031706.371	946.98
10769	864129.152	2031756.552	946.23

ELEVATION DIFFERENCE
2.23
2.22
2.02
2.00
2.16
2.21
2.08
2.02
2.23
12.58
2.28
2.10
2.11
2.45
2.38
2.31
2.05
2.23
2.16
2.20
2.17
3.11
2.28
2.38
2.30
2.09
2.07
1.97
2.23
2.35
2.06
2.04
12.15
2.47
1.99
2.17
2.31
2.20
2.08
1.99
2.23
2.03
2.14
2.21
2.04
2.22
2.08
2.36
2.20
2.07
1.96
2.29

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5770	864129.067	2031806.439	942.96
5771	864129.128	2031856.450	941.84
5772	864129.109	2031906.489	940.99
5773	864129.302	2031956.553	939.99
5776	864179.143	2030856.482	939.97
5777	864178.967	2030906.526	940.85
5778	864179.130	2030956.428	941.96
5779	864179.108	2031006.476	942.97
5780	864178.883	2031056.613	943.98
5781	864179.031	2031106.552	945.06
5782	864181.409	2031135.936	945.66
5783	864179.083	2031206.535	946.88
5784	864179.049	2031256.510	947.96
5785	864179.086	2031306.166	949.00
5786	864179.154	2031356.389	950.02
5787	864179.106	2031406.510	950.86
5788	864179.132	2031456.378	949.97
5789	864179.152	2031506.480	948.85
5790	864179.113	2031556.439	947.90
5791	864179.076	2031606.546	946.84
5792	864179.142	2031656.500	945.96
5793	864179.005	2031706.446	944.78
5794	864179.071	2031756.509	943.85
5795	864179.042	2031806.466	942.79
5796	864178.933	2031856.480	942.04
5797	864179.091	2031906.573	940.92
5798	864179.094	2031956.421	940.04
5801	864229.129	2030856.469	939.97
5802	864229.162	2030906.498	940.93
5803	864229.070	2030956.401	941.88
5804	864229.107	2031006.486	942.83
5805	864229.159	2031056.459	943.99
5806	864229.089	2031106.505	944.95
5807	864229.091	2031156.475	946.03
5808	864229.183	2031206.663	947.04
5809	864229.165	2031256.566	948.01
5810	864229.135	2031306.582	948.94
5811	864229.131	2031356.509	950.04
5812	864229.098	2031406.498	950.82
5813	864229.074	2031456.476	949.88
5814	864229.072	2031506.504	948.96
5815	864229.056	2031556.593	948.00
5816	864229.078	2031606.460	946.98
5817	864229.114	2031656.631	945.96
5818	864229.088	2031706.446	945.08
5819	864229.144	2031756.473	943.90
5820	864229.141	2031806.495	942.90
5821	864228.982	2031856.501	941.95
5822	864229.095	2031906.661	941.14
5823	864229.217	2031956.399	940.04
5826	864279.152	2030856.487	939.92
5827	864279.092	2030906.537	940.85

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10770	864129.154	2031806.505	945.07
10771	864129.151	2031856.440	943.96
10772	864129.144	2031906.571	943.00
10773	864129.148	2031956.446	951.98
10776	864178.868	2030843.950	944.02
10777	864178.948	2030906.545	943.69
10778	864179.198	2030956.498	944.54
10779	864179.129	2031006.503	945.27
10780	864178.961	2031056.655	946.03
10781	864179.039	2031106.624	947.51
	Pipe Berm		
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	Pipe Berm		
10798	864179.023	2031956.563	952.07
	Haul Road		
10802	864229.109	2030906.475	942.99
10803	864229.090	2030956.405	944.10
10804	864229.111	2031006.479	945.14
10805	864229.158	2031056.499	946.30
10806	864229.184	2031106.572	947.06
10807	864229.093	2031156.501	948.09
10808	864229.182	2031206.724	949.13
10809	864229.127	2031256.657	950.26
10810	864229.131	2031306.592	951.62
10811	864229.153	2031356.537	952.07
10812	864229.146	2031406.531	952.95
10813	864229.156	2031456.500	952.12
10814	864229.179	2031506.485	950.94
10815	864229.086	2031556.497	949.97
10816	864229.145	2031606.493	949.05
10817	864229.049	2031656.472	948.11
10818	864229.158	2031706.399	947.04
10819	864229.186	2031756.588	945.97
10820	864229.110	2031806.565	945.09
10821	864229.001	2031856.445	944.21
10822	864228.999	2031906.698	943.55
10823	864229.124	2031956.452	952.07
10826	864279.212	2030844.149	942.04
10827	864279.134	2030906.459	943.00

ELEVATION DIFFERENCE
2.11
2.12
2.02
11.99
4.06
2.84
2.58
2.31
2.05
2.45
12.03
2.06
2.22
2.31
2.31
2.12
2.06
2.08
2.25
2.68
2.03
2.13
2.25
1.98
1.97
2.07
2.15
1.96
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2.19
2.26
2.41
12.03
2.12
2.15

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5828	864279.103	2030956.532	942.01
5829	864279.117	2031006.510	942.93
5830	864279.107	2031056.518	943.96
5831	864279.005	2031106.462	945.01
5832	864279.155	2031156.509	946.01
5833	864278.995	2031206.579	947.00
5834	864279.065	2031256.512	948.09
5835	864278.981	2031306.430	949.10
5836	864278.953	2031356.458	950.03
5837	864279.087	2031406.371	950.85
5838	864279.198	2031456.487	949.99
5839	864279.188	2031506.539	948.89
5840	864279.107	2031556.372	947.82
5841	864278.970	2031606.422	946.85
5842	864279.206	2031656.555	945.78
5843	864279.128	2031706.363	944.84
5844	864279.037	2031756.359	943.81
5845	864279.123	2031806.483	942.99
5846	864279.111	2031856.298	941.85
5847	864279.172	2031906.489	941.04
5848	864279.054	2031956.375	940.02
5851	864329.141	2030856.465	939.94
5852	864329.109	2030906.528	940.90
5853	864329.119	2030956.494	941.88
5854	864329.087	2031006.490	942.85
5855	864328.818	2031056.515	944.05
5856	864329.162	2031106.534	944.98
5857	864329.013	2031156.672	946.02
5858	864329.200	2031206.488	946.95
5859	864328.949	2031257.079	947.96
5860	864328.949	2031306.616	948.89
5861	864329.127	2031356.481	949.84
5862	864329.159	2031406.599	950.88
5863	864328.982	2031456.369	949.96
5864	864329.088	2031506.376	949.11
5865	864329.272	2031556.298	948.08
5866	864329.030	2031606.478	946.93
5867	864329.186	2031656.185	945.90
5868	864329.033	2031706.555	944.84
5869	864329.104	2031756.512	943.93
5870	864329.031	2031806.523	942.84
5871	864329.262	2031856.538	941.84
5872	864329.098	2031906.645	940.85
7167	864328.998	2031956.276	939.94
5876	864379.074	2030856.487	939.94
5877	864379.142	2030906.545	940.97
5878	864379.120	2030956.427	942.07
5879	864379.009	2031006.561	942.95
5880	864378.950	2031056.373	943.96
5881	864378.867	2031106.557	944.96
5882	864379.128	2031156.518	945.98
5883	864379.165	2031206.501	947.04

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10828	864279.109	2030956.596	944.14
10829	864279.078	2031006.444	945.35
10830	864279.090	2031056.601	946.02
10831	864278.959	2031106.503	947.35
10832	864279.255	2031156.446	948.05
10833	864279.024	2031206.558	949.04
10834	864279.075	2031256.604	950.05
10835	864278.989	2031306.301	951.10
10836	864278.962	2031356.363	952.02
10837	864279.075	2031406.356	953.03
10838	864279.140	2031456.452	952.02
10839	864279.145	2031506.462	950.98
10840	864279.191	2031556.311	950.11
10841	864278.979	2031606.414	949.07
105842	864279.185	2031656.488	947.92
10843	864279.142	2031706.321	947.21
10844	864279.072	2031756.321	946.00
10845	864279.052	2031806.503	945.15
10846	864279.059	2031856.336	944.09
10847	864279.169	2031906.519	943.08
10848	864279.168	2031956.441	951.57
10851	864329.073	2030844.896	942.18
10852	864329.034	2030906.498	942.98
10853	864329.154	2030956.561	944.14
10854	864329.089	2031006.478	945.24
10855	864328.771	2031056.630	946.11
10856	864329.162	2031106.583	947.15
10857	864329.015	2031156.635	948.16
10858	864329.241	2031206.526	949.20
10859	864329.043	2031257.091	950.01
10860	864329.021	2031306.546	951.01
10861	864329.160	2031356.490	951.95
10862	864329.219	2031406.658	953.06
10863	864328.992	2031456.395	952.09
10864	864329.057	2031506.277	951.09
10865	864329.284	2031556.484	950.02
10866	864329.084	2031606.472	948.89
10867	864329.158	2031656.255	947.96
10868	864329.037	2031706.545	947.08
10869	864329.089	2031756.539	946.06
10870	864329.019	2031806.544	945.06
10871	864329.165	2031856.512	943.91
10872	864328.957	2031906.574	942.86
10873	864329.085	2031956.746	952.06
10876	864379.238	2030844.389	942.31
10877	864379.170	2030906.549	943.42
10878	864379.112	2030956.385	944.26
10879	864379.036	2031006.553	945.19
10880	864378.858	2031056.403	946.36
10881	864378.903	2031106.442	946.95
10882	864379.108	2031156.438	948.35
10883	864379.179	2031206.599	949.36

ELEVATION DIFFERENCE
2.13
2.42
2.06
2.33
2.04
2.04
1.97
2.00
1.99
2.18
2.03
2.10
2.29
2.21
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2.37
2.19
2.15
2.24
2.04
11.55
2.24
2.08
2.25
2.39
2.06
2.17
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2.04
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2.11
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2.12
1.98
1.94
1.97
2.05
2.24
2.13
2.22
2.06
2.00
12.12
2.37
2.44
2.19
2.25
2.40
1.99
2.37
2.31

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5884	864379.227	2031256.525	948.05
5885	864379.203	2031306.681	949.14
5886	864379.100	2031356.420	949.84
5887	864379.267	2031406.478	950.90
5888	864379.144	2031456.543	949.90
5889	864379.092	2031506.323	948.96
5890	864379.231	2031556.323	947.95
5891	864379.050	2031606.427	947.05
5892	864379.214	2031656.467	945.79
5893	864379.199	2031706.507	944.92
5894	864379.235	2031756.430	943.76
5895	864379.123	2031806.425	942.94
5896	864379.036	2031856.536	941.92
5897	864379.065	2031906.440	941.02
5898	864379.091	2031956.521	940.04
5901	864429.063	2030856.500	939.92
5902	864429.157	2030906.537	940.93
5903	864429.093	2030956.580	941.79
5904	864429.047	2031006.502	942.94
5905	864429.175	2031056.520	943.99
5906	864429.085	2031106.478	945.03
5907	864429.070	2031156.490	946.08
5908	864429.201	2031206.445	947.02
5909	864429.068	2031256.432	947.98
5910	864428.798	2031306.732	948.91
5911	864428.907	2031356.511	949.95
5912	864429.042	2031406.542	950.91
5913	864429.162	2031456.420	950.00
5914	864429.061	2031506.521	949.01
5915	864429.184	2031556.453	947.93
5916	864429.066	2031606.559	946.97
5917	864429.139	2031656.520	946.14
5918	864429.113	2031706.663	944.92
5919	864428.972	2031756.480	943.99
5920	864429.087	2031806.468	943.08
5921	864429.143	2031856.562	941.89
5922	864429.128	2031906.599	941.04
5923	864429.172	2031956.645	939.95
5926	864479.070	2030856.501	939.96
5927	864479.139	2030906.518	940.84
5928	864479.156	2030956.432	941.92
5929	864478.890	2031006.442	942.83
5930	864479.202	2031056.318	943.90
5931	864478.989	2031106.447	945.05
5932	864479.115	2031156.540	946.06
5933	864479.159	2031206.422	947.06
5934	864479.109	2031256.544	948.11
5935	864479.050	2031306.540	948.86
5936	864478.940	2031356.354	949.80
5937	864478.975	2031406.537	950.82
5938	864479.075	2031456.490	949.97
5939	864479.159	2031506.575	948.95

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10884	864379.174	2031256.525	950.22
10885	864379.160	2031306.615	951.14
10886	864379.064	2031356.345	952.00
10887	864379.372	2031406.442	953.02
10888	864379.134	2031456.505	952.10
10889	864379.146	2031506.379	951.27
10890	864379.322	2031556.312	949.92
10891	864378.908	2031606.370	949.09
10892	864379.115	2031656.426	948.12
10893	864379.156	2031706.442	947.18
10894	864379.224	2031756.370	946.08
10895	864379.083	2031806.460	945.21
10896	864379.044	2031856.574	943.87
10897	864379.088	2031906.325	943.02
10898	864379.181	2031956.498	952.11
10901	864429.097	2030844.808	942.41
10902	864429.204	2030906.570	942.96
10903	864429.027	2030956.533	944.15
10904	864429.172	2031006.481	945.19
10905	864429.082	2031056.501	946.17
10906	864429.166	2031106.450	947.16
10907	864428.991	2031156.572	948.07
10908	864429.098	2031206.520	949.32
10909	864429.054	2031256.506	950.20
10910	864429.067	2031306.437	951.21
10911	864429.163	2031356.420	952.02
10912	864429.077	2031406.545	953.00
10913	864429.188	2031456.464	952.01
10914	864429.126	2031506.528	951.14
10915	864429.289	2031556.531	950.10
10916	864429.082	2031606.594	949.09
10917	864429.115	2031656.446	948.20
10918	864429.240	2031706.729	946.97
10919	864428.913	2031756.398	945.97
10920	864429.108	2031806.541	945.07
10921	864429.179	2031856.513	943.94
10922	864429.081	2031906.664	943.11
10923	864429.103	2031956.631	951.73
10926	864479.054	2030844.503	942.47
10927	864479.034	2030906.507	943.13
10928	864479.132	2030956.473	944.02
10929	864479.125	2031006.490	945.09
10930	864479.141	2031056.449	946.18
10931	864479.096	2031106.495	947.16
10932	864479.134	2031156.477	948.08
10933	864479.114	2031206.499	949.12
10934	864479.094	2031256.515	950.04
10935	864479.146	2031306.454	951.17
10936	864479.093	2031356.522	952.21
10937	864479.107	2031406.481	953.06
10938	864479.117	2031456.465	952.12
10939	864479.137	2031506.485	950.96

ELEVATION DIFFERENCE
2.17
2.00
2.16
2.12
2.20
2.32
1.96
2.04
2.33
2.26
2.32
2.28
1.96
2.00
12.07
2.49
2.03
2.37
2.25
2.18
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1.99
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2.04
1.98
1.99
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11.78
2.51
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2.10
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2.28
2.12
2.02
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1.93
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2.41
2.24
2.15
2.01

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5940	864479.041	2031556.607	948.00
5941	864479.073	2031606.440	947.00
5942	864479.175	2031656.438	945.89
5943	864479.162	2031706.561	944.89
5944	864479.092	2031756.390	943.83
5945	864479.107	2031806.486	942.87
5946	864479.080	2031856.428	942.01
5947	864479.189	2031906.508	940.95
5948	864479.132	2031956.474	940.00
5951	864529.142	2030856.481	939.94
5952	864529.040	2030906.489	940.90
5953	864529.146	2030956.532	941.91
5954	864529.136	2031006.499	942.79
5955	864529.391	2031056.423	943.92
5956	864529.286	2031106.731	945.01
5957	864529.066	2031156.457	945.99
5958	864529.232	2031206.511	946.87
5959	864529.064	2031256.515	947.91
5960	864529.055	2031306.582	948.97
5961	864528.930	2031356.726	950.00
5962	864529.165	2031406.412	950.99
5963	864529.229	2031456.552	950.05
5964	864529.029	2031506.446	948.98
5965	864529.120	2031556.380	947.88
5966	864529.176	2031606.554	947.15
5967	864529.100	2031656.426	945.97
5968	864529.110	2031706.424	944.67
5969	864529.116	2031756.666	943.83
5970	864529.125	2031806.367	942.89
5971	864529.082	2031856.449	941.89
5972	864529.189	2031906.619	940.94
5973	864529.217	2031956.407	940.00
5976	864579.089	2030856.497	940.02
5977	864579.116	2030906.486	940.98
5978	864579.044	2030956.467	941.91
5979	864579.144	2031006.455	942.92
5980	864579.100	2031056.371	943.92
5981	864578.990	2031106.512	944.98
5982	864579.157	2031156.477	946.01
5983	864579.057	2031206.360	947.03
5984	864579.065	2031256.487	948.04
5985	864579.124	2031306.510	948.85
5986	864579.004	2031356.497	949.89
5987	864579.149	2031406.401	950.82
5988	864579.212	2031456.446	949.89
5989	864578.995	2031506.607	948.87
5990	864579.056	2031556.381	947.86
5991	864579.115	2031606.534	946.86
5992	864579.268	2031656.481	945.90
5993	864579.241	2031706.631	944.87
5994	864579.070	2031756.587	943.82
5995	864579.225	2031806.424	942.87

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10940	864479.066	2031556.596	950.04
10941	864479.088	2031606.427	948.95
10942	864479.249	2031656.434	947.97
10943	864479.065	2031706.515	946.98
10944	864479.059	2031756.391	946.14
10945	864479.132	2031806.518	945.17
10946	864479.175	2031856.466	943.95
10947	864479.212	2031906.625	943.04
10948	864479.321	2031956.670	951.75
10951	864529.088	2030844.309	942.22
10952	864529.045	2030906.546	942.97
10953	864528.970	2030956.584	944.06
10954	864529.086	2031006.513	945.11
10955	864529.056	2031056.522	946.06
10956	864529.110	2031106.485	947.04
10957	864529.126	2031156.451	948.09
10958	864529.054	2031206.554	949.16
10959	864529.054	2031256.569	950.03
10960	864529.129	2031306.466	951.20
10961	864529.136	2031356.465	952.18
10962	864529.031	2031406.566	953.09
10963	864529.318	2031456.572	952.21
10964	864529.066	2031506.504	951.13
10965	864529.159	2031556.379	950.03
10966	864529.111	2031606.670	949.18
10967	864529.124	2031656.465	948.15
10968	864529.158	2031706.396	946.99
10969	864529.106	2031756.672	946.01
10970	864529.055	2031806.314	945.09
10971	864529.088	2031856.367	943.92
10972	864529.156	2031906.606	943.03
10973	864529.022	2031956.471	951.96
10976	864579.144	2030843.979	942.31
10977	864579.260	2030906.483	942.94
10978	864579.065	2030956.532	944.03
10979	864579.123	2031006.495	945.06
10980	864579.167	2031056.458	946.05
10981	864579.152	2031106.438	947.11
10982	864579.141	2031156.449	948.13
10983	864579.029	2031206.587	949.20
10984	864579.084	2031256.505	950.19
10985	864579.111	2031306.500	951.26
10986	864579.101	2031356.511	952.17
10987	864579.132	2031406.448	953.03
10988	864579.137	2031456.427	951.99
10989	864578.983	2031506.651	950.93
10990	864579.090	2031556.358	949.98
10991	864579.095	2031606.483	948.91
10992	864579.254	2031656.436	947.89
10993	864579.329	2031706.642	946.90
10994	864579.137	2031756.554	946.02
10995	864579.195	2031806.480	945.04

ELEVATION DIFFERENCE
2.04
1.95
2.09
2.09
2.32
2.29
1.94
2.09
11.75
2.28
2.07
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2.32
2.14
2.02
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2.32
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2.20
2.03
2.08
11.96
2.29
1.96
2.12
2.14
2.13
2.13
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2.15
2.41
2.28
2.21
2.10
2.06
2.13
2.05
2.00
2.03
2.21
2.18

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
5996	864579.205	2031856.450	941.97
5997	864579.163	2031906.501	940.83
5998	864579.049	2031956.534	939.81
6001	864629.138	2030856.492	939.92
6002	864629.061	2030906.514	941.00
6003	864629.104	2030956.465	941.84
6004	864629.149	2031006.425	942.87
6005	864629.249	2031056.389	943.93
6006	864628.998	2031106.564	944.92
6007	864629.015	2031156.568	945.89
6008	864629.102	2031206.549	946.93
6009	864628.982	2031256.730	947.94
6010	864629.142	2031306.420	948.98
6011	864628.991	2031356.458	950.03
6012	864629.208	2031406.339	950.85
6013	864629.100	2031456.635	949.82
6014	864629.138	2031506.485	948.96
6015	864629.039	2031556.604	947.96
6016	864629.004	2031606.486	946.84
6017	864629.020	2031656.407	945.92
6018	864629.084	2031706.499	944.92
6019	864629.110	2031756.756	943.90
6020	864629.169	2031806.449	942.92
6021	864628.992	2031856.511	941.92
6022	864629.180	2031906.410	940.88
6023	864629.116	2031956.515	939.89
6026	864679.084	2030856.499	939.92
6027	864679.054	2030906.509	940.90
6028	864679.101	2030956.480	941.86
6029	864679.030	2031006.476	942.81
6030	864673.814	2031056.481	943.89
6031	864679.023	2031106.411	945.15
6032	864679.009	2031156.490	946.02
6033	864679.052	2031206.516	947.06
6034	864679.022	2031256.453	947.99
6035	864679.082	2031306.517	949.09
6036	864679.016	2031356.543	950.18
6037	864679.169	2031406.660	950.95
6038	864679.111	2031456.518	949.94
6039	864679.002	2031506.383	948.95
6040	864679.001	2031556.497	947.97
6041	864679.170	2031606.356	946.95
6042	864679.180	2031656.514	946.05
6043	864679.176	2031706.577	944.94
6044	864679.077	2031756.319	943.91
6045	864679.074	2031806.615	942.95
6046	864679.177	2031856.449	941.96
6047	864679.104	2031906.408	941.02
6048	864679.101	2031956.431	939.91
6051	864729.088	2030856.492	939.84
6052	864729.080	2030906.499	940.82
6053	864729.102	2030956.528	941.71

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
10996	864579.216	2031856.411	944.05
10997	864579.136	2031906.432	942.91
10998	864578.812	2031956.450	952.21
11001	864629.160	2030844.981	944.28
11002	864629.109	2030906.487	943.05
11003	864629.267	2030956.390	944.00
11004	864629.121	2031006.490	945.11
11005	864629.173	2031056.440	946.11
11006	864629.116	2031106.475	947.17
11007	864629.095	2031156.515	948.09
11008	864629.086	2031206.520	949.17
11009	864629.167	2031256.422	950.10
11010	864629.085	2031306.533	951.06
11011	864629.112	2031356.496	952.23
11012	864629.085	2031406.501	953.03
11013	864629.070	2031456.536	952.09
11014	864629.252	2031506.509	951.31
11015	864629.047	2031556.711	950.04
11016	864629.020	2031606.449	949.03
11017	864629.061	2031656.466	948.03
11018	864629.174	2031706.519	946.95
11019	864629.017	2031756.795	946.43
11020	864629.071	2031806.481	945.16
11021	864628.980	2031856.545	944.20
	Flood Water		
11023	864629.240	2031956.543	959.42
11026	864679.036	2030843.425	944.25
	Haul road/ Pipe berm		
	Haul road/ Pipe berm		
	Haul road/ Pipe berm	

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
6054	864729.163	2031006.598	942.88
6055	864729.169	2031056.412	944.15
6056	864729.167	2031106.424	945.04
6057	864729.226	2031156.589	945.91
6058	864729.099	2031206.336	946.97
6059	864728.984	2031256.522	947.77
6060	864729.072	2031306.494	948.89
6061	864729.118	2031356.501	950.13
6062	864729.160	2031406.406	950.97
6063	864729.065	2031456.567	950.03
6064	864729.147	2031506.652	949.06
6065	864729.157	2031556.504	948.18
6066	864729.106	2031606.379	947.20
6067	864729.082	2031656.537	945.92
6068	864729.244	2031706.497	944.92
6069	864729.126	2031756.353	943.96
6070	864728.985	2031806.557	942.97
6071	864729.111	2031856.452	941.89
6072	864729.037	2031906.573	940.77
6073	864729.177	2031956.370	939.93
6076	864779.082	2030856.494	940.06
6077	864779.079	2030906.506	940.89
6078	864779.087	2030956.444	941.83
6079	864779.179	2031006.619	942.94
6080	864778.703	2031056.567	943.95
6081	864779.057	2031106.418	944.78
6082	864778.950	2031156.398	946.00
6083	864778.955	2031206.383	946.77
6084	864778.997	2031256.420	947.86
6085	864779.025	2031306.557	948.84
6086	864779.053	2031356.515	949.90
6087	864779.048	2031406.594	950.90
6088	864779.122	2031456.509	950.05
6089	864778.960	2031506.494	949.05
6090	864779.139	2031556.216	947.85
6091	864779.167	2031606.494	946.77
6092	864778.935	2031656.514	945.93
6093	864779.006	2031706.526	944.91
6094	864779.009	2031756.487	943.82
6095	864779.185	2031806.534	942.93
6096	864779.135	2031856.444	941.81
6097	864779.014	2031906.533	940.98
6098	864779.042	2031956.608	939.99
6101	864829.088	2030856.486	939.97
6102	864829.174	2030906.550	940.93
6103	864829.125	2030956.469	941.98
6104	864829.120	2031006.467	942.95
6105	864828.997	2031056.683	943.99
6106	864829.052	2031106.496	944.80
6107	864829.152	2031156.499	946.04
6108	864829.226	2031206.529	947.01
6109	864829.005	2031256.731	947.97

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11054	864729.037	2031006.551	945.11
11055	864729.143	2031056.432	946.25
11056	864729.121	2031106.458	947.23
11057	864729.151	2031156.446	948.28
11058	864729.104	2031206.508	949.10
11059	864729.044	2031256.593	950.04
11060	864729.113	2031306.504	950.98
11061	864729.139	2031356.434	952.01
11062	864729.058	2031406.551	953.05
11063	864629.085	2031406.501	953.03
11064	864729.088	2031506.612	951.31
11065	864729.142	2031556.435	950.15
11066	864728.987	2031606.392	949.26
11067	864729.025	2031656.486	948.28
11068	864729.243	2031706.527	946.94
11069	864729.080	2031756.280	945.95
11070	864728.993	2031806.575	944.96
11071	864729.323	2031856.551	944.03
11072	864728.997	2031906.508	942.90
11073	864729.039	2031956.809	952.09
11076	864779.065	2030844.403	942.15
11077	864779.121	2030906.491	943.04
11078	864779.126	2030956.475	944.03
11079	864779.349	2031006.183	945.00
11080	864779.168	2031056.398	946.02
11081	864779.099	2031106.503	947.08
11082	864779.211	2031156.317	948.03
11083	864779.089	2031206.511	949.08
11084	864779.059	2031256.496	950.02
11085	864779.112	2031306.441	950.98
11086	864779.143	2031356.394	952.00
11087	864779.072	2031406.598	953.06
11088	864779.170	2031456.541	952.10
11089	864778.900	2031506.458	951.18
11090	864779.192	2031556.158	949.90
11091	864779.139	2031606.519	949.00
11092	864778.854	2031656.552	947.99
11093	864779.066	2031706.596	947.07
11094	864778.947	2031756.478	945.91
11095	864779.189	2031806.592	945.00
11096	864779.082	2031856.441	943.85
11097	864779.092	2031906.552	942.98
11098	864779.321	2031956.572	952.02
11101	864829.038	2030843.781	943.60
11102	864829.185	2030906.568	942.95
11103	864829.203	2030956.374	944.13
11104	864829.156	2031006.424	945.06
11105	864829.084	2031056.530	946.28
11106	864829.101	2031106.528	947.10
11107	864829.124	2031156.466	948.05
11108	864829.086	2031206.458	949.05
11109	864829.132	2031256.372	949.97

ELEVATION DIFFERENCE
2.23
2.10
2.19
2.37
2.14
2.27
2.09
1.88
2.08
3.00
2.25
1.97
2.05
2.36
2.02
1.99
2.00
2.14
2.12
12.17
2.09
2.14
2.20
2.07
2.07
2.31
2.02
2.31
2.16
2.15
2.10
2.17
2.05
2.13
2.05
2.23
2.06
2.16
2.09
2.08
2.04
2.00
12.03
3.63
2.02
2.15
2.12
2.29
2.30
2.00
2.04
2.00

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
6110	864829.012	2031307.613	949.05
6111	864829.078	2031356.599	949.91
6112	864829.101	2031406.518	950.96
6113	864829.093	2031456.648	950.11
6114	864829.008	2031506.539	949.08
6115	864829.149	2031556.384	947.98
6116	864829.029	2031606.690	946.75
6117	864828.965	2031656.471	946.10
6118	864829.049	2031706.628	945.04
6119	864829.279	2031756.592	943.91
6120	864828.961	2031806.421	942.86
6121	864829.046	2031856.507	941.87
6122	864829.144	2031906.482	940.92
6123	864829.226	2031956.528	940.08
6126	864879.073	2030856.503	939.86
6127	864879.129	2030906.496	941.02
6128	864879.110	2030956.480	941.94
6129	864879.061	2031006.504	943.00
5130	864879.079	2031056.574	943.94
5131	864879.094	2031106.551	945.13
5132	864878.980	2031156.490	946.08
5133	864879.177	2031206.530	947.04
5134	864879.040	2031256.413	948.13
5135	864879.125	2031306.442	948.95
5136	864879.139	2031356.474	950.08
6137	864879.139	2031406.458	950.99
6138	864879.062	2031456.850	949.84
6139	864878.846	2031506.526	948.77
6140	864879.023	2031556.499	947.88
6141	864879.289	2031606.792	946.91
6142	864878.969	2031656.589	945.77
6143	864879.242	2031706.485	944.97
6144	864879.027	2031756.803	943.87
6145	864879.180	2031806.428	942.79
6146	864879.325	2031856.544	941.78
6147	864879.119	2031906.618	940.82
6148	864879.162	2031956.418	939.91
6151	864929.108	2030856.494	939.83
6152	864929.097	2030906.463	940.87
6153	864929.090	2030956.589	942.02
6154	864929.105	2031006.532	942.85
5155	864929.019	2031056.585	943.90
5156	864929.072	2031106.583	945.08
5157	864929.194	2031156.430	946.14
5158	864929.199	2031206.460	947.13
5159	864929.144	2031256.590	948.09
5160	864929.065	2031306.423	949.10
5161	864929.114	2031356.463	950.03
6162	864928.995	2031406.593	950.86
6163	864928.969	2031456.350	949.76
6164	864929.080	2031506.506	948.90
6165	864928.949	2031556.502	947.84

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11110	864829.109	2031306.472	951.01
11111	864829.086	2031356.479	951.97
11112	864829.076	2031406.492	952.94
11113	864829.075	2031456.631	952.22
11114	864829.019	2031506.439	951.07
11115	864829.049	2031556.418	950.02
11116	864829.009	2031606.631	948.87
11117	864828.998	2031656.542	948.09
11118	864829.028	2031706.582	947.10
11119	864829.270	2031756.563	946.21
11120	864828.988	2031806.519	945.13
11121	864829.051	2031856.561	943.88
11122	864829.106	2031906.429	943.01
11123	864829.085	2031956.450	952.06
11126	864879.057	2030844.157	944.18
11127	864879.113	2030906.520	943.10
11128	864879.091	2030956.531	944.15
11129	864879.125	2031006.465	945.10
11130	864879.116	2031056.463	946.07
11131	864879.098	2031106.528	947.08
11132	864879.161	2031156.353	948.21
11133	864879.111	2031206.515	949.31
11134	864879.053	2031256.538	950.03
11135	864879.067	2031306.532	951.16
11136	864879.091	2031356.509	952.34
11137	864879.093	2031406.493	953.02
11138	864879.092	2031456.946	952.09
11139	864878.858	2031506.637	950.76
11140	864879.099	2031556.522	949.87
11141	864879.316	2031606.775	949.03
11142	864878.906	2031656.598	948.18
11143	864879.233	2031706.406	947.11
11144	864879.043	2031756.778	946.09
11145	864879.149	2031806.514	945.24
11146	864879.425	2031856.564	943.98
11147	864879.096	2031906.714	942.91
11148	864879.089	2031956.498	952.09
11151	864929.052	2030845.309	943.26
11152	864929.138	2030906.459	943.26
11153	864929.122	2030956.485	944.17
11154	864929.100	2031006.510	945.25
11155	864929.105	2031056.516	946.29
11156	864929.103	2031106.489	947.18
11157	864929.123	2031156.493	948.18
11158	864929.102	2031206.474	949.25
11159	864929.074	2031256.461	950.11
11160	864929.085	2031306.569	951.07
11161	864929.120	2031356.376	952.06
11162	864929.113	2031406.484	952.99
11163	864929.137	2031456.419	952.14
11164	864929.121	2031506.420	951.18
11165	864929.090	2031556.557	950.09

ELEVATION DIFFERENCE
1.96
2.05
1.98
2.11
1.99
2.05
2.12
2.00
2.06
2.29
2.27
2.00
2.09
11.98
4.32
2.08
2.22
2.10
2.13
1.95
2.13
2.27
1.90
2.21
2.26
2.04
2.25
1.99
1.99
2.12
2.41
2.15
2.23
2.44
2.20
2.09
12.19
3.42
2.40
2.15
2.40
2.39
2.10
2.04
2.13
2.02
1.98
2.03
2.14
2.38
2.29
2.25

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
6166	864929.151	2031606.524	946.99
6167	864928.993	2031656.410	945.89
6168	864928.971	2031706.493	944.89
6169	864928.992	2031756.406	943.77
6170	864928.988	2031806.600	942.85
6171	864928.937	2031856.586	941.79
6172	864929.140	2031906.595	940.85
6173	864929.050	2031956.547	940.05
6176	864979.124	2030856.485	939.90
6177	864979.194	2030906.529	940.92
6178	864979.106	2030956.553	942.01
6179	864979.038	2031006.528	942.96
5180	864979.075	2031043.614	943.70
5181	864979.093	2031106.541	944.90
5182	864979.044	2031156.709	946.17
5183	864979.042	2031206.462	947.08
5184	864979.133	2031256.430	948.09
5185	864979.014	2031306.500	948.95
5212	864979.045	2031356.426	950.08
6187	864979.174	2031406.570	950.92
6188	864979.091	2031456.586	949.87
6189	864979.190	2031506.482	948.76
6190	864979.162	2031556.452	947.82
6191	864979.118	2031606.489	946.80
6192	864978.799	2031656.650	945.78
6193	864979.158	2031706.458	944.76
6194	864979.162	2031756.633	943.75
6195	864979.224	2031806.688	942.72
6196	864978.976	2031856.768	941.75
6197	864979.215	2031906.761	940.81
6198	864979.051	2031956.573	940.03
6201	865029.145	2030856.478	939.92
6202	865029.059	2030906.548	940.92
6203	865029.047	2030956.520	941.95
6204	865029.099	2031006.543	942.93
6205	865028.877	2031056.382	943.95
5206	865029.204	2031106.370	945.12
5207	865029.140	2031156.562	946.20
5208	865029.082	2031206.554	947.00
5209	865029.090	2031256.511	948.08
5210	865029.091	2031306.496	948.99
5211	865025.316	2031343.422	950.30
6212	865029.303	2031406.450	950.90
6213	865029.163	2031456.503	949.93
6214	865028.999	2031506.408	948.96
6215	865029.103	2031556.464	947.94
6216	865029.038	2031606.488	946.92
6217	865028.925	2031656.472	945.90
6218	865028.971	2031706.393	945.00
6219	865029.021	2031756.422	943.96
6220	865028.957	2031806.449	942.98
6221	865029.092	2031856.456	941.93

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11166	864929.053	2031606.549	949.10
11167	864929.090	2031656.507	948.09
11168	864929.108	2031706.496	947.02
11169	864929.079	2031756.330	946.06
11170	864928.894	2031806.553	945.14
11171	864929.017	2031856.639	943.93
11172	864929.129	2031906.529	943.02
11173	864928.967	2031956.559	952.05
11176	864979.122	2030843.380	942.47
11177	864979.077	2030906.541	943.25
11178	864979.119	2030956.484	944.03
11179	864979.133	2031006.432	945.09
11180	864979.092	2031056.541	946.16
11181	864979.090	2031106.624	947.19
11182	864979.099	2031156.487	948.30
11183	864979.112	2031206.438	949.22
11184	864979.093	2031256.550	950.32
11185	864979.123	2031306.346	951.25
11186	864979.116	2031356.453	952.27
11187	864979.121	2031406.484	953.25
11188	864979.121	2031456.383	952.14
11189	864979.112	2031506.429	951.20
11190	864979.093	2031556.487	950.10
11191	864979.117	2031606.416	949.07
11192	864979.079	2031656.597	948.09
11193	864979.143	2031706.391	947.03
11194	864979.106	2031756.529	946.04
11195	864979.261	2031806.621	945.04
11196	864979.096	2031856.840	944.01
11197	864979.175	2031906.780	943.03
11198	864979.071	2031956.531	951.90
11201	865029.216	2030841.945	943.92
11202	865029.111	2030906.469	943.09
11203	865029.111	2030956.478	944.08
11204	865029.090	2031006.467	945.03
11205	865029.096	2031056.514	946.09
11206	865029.107	2031106.438	947.11
11207	865029.098	2031156.592	948.22
11208	865029.094	2031206.566	949.12
11209	865029.101	2031256.452	950.13
11210	865029.116	2031306.522	951.23
11211	865029.109	2031356.477	952.10
11212	865029.116	2031406.539	952.99
11213	865029.111	2031456.539	952.05
11214	865029.104	2031506.425	951.04
11215	865029.125	2031556.537	950.04
11216	865029.064	2031606.531	949.01
11217	865029.108	2031656.548	948.09
11218	865029.150	2031706.478	947.12
11219	865029.117	2031756.488	946.00
11220	865028.979	2031806.432	945.03
11221	865029.048	2031856.426	943.95

ELEVATION DIFFERENCE
2.11
2.20
2.13
2.30
2.29
2.14
2.18
12.01
2.57
2.34
2.02
2.13
2.47
2.29
2.13
2.14
2.23
2.30
2.20
2.33
2.27
2.44
2.28
2.27
2.31
2.27
2.29
2.31
2.26
2.22
11.87
4.00
2.18
2.13
2.10
2.15
2.00
2.02
2.13
2.06
2.24
1.80
2.08
2.12
2.09
2.10
2.09
2.19
2.12
2.05
2.05
2.02

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
6222	865029.044	2031906.382	940.92
6223	865029.113	2031956.317	939.82
6226	865079.098	2030856.493	939.82
6227	865079.089	2030906.487	940.90
6228	865079.099	2030956.487	941.89
6229	865079.156	2031006.516	942.96
6230	865079.127	2031056.449	943.92
6231	865079.101	2031106.482	944.95
6232	865079.069	2031156.486	945.93
6233	865079.077	2031206.445	947.02
5234	865079.186	2031256.501	948.14
6235	865079.191	2031306.498	948.97
6236	865079.168	2031356.255	949.98
6237	865079.226	2031406.784	950.88
6238	865079.089	2031456.679	949.87
6239	865079.223	2031506.242	948.86
6240	865079.207	2031556.565	947.96
6241	865079.056	2031606.446	946.87
6242	865079.035	2031656.310	945.86
6243	865079.234	2031706.659	944.86
6244	865079.105	2031756.348	943.97
6245	865079.198	2031806.522	942.84
6246	865079.042	2031856.241	941.93
6247	865079.126	2031906.413	940.85
6248	865078.947	2031956.562	939.88
6249	865077.838	2031983.127	939.49
6252	865129.100	2030906.494	941.21
6253	865129.151	2030956.429	941.92
6254	865129.075	2031006.525	943.03
6255	865129.141	2031056.510	943.85
6256	865129.171	2031106.517	944.98
6257	865129.033	2031156.436	946.08
6258	865129.108	2031206.527	946.86
6259	865129.294	2031256.602	947.95
6260	865128.925	2031306.504	948.97
6261	865129.061	2031356.351	949.94
6262	865129.193	2031406.513	950.82
6263	865129.033	2031456.584	950.05
6264	865128.943	2031506.573	949.02
6265	865129.031	2031556.529	947.94
6266	865129.086	2031606.389	946.92
6267	865129.244	2031656.461	945.93
6268	865129.091	2031706.478	944.86
6269	865128.634	2031756.485	943.80
6270	865129.204	2031806.245	942.84
6271	865129.378	2031856.699	941.82
6272	865129.292	2031906.205	940.84
6273	865129.286	2031956.458	939.81
6274	865179.119	2031983.368	939.66
7030	865179.211	2030956.588	941.90
7032	865178.963	2031006.561	942.95
6280	865179.145	2031056.458	943.83

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11222	865029.000	2031906.445	943.17
11223	865028.987	2031956.325	951.99
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
11231	865079.110	2031106.432	947.15
11232	865079.103	2031156.531	948.17
11233	865079.110	2031206.511	949.28
11234	865079.106	2031256.505	950.24
11235	865079.111	2031306.499	951.29
11236	865079.113	2031356.500	952.19
11237	865079.083	2031406.573	953.03
11238	865079.112	2031456.447	952.28
11239	865079.094	2031506.444	951.08
11240	865079.094	2031556.460	950.03
11241	865079.109	2031606.440	948.98
11242	865079.129	2031656.492	948.10
11243	865079.108	2031706.495	947.21
11244	865079.095	2031756.478	946.03
11245	865079.163	2031806.544	945.17
11246	865079.097	2031856.247	944.11
11247	865079.083	2031906.514	942.79
11248	865079.253	2031956.601	951.93
	In Slope		
	Haul road		
11253	865129.114	2030956.500	944.07
11254	865129.110	2031006.627	945.09
11255	865129.115	2031056.502	946.02
11256	865129.101	2031106.474	947.37
11257	865129.110	2031156.500	948.26
11258	865129.110	2031206.501	949.06
11259	865129.097	2031256.506	950.07
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Haul road/ Pipe berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
	Pipe Berm		
11273	865129.181	2031956.501	952.41
	In Slope		
	Haul road		
	Haul road		
11280	865179.108	2031056.524	946.03

ELEVATION DIFFERENCE
2.25
12.17
2.21
2.24
2.27
2.10
2.32
2.21
2.15
2.41
2.22
2.07
2.11
2.23
2.35
2.06
2.32
2.18
1.95
12.05
2.15
2.06
2.17
2.38
2.18
2.20
2.12
12.60
2.20

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING	EASTING	TOP OF SUBGRADE ELEVATION
6281	865179.064	2031106.437	944.98
6282	865179.061	2031156.527	945.78
6283	865179.097	2031206.483	946.89
6284	865178.958	2031256.376	948.01
6285	865179.221	2031306.427	948.89
6286	865179.118	2031356.565	949.96
6287	865179.013	2031406.411	950.94
6288	865179.037	2031456.488	950.01
6289	865179.232	2031506.501	949.08
6290	865179.093	2031556.532	948.05
6291	865179.228	2031606.248	947.09
6292	865178.978	2031656.531	945.91
6293	865179.137	2031706.325	944.91
6294	865179.129	2031756.674	943.95
6295	865179.042	2031806.384	943.00
6296	865179.378	2031856.441	942.07
6297	865178.984	2031906.573	940.95
6298	865179.073	2031956.415	940.00
7034	865228.914	2031056.401	944.23
7035	865229.169	2031106.532	944.96
6307	865229.175	2031156.512	945.88
6308	865229.112	2031206.491	946.92
6309	865229.215	2031256.527	947.94
6310	865229.153	2031306.540	948.99
6311	865229.190	2031356.525	950.06
6312	865228.669	2031406.691	951.04
6313	865229.029	2031456.424	949.93
6314	865229.137	2031506.586	948.97
6315	865229.184	2031556.459	947.91
6316	865229.134	2031606.451	946.94
6317	865229.241	2031656.577	945.94
6318	865229.093	2031706.453	945.03
6319	865229.117	2031756.458	943.92
6320	865229.117	2031806.518	942.97
6321	865229.073	2031856.541	941.96
6322	865229.077	2031906.496	940.92
	Pt. in slope		
7039	865279.138	2031206.537	946.81
6334	865278.898	2031256.522	947.98
6335	865279.173	2031306.533	948.99
6336	865279.026	2031356.425	950.09
6337	865279.314	2031406.321	950.86
6338	865279.296	2031456.486	949.90
6339	865279.103	2031506.504	948.89
6340	865279.103	2031556.591	947.86
6341	865279.053	2031606.480	946.97
6342	865279.090	2031656.499	946.03
6343	865279.036	2031706.520	945.02
6344	865278.978	2031756.455	943.94
6345	865279.104	2031806.592	943.04
6346	865279.146	2031856.529	941.93
6347	865279.088	2031906.417	940.92

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11281	865179.048	2031106.323	947.06
11282	865179.154	2031156.813	948.00
11283	865179.084	2031206.465	949.03
11284	865179.109	2031256.479	950.09
11285	865179.104	2031306.467	951.11
11286	865179.092	2031356.473	952.03
11287	865179.102	2031406.534	953.06
	Haul road		
11289	865179.073	2031506.404	951.05
11290	865179.112	2031556.557	950.29
11291	865179.099	2031606.518	949.20
11292	865179.105	2031656.558	948.00
11293	865179.106	2031706.472	946.99
11294	865179.111	2031756.547	946.13
11295	865179.119	2031806.532	945.24
11296	865179.371	2031856.408	944.39
11297	865179.100	2031906.503	943.01
11298	865179.083	2031956.568	952.10
	Haul road		
	Haul road		
11307	865229.062	2031156.396	948.04
11308	865229.070	2031206.523	948.99
11309	865229.094	2031256.477	950.15
11310	865229.104	2031306.573	951.30
11311	865229.085	2031356.448	952.05
11312	865229.103	2031406.482	952.99
	Haul road		
11314	865229.083	2031506.365	951.09
11315	865229.106	2031556.450	950.04
11316	865229.103	2031606.473	949.09
11317	865229.092	2031656.487	948.00
11318	865229.151	2031706.560	947.20
11319	865229.107	2031756.568	946.09
11320	865229.171	2031806.557	944.96
11321	865229.136	2031856.469	944.09
11322	865229.182	2031906.509	942.85
11323	865229.077	2031956.385	952.16
	Haul road		
11334	865279.071	2031256.453	950.10
11335	865279.118	2031306.595	951.10
11336	865279.085	2031356.381	952.19
11337	865279.078	2031406.409	953.04
	Haul road		
11339	865279.086	2031506.468	951.04
11340	865279.106	2031556.491	950.03
11341	865279.103	2031606.443	949.05
11342	865279.073	2031656.329	948.06
11343	865279.103	2031706.484	947.08
11344	865279.119	2031756.517	945.97
11345	865279.071	2031806.346	945.12
11346	865278.786	2031856.226	943.96
11347	865279.170	2031906.350	948.02

ELEVATION DIFFERENCE
2.08
2.21
2.14
2.08
2.23
2.07
2.12
1.98
2.24
2.11
2.09
2.08
2.18
2.25
2.32
2.06
12.10
2.17
2.07
2.21
2.31
1.99
1.94
2.11
2.13
2.15
2.07
2.18
2.17
1.99
2.14
1.93
2.12
2.11
2.10
2.18
2.15
2.17
2.08
2.03
2.07
2.04
2.09
2.04
7.10

Sherco Pond 3N
Subgrade/Sand Comparison at Pond Bottom As-Built Survey Summary

PT. NUMBER	NORTHING Pt. in slope	EASTING	TOP OF SUBGRADE ELEVATION
6359	865329.263	2031256.488	947.98
6360	865329.253	2031306.540	949.01
6361	865329.147	2031356.661	949.91
6362	865328.987	2031406.533	950.80
6363	865329.198	2031456.412	949.85
6364	865329.156	2031506.460	948.84
6365	865328.959	2031556.612	948.04
6366	865329.029	2031606.445	946.99
6367	865329.176	2031656.443	945.84
6368	865329.161	2031706.314	944.88
6369	865329.194	2031756.336	943.98
6370	865329.136	2031806.377	942.95
6371	865329.045	2031856.522	941.99
6372	865329.200	2031906.405	940.94

PT. NUMBER	NORTHING	EASTING	TOP OF SAND ELEVATION
11348	865279.179	2031956.477	959.96
	Haul road		
11360	865301.489	2031306.437	951.34
11361	865300.359	2031356.480	952.23
11362	865296.044	2031406.443	953.41
	Haul road		
11364	865313.904	2031506.472	951.12
11365	865311.066	2031556.505	950.17
11366	865307.949	2031606.475	949.19
11367	865305.022	2031656.596	949.29
11368	865302.035	2031706.490	947.59
11369	865299.043	2031756.499	946.40
11370	865296.017	2031806.443	945.30
11371	865293.133	2031856.590	944.20
11372	865261.307	2031906.669	943.99

ELEVATION DIFFERENCE
2.33
2.32
2.61
2.27
2.12
2.20
3.45
2.72
2.41
2.35
2.21
3.05

Clay Anchor and Upstream Clay Barrier Survey Data

Sherco Pond 3N
Clay Anchor As-Built Survey Summary

Bottom of Clay Anchor

8% Ramp Bottom of Clay Anchor up NW Embankment

Point ID	Northing	Easting	Elevation
1036	865410.119	2031231.690	958.96
1037	865390.238	2031234.514	958.83
1035	865404.187	2031185.323	962.81
1034	865384.688	2031187.299	962.71
1032	865397.969	2031132.761	966.81
1033	865378.204	2031135.223	966.99

Top of Clay Anchor

8% Ramp Top of Clay Anchor up NW Embankment

Point ID	Northing	Easting	Elevation	Thickness
7124	865415.043	2031231.709	964.07	5.11
7123	865404.718	2031232.807	964.06	5.24
7121	865408.794	2031181.855	967.98	5.17
7122	865398.996	2031183.198	968.05	5.34
7120	865402.898	2031131.467	972.15	5.35
7119	865392.946	2031133.098	972.29	5.30

Bottom of Clay Anchor

North Embankment 100' Interval

Point ID	Northing	Easting	Elevation
1039	865416.174	2031282.333	954.88
1038	865395.971	2031283.604	954.96
1040	865415.879	2031333.126	954.91
1041	865396.040	2031333.196	954.81
1230	865415.952	2031433.125	955.22
1231	865396.078	2031434.486	955.16
233	865416.612	2031533.817	955.29
1232	865396.745	2031531.774	955.17
1234	865416.136	2031638.251	955.22
1235	865396.312	2031638.221	955.07
1237	865415.976	2031734.243	955.18
1236	865395.865	2031733.814	954.89
1238	865416.202	2031834.264	954.87
1239	865396.400	2031831.526	954.67
1241	865415.629	2031917.746	954.70
1240	865397.162	2031909.351	954.84

Top of Clay Anchor

North Embankment 50' Interval

Point ID	Northing	Easting	Elevation	Thickness
7078	865420.710	2031281.768	960.55	5.67
7077	865410.870	2031282.605	960.05	5.09
630	865421.132	2031331.698	960.60	5.69
7076	865411.215	2031332.340	960.08	5.27
7125	865422.238	2031387.579	960.29	
7127	865411.859	2031387.344	960.12	
629	865421.190	2031431.752	960.14	4.92
628	865411.289	2031431.606	960.04	4.88
7129	865420.905	2031483.748	960.05	
7128	865411.060	2031483.309	960.09	
627	865420.661	2031534.108	959.90	4.61
626	865411.089	2031533.989	960.04	4.87
7132	865423.960	2031594.010	960.10	
7075	865411.117	2031592.781	960.05	
7074	865420.752	2031642.851	960.09	4.86
7073	865411.024	2031642.434	960.12	5.05
7081	865420.970	2031686.169	960.12	
7072	865411.351	2031686.524	960.05	
7080	865421.010	2031736.256	960.23	5.05
7071	865411.134	2031736.627	960.07	5.18
7079	865420.953	2031785.301	960.05	
7070	865411.285	2031785.629	960.08	
7131	865424.432	2031836.073	960.03	5.16
7069	865411.223	2031834.955	960.00	5.33
7067	865420.893	2031875.462	960.06	
7068	865411.268	2031875.410	959.99	
7066	865419.803	2031919.081	960.15	5.45
7065	865410.661	2031915.206	960.04	5.21

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E Cannon 11-2-04

Michael E. Cannon MN Reg. 40035

Sherco Pond 3N
Clay Anchor As-Built Survey Summary

Bottom of Clay Anchor

NE Diagonal Embankment 100' Interval

Point ID	Northing	Easting	Elevation
1241	865415.629	2031917.746	954.70
1240	865397.162	2031909.351	954.84
1242	865356.132	2031977.758	955.25
1243	865341.917	2031964.324	954.94
1245	865284.245	2032048.731	955.40
1244	865276.190	2032030.254	954.92

Bottom of Clay Anchor
East Embankment

Point ID	Northing	Easting	Elevation
1245	865284.245	2032048.731	955.40
1244	865276.190	2032030.254	954.92
1246	865245.461	2032048.984	955.17
1247	865246.091	2032029.150	954.78
1249	865146.351	2032049.047	955.04
1248	865147.141	2032029.191	954.84
1250	865044.541	2032049.178	954.90
1251	865046.097	2032029.105	954.83
1252	864946.807	2032049.315	954.68
1253	864942.965	2032029.341	954.84
1042	864897.419	2032049.347	954.51
1043	864897.935	2032029.347	954.54
1045	864846.966	2032048.900	954.93
1044	864846.235	2032029.113	954.93
1046	864794.715	2032049.219	954.90
1047	864794.113	2032029.479	954.78
1049	864745.865	2032048.989	954.94
1048	864746.348	2032029.195	955.02
1050	864697.122	2032048.945	954.74
1051	864696.919	2032029.492	954.74
1053	864645.362	2032049.093	954.92
1052	864645.206	2032029.288	954.93
1054	864593.597	2032049.010	954.95
1055	864592.969	2032029.187	954.93
1057	864545.558	2032049.344	955.05
1056	864545.248	2032029.507	954.86
1058	864495.529	2032049.388	954.82
1059	864493.483	2032029.650	954.76
1061	864445.698	2032049.235	954.91
1060	864446.876	2032029.283	955.03
1062	864395.864	2032049.177	955.10

Top of Clay Anchor

NE Diagonal Embankment 50' Interval

Point ID	Northing	Easting	Elevation	Thickness
7066	865419.803	2031919.081	960.15	5.45
7065	865410.661	2031915.206	960.04	5.21
7177	865404.308	2031938.340	960.38	
7176	865397.427	2031931.175	960.04	
7178	865381.744	2031957.445	960.30	
7179	865375.193	2031950.617	960.18	
7181	865349.513	2031989.756	960.78	5.52
7180	865342.779	2031982.759	960.39	5.45
7182	865329.098	2032009.534	960.69	
7183	865322.339	2032002.558	960.14	
7185	865296.883	2032044.541	960.61	
7184	865289.520	2032037.781	960.39	
7187	865283.079	2032053.604	960.06	4.66
7186	865281.924	2032043.501	960.67	5.75

Top of Clay Anchor
East Embankment

Point ID	Northing	Easting	Elevation	Thickness
7187	865283.079	2032053.604	960.06	4.66
7186	865281.924	2032043.501	960.67	5.75
7189	865241.936	2032053.793	960.38	5.20
7188	865242.467	2032044.041	960.22	5.43
7191	865193.077	2032054.147	960.40	
7190	865193.586	2032044.327	960.15	
7193	865145.830	2032054.077	960.62	5.58
7192	865146.484	2032044.274	960.17	5.33
7195	865094.143	2032053.836	960.56	
7194	865094.737	2032044.188	960.27	
7197	865044.997	2032053.851	960.60	5.70
7196	865044.801	2032044.113	960.57	5.75
7199	864994.925	2032053.982	960.30	
7198	864995.217	2032044.472	960.07	
7201	864945.107	2032053.799	960.17	5.50
7200	864945.171	2032044.098	960.05	5.21
7203	864897.023	2032053.766	960.35	5.84
7202	864897.455	2032043.952	960.18	5.63
1341	864845.102	2032054.180	960.04	5.11
1340	864845.194	2032044.362	960.10	5.18
1343	864790.897	2032054.232	960.11	5.21
1342	864791.637	2032044.411	959.67	4.89
1345	864740.535	2032054.118	960.33	5.39
1344	864740.452	2032043.804	960.09	5.06
1347	864688.552	2032054.067	960.40	5.66
1346	864688.164	2032044.223	960.07	5.32
1349	864636.758	2032053.991	960.38	5.45
1348	864637.359	2032044.991	960.09	5.15
1351	864581.430	2032054.014	960.33	5.39
1350	864581.792	2032044.475	960.01	5.08
1353	864527.547	2032054.901	960.54	5.49
1352	864527.981	2032045.078	960.41	5.55
1355	864461.713	2032052.824	960.53	5.62
1354	864462.602	2032044.202	960.34	5.32
1357	864411.612	2032054.248	960.17	5.07

ottom of Clay Anchor

East Embankment (continued)

Point ID	Northing	Easting	Elevation
1063	864394.804	2032029.380	954.99
1065	864346.071	2032049.239	955.04
1064	864346.483	2032029.135	954.83
7159	864325.001	2032048.851	954.93
7160	864326.396	2032028.994	955.00
7162	864282.036	2032048.945	955.01
7161	864282.699	2032029.002	955.06
7163	864233.005	2032048.919	954.92
7164	864232.592	2032029.033	955.06
7166	864182.772	2032048.824	955.04
7165	864183.622	2032028.889	954.99
1074	864145.375	2032048.981	954.89
1075	864146.946	2032029.275	954.97
1073	864097.510	2032048.656	954.63
1072	864096.935	2032029.360	954.91
1070	864045.507	2032049.042	955.00
1071	864045.315	2032029.313	954.87
1069	863993.750	2032049.724	954.87
1068	863993.436	2032029.517	954.66
1066	863945.573	2032048.922	954.92
1067	863946.480	2032028.737	954.84
1077	863917.145	2032047.075	954.99
1076	863932.806	2032029.524	954.94

Bottom of Clay Anchor

SE Corner Wrap up and Over South Embankment

Point ID	Northing	Easting	Elevation
1079	863902.655	2032054.409	960.05
missing shot west of 1079			
1080	863881.951	2032044.100	966.96
1081	863881.741	2032021.090	967.00
1083	863852.290	2032043.825	966.99
1082	863852.284	2032021.059	967.08
1093	863831.221	2032054.001	959.96
missing shot west of 1093			
1092	863816.932	2032054.204	954.95
1090	863803.587	2032061.221	954.98
1091	863818.195	2032060.773	955.01
1088	863802.561	2032045.167	954.87

Top of Clay Anchor

East Embankment (continued)

Point ID	Northing	Easting	Elevation	Thickness
1356	864410.763	2032044.399	960.17	5.18
1386	864361.071	2032054.031	960.30	5.26
1385	864361.174	2032044.395	960.03	5.20
1387	864313.110	2032054.214	960.35	5.42
1388	864313.252	2032044.414	960.15	5.15
1390	864260.536	2032054.104	960.23	5.23
1389	864260.306	2032044.352	960.04	4.98
1392	864207.638	2032054.368	960.50	5.59
1391	864208.261	2032044.088	959.99	4.93
1359	864155.544	2032053.822	959.98	5.09
1358	864155.696	2032043.995	960.02	5.05
1361	864103.251	2032053.914	960.18	5.55
1360	864103.510	2032044.040	960.12	5.21
1363	864051.289	2032054.100	960.14	5.14
1362	864051.297	2032044.440	960.09	5.22
1365	863990.231	2032053.652	960.21	5.34
1364	863991.373	2032044.152	959.85	5.19
1367	863943.754	2032053.626	960.53	5.61
1366	863945.006	2032044.179	960.18	5.33
1078	863917.571	2032054.573	960.09	5.10
1368	863917.031	2032044.821	960.86	5.92

Top of Clay Anchor

SE Corner Wrap up and Over South Embankment

Point ID	Northing	Easting	Elevation	Thickness
1078	863917.571	2032054.573	960.09	
1368	863917.031	2032044.821	960.86	
1371	863881.729	2032035.285	972.47	5.51
1370	863881.787	2032020.931	972.06	5.06
1373	863852.127	2032036.569	972.04	5.04
1372	863854.642	2032020.041	972.53	5.44
1375	863816.004	2032050.242	960.78	
1374	863816.537	2032038.367	961.30	

Sherco Pond 3N
8-Foot Bench at 972.0 Elevation As-Built Survey Su

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MAPPING

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Pt. Number	NORTHING	PTION		WIDTH
1141	86539			
1143	86540	T		8.04
1145	86539	T		7.78
1147	86539	T		7.19
1149	86539	T		6.99
1150	86539	T/CLAY		7.91
1153	86540	T/CLAY		8.02
1155	86539	T/CLAY		8.12
1157	86540	T/CLAY		8.06
1159	86539	T/CLAY		8.02
1161	86540	T/CLAY		7.83
1163	86539	T/CLAY		7.92
1165	86540	T/CLAY		7.97
1167	86539	T/CLAY		7.98
1169	86540	T/CLAY		7.95
1171	86539	T/CLAY		8.02
1173	86540	T/CLAY		7.98
1175	86534	T/CLAY		7.93
1177	86531	T/CLAY		7.11
1179	86527	T/CLAY		8.06
1181	86525	T/CLAY		8.78
1183	86520	T/CLAY		8.03
1185	86515	T/CLAY		7.87
1187	86510	T/CLAY		8.06
1189	86504	T/CLAY		8.05
1191	86499	T/CLAY		7.87
1193	86493	T/CLAY		7.89
1195	86488	T/CLAY		8.16
1197	86482	T/CLAY		8.03
1199	86477	T/CLAY		8.11
1201	86472	T/CLAY		7.89
1203	86467	T/CLAY		7.76
1205	86460	T/CLAY		8.02
1207	86453	T/CLAY		7.90
1209	86448	T/CLAY		7.90
1211	86440	T/CLAY		7.91
1213	86436	T/CLAY		7.92
1215	86430	T/CLAY		7.81
1217	86424	T/CLAY		7.62
1219	86419	T/CLAY		7.94
1221	86414	T/CLAY		7.96
1223	86409	T/CLAY		7.89
1225	86403	T/CLAY		8.02
1227	86398	T/CLAY		7.88
1229	86393	T/CLAY		8.05
1231	86389	T/CLAY		7.84
		T/CLAY		8.14

Connection to Pond 2 Survey Data

Sherco Pond 3N
Clay Blanket, Berm & Bench As-Built Survey Summary

Bogart, Pederson & Associates, Inc.

LAND SURVEYING
CIVIL ENGINEERING
MAPPING

13076 First Street
Becker, MN 55308-9322

Tel: 1-763-262-8822
1-888-210-8301
Fax: 1-763-262-8844

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E. Cannon 11-2-04

Michael E. Cannon MN Reg. 40035

Clay Blanket

Pt. Number	Northing	Easting	Elev	DESCRIPTION
1293	865260.920	2030618.114	1010.23	GRD SHT
1294	865255.009	2030608.126	1011.35	GRD SHT
1295	865289.737	2030602.696	1011.28	GRD SHT
1296	865316.698	2030597.653	1011.05	GRD SHT
1297	865319.063	2030601.048	1010.15	GRD SHT
1266	865259.285	2030607.841	1010.79	BRKLN
1267	865286.920	2030605.692	1010.43	BRKLN
1268	865319.001	2030601.048	1009.39	GRD SHT
1269	865320.790	2030651.963	992.07	BRKLN
1270	865292.602	2030652.630	993.29	BRKLN
1271	865250.098	2030655.559	991.89	BRKLN
1272	865246.956	2030656.887	990.07	TOE
1273	865287.267	2030655.347	988.78	TOE
1274	865327.313	2030654.851	987.99	TOE
1275	865326.428	2030678.577	989.26	GRD SHT
1276	865286.342	2030678.560	989.28	GRD SHT
1277	865248.338	2030678.061	989.53	GRD SHT
1278	865346.961	2030679.067	988.90	GRD SHT
1279	865344.798	2030654.650	989.16	TOE
1280	865344.879	2030652.999	992.43	BRKLN
1298	865332.690	2030597.051	1010.08	GRD SHT
1299	865338.691	2030632.784	999.35	GRD SHT
1300	865333.277	2030641.191	999.90	GRD SHT
1301	865337.964	2030654.077	995.13	GRD SHT
1302	865345.214	2030674.677	991.01	GRD SHT
1303	865318.186	2030677.378	991.71	GRD SHT
1304	865286.444	2030677.386	990.39	GRD SHT
1305	865250.334	2030641.267	999.93	GRD SHT
1306	865290.088	2030639.703	1001.67	GRD SHT
1307	865327.978	2030627.714	1004.74	GRD SHT

Sherco Pond 3N
Clay Blanket, Berm & Bench As-Built Survey Summary

Clay Barrier

1281	865337.679	2030635.066	997.18	GRD SHT
1282	865318.943	2030600.944	1009.39	GRD SHT
1283	865333.536	2030598.198	1006.42	GRD SHT
1284	865338.271	2030617.400	998.85	TOE
1285	865318.788	2030621.806	1001.44	BRKLN

Clay Bench

1254	865082.702	2030652.765	999.03	GRD SHT
1255	865082.460	2030661.450	990.15	GRD SHT
1256	865081.651	2030676.855	990.10	GRD SHT
1257	865105.337	2030677.173	990.11	GRD SHT
1258	865105.107	2030660.261	990.18	GRD SHT
1259	865106.271	2030651.979	999.05	GRD SHT
1260	865206.345	2030650.464	1001.22	GRD SHT
1261	865205.377	2030660.955	990.02	GRD SHT
1262	865203.965	2030677.883	990.08	GRD SHT
1263	865232.186	2030678.051	989.79	GRD SHT
1264	865242.549	2030658.625	989.41	GRD SHT
1265	865240.630	2030651.306	999.06	BRKLN
1308	865250.092	2030654.820	996.02	BRKLN
1309	865250.421	2030665.883	994.95	BRKLN
1310	865252.115	2030677.109	990.08	TOE
1311	865200.628	2030678.887	990.75	TOE
1312	865200.131	2030666.613	995.42	BRKLN
1313	865200.352	2030656.297	995.60	BRKLN
1314	865149.220	2030655.629	994.94	BRKLN
1315	865149.097	2030666.673	994.81	BRKLN
1316	865148.564	2030678.566	990.56	TOE
1317	865105.075	2030677.046	990.70	TOE
1318	865105.527	2030666.363	995.00	BRKLN
1319	865106.118	2030654.004	995.22	BRKLN
1320	865081.951	2030656.087	995.71	BRKLN
1321	865082.657	2030666.474	995.18	BRKLN
1322	865081.486	2030678.156	990.05	TOE
7551	865081.639	2030666.054	995.20	GRD SHT
7552	865082.188	2030655.709	995.64	GRD SHT
7553	865106.135	2030654.678	995.33	GRD SHT
7554	865105.868	2030666.173	995.10	GRD SHT
7555	865155.281	2030667.147	994.61	GRD SHT
7556	865154.988	2030656.181	995.11	GRD SHT
7557	865206.410	2030656.016	995.44	GRD SHT
7558	865203.514	2030667.451	995.08	GRD SHT
7559	865248.986	2030666.369	995.11	GRD SHT
7560	865245.822	2030655.092	996.92	GRD SHT

Pipe Survey Data

Sherco Pond 3N
Pipe As-Built Survey Summary

Bogart, Pederson & Associates, Inc.

LAND SURVEYING
CIVIL ENGINEERING
MAPPING

13076 First Street
Becker, MN 55308-9322

Tel : 1-763-262-8822
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I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E Cannon 11-2-04

Michael E. Cannon MN Reg. 40035

Header Pipe West

Point Number	Northing	Easting	Elevation	DESCRIPTION
1411	865063.959	2030833.716	940.98	top pipe
1412	865013.435	2030830.447	941.07	top pipe
1413	864946.531	2030830.489	940.93	top pipe
1414	864869.867	2030830.438	940.99	top pipe
1415	864802.531	2030830.350	941.05	top pipe
1416	864738.427	2030830.642	940.97	top pipe
1417	864669.319	2030830.407	941.07	top pipe
1418	865063.668	2030833.383	940.96	top pipe
1419	865084.325	2030833.294	940.56	top pipe
1000	865370.686	2030831.632	940.05	TOP 8IN MH 1
1001	865321.277	2030832.636	940.20	TOP 8IN PIPE
1002	865269.572	2030832.287	940.08	TOP 8IN PIPE
1003	865222.907	2030832.580	940.05	TOP 8IN PIPE
1004	865172.313	2030832.619	940.16	TOP 8IN PIPE
1005	865120.953	2030832.754	940.17	TOP 8IN PIPE
1006	865090.829	2030833.112	940.16	TOP 8IN PIPE
1463	864150.511	2030830.295	940.96	TOP PIPE
1464	864100.867	2030830.512	940.98	TOP PIPE
1465	864054.340	2030830.658	940.85	TOP PIPE
1466	864004.854	2030830.729	941.05	TOP PIPE
1467	864248.746	2030830.173	940.90	TOP PIPE
1468	864301.857	2030830.618	940.80	TOP PIPE
1469	864386.009	2030830.677	940.80	TOP PIPE
1470	864447.234	2030830.619	940.87	TOP PIPE
1471	864500.451	2030830.408	940.91	TOP PIPE
1472	864550.917	2030830.741	940.84	TOP PIPE
1473	864606.971	2030830.364	940.87	TOP PIPE
1474	864662.500	2030829.537	941.01	TOP PIPE

Sherco Pond 3N
Pipe As-Built Survey Summary

Header Pipe East

Point Number	Northing	Easting	Elevation	DESCRIPTION
1007	865365.923	2031982.423	939.54	MH2 PIPE INV
1008	865316.369	2031981.998	940.28	TOP PIPE 8IN
1009	865257.889	2031980.383	940.22	TOP PIPE 8IN
1010	865235.747	2031979.826	940.06	TOP PIPE 8IN
1116	864535.203	2031982.399	940.90	TOP 8 IN PIPE
1117	864434.153	2031982.662	940.90	TOP 8 IN PIPE
1118	864485.521	2031982.281	940.94	TOP 8 IN PIPE
1119	864385.186	2031981.857	941.06	TOP 8 IN PIPE
1120	864338.340	2031982.137	940.92	TOP 8 IN PIPE
1121	864289.693	2031982.229	940.96	TOP 8 IN PIPE
1122	864242.251	2031982.976	941.04	TOP 8 IN PIPE
1123	864196.105	2031982.389	940.98	TOP 8IN PIPE TEE
1394	864664.303	2031982.203	941.08	top 8in. pipe
1395	864617.693	2031982.669	941.22	top 8in. pipe
1396	864583.407	2031982.188	940.94	top 8in. pipe
1397	864664.667	2031937.255	941.71	top 8in. pipe
1398	864664.544	2031891.586	942.55	top 8in. pipe
1399	864663.944	2031844.612	943.54	top 8in. pipe
1400	864663.863	2031798.552	944.38	top 8in. pipe
1401	864663.949	2031751.957	945.42	top 8in. pipe
1402	864663.933	2031704.000	946.27	top 8in. pipe
1403	864664.508	2031658.742	947.28	top 8in. pipe
1404	864664.111	2031610.201	948.16	top 8in. pipe
1405	864663.682	2031563.443	949.14	top 8in. pipe
1406	864663.487	2031516.592	950.08	top 8in. pipe
1407	864664.109	2031465.823	951.18	top 8in. pipe
1408	864663.592	2031430.273	951.72	top 8in. pipe
1096	865131.729	2031981.984	940.80	TOP 8IN PIPE T
1112	864910.422	2031982.507	940.89	TOP 8 IN PIPE
1113	864780.109	2031982.446	940.92	TOP 8 IN PIPE
1114	864680.463	2031982.450	940.93	TOP 8 IN PIPE
1115	864861.344	2031982.768	940.98	TOP 8 IN PIPE
1109	865081.177	2031982.381	940.87	TOP 8 IN PIPE
1110	865006.555	2031982.331	940.86	TOP 8 IN PIPE
1111	864970.483	2031982.363	940.90	TOP 8 IN PIPE
1094	865205.570	2031981.418	940.87	TOP 8 IN PIPE
1095	865153.039	2031981.444	940.92	TOP 8 IN PIPE
1136	864148.254	2031982.339	941.06	TOP 8IN PIPE
1137	864100.584	2031982.096	940.98	TOP 8IN PIPE
1138	864052.298	2031982.609	941.01	TOP 8IN PIPE
1139	864004.208	2031982.262	940.82	TOP 8IN PIPE
1140	863983.642	2031982.861	940.78	TOP 8IN PIPE

Sherco Pond 3N
Pipe As-Built Survey Summary

Lateral Pipe Center

Point Number	Northing	Easting	Elevation	DESCRIPTION
1420	865070.860	2030914.701	942.58	top pipe
1421	865078.799	2030978.493	943.84	top pipe
1422	865085.465	2031027.663	944.72	top pipe
1423	865092.117	2031081.676	945.78	top pipe
1424	865098.342	2031128.787	946.80	top pipe
1425	865103.743	2031172.551	947.69	top pipe
1426	865110.893	2031225.445	948.77	top pipe
1427	865123.418	2031323.598	950.69	top pipe
1428	865131.098	2031422.472	951.89	top pipe
1474	864662.500	2030829.537	941.01	TOP PIPE
1475	864663.581	2030885.526	941.82	TOP PIPE
1476	864664.165	2030940.544	942.89	TOP PIPE
1477	864664.470	2030994.187	943.96	TOP PIPE
1478	864664.823	2031042.452	945.01	TOP PIPE
1479	864665.048	2031094.169	946.14	TOP PIPE
1480	864664.955	2031147.180	947.07	TOP PIPE
1481	864664.875	2031197.071	948.09	TOP PIPE
1482	864664.244	2031256.715	949.30	TOP PIPE
1483	864664.742	2031309.981	950.33	TOP PIPE
1484	864665.592	2031361.325	951.48	TOP PIPE

ateral Pipe South

oint Number	Northing	Easting	Elevation	DESCRIPTION
1124	864196.111	2031938.943	941.66	TOP 8 IN PIPE
1125	864196.739	2031888.388	942.80	TOP 8 IN PIPE
1126	864196.621	2031838.589	943.71	TOP 8 IN PIPE
1127	864196.673	2031786.804	944.66	TOP 8 IN PIPE
1128	864196.762	2031735.702	945.75	TOP 8 IN PIPE
1129	864196.236	2031684.905	946.79	TOP 8 IN PIPE
1130	864196.545	2031634.008	947.88	TOP 8 IN PIPE
1131	864197.206	2031583.003	948.79	TOP 8 IN PIPE
1132	864197.230	2031533.916	949.75	TOP 8 IN PIPE
1133	864197.585	2031482.344	950.75	TOP 8 IN PIPE
1134	864197.537	2031436.039	951.74	TOP 8 IN PIPE
1135	864197.329	2031420.629	951.94	TOP 8 IN PIPE
1451	864195.813	2030896.314	942.12	TOP PIPE
1452	864197.134	2030949.092	943.22	TOP PIPE
1453	864197.115	2030999.542	944.11	TOP PIPE
1454	864196.730	2031052.093	945.21	TOP PIPE
1455	864196.955	2031105.046	946.22	TOP PIPE
1456	864197.243	2031156.234	947.36	TOP PIPE
1457	864197.009	2031209.255	948.42	TOP PIPE
1458	864196.448	2031261.788	949.45	TOP PIPE
1459	864196.259	2031314.753	950.50	TOP PIPE
1460	864197.409	2031364.036	951.44	TOP PIPE
1461	864197.505	2031421.957	952.04	TOP PIPE
1462	864196.900	2030831.966	941.04	TOP PIPE TEE

Sherco Pond 3N
Pipe As-Built Survey Summary

Lateral Pipe North

Point Number	Northing	Easting	Elevation	DESCRIPTION
1097	865130.930	2031935.371	941.68	TOP 8 IN PIPE
1098	865130.841	2031886.055	942.76	TOP 8 IN PIPE
1099	865131.132	2031838.186	943.68	TOP 8 IN PIPE
1100	865131.421	2031790.501	944.56	TOP 8 IN PIPE
1101	865131.213	2031742.350	945.55	TOP 8 IN PIPE
1102	865131.191	2031695.460	946.56	TOP 8 IN PIPE
1103	865130.793	2031649.088	947.50	TOP 8 IN PIPE
1104	865130.709	2031602.535	948.43	TOP 8 IN PIPE
1105	865130.669	2031554.942	949.35	TOP 8 IN PIPE
1106	865131.190	2031508.011	950.31	TOP 8 IN PIPE
1107	865131.068	2031462.852	951.23	TOP 8 IN PIPE
1108	865131.010	2031418.400	952.03	TOP 8IN PIPE HI

Decant 18in. W.Slope

Point Number	Northing	Easting	Elevation	DESCRIPTION
1516	863975.843	2030733.395	976.33	top 18 pipe
1517	864024.639	2030726.197	976.12	top 18 pipe
1518	864074.495	2030722.642	977.59	top 18 pipe
1519	864124.396	2030720.859	978.69	top 18 pipe
1520	864174.131	2030717.484	980.02	top 18 pipe
1521	864224.030	2030712.756	981.13	top 18 pipe
1522	864273.922	2030709.408	982.73	top 18 pipe
1523	864323.655	2030705.659	983.98	top 18 pipe
1524	864373.613	2030701.832	984.96	top 18 pipe
1525	864423.388	2030698.615	986.17	top 18 pipe
1526	864473.225	2030694.622	987.48	top 18 pipe
1527	864523.076	2030689.374	988.72	top 18 pipe
1528	864572.906	2030686.086	990.04	top 18 pipe
1529	864622.863	2030682.407	991.21	top 18 pipe
1530	864672.633	2030678.571	992.59	top 18 pipe
1531	864722.507	2030673.456	993.64	top 18 pipe
1532	864772.320	2030669.032	995.07	top 18 pipe
1533	864822.155	2030665.821	996.26	top 18 pipe
1534	864872.118	2030662.198	997.67	top 18 pipe
1535	864921.907	2030657.213	998.78	top 18 pipe
1536	864971.610	2030652.784	999.82	top 18 pipe
1537	865021.586	2030648.887	1001.05	top 18 pipe
1538	865071.355	2030645.905	1002.39	top 18 pipe
1539	865121.281	2030640.906	1004.02	top 18 pipe
1540	865163.543	2030636.934	1004.56	top 18 pipe
1541	865164.146	2030626.262	1004.76	top 18 pipe

Sherco Pond 3N
Pipe As-Built Survey Summary

?in. pipe scrubber to vault

oint Number	Northing	Easting	Elevation	DESCRIPTION
1233	866441.193	2030164.589	961.86	TOP PIPE
1234	866441.399	2030203.437	960.90	TOP PIPE
1235	866441.765	2030122.374	962.60	TOP PIPE
1236	866387.833	2030203.655	959.67	TOP PIPE
1237	866337.485	2030204.976	958.93	TOP PIPE
1238	866292.497	2030203.049	957.71	TOP PIPE
1239	866200.299	2030256.357	955.31	TOP PIPE
1240	866156.205	2030282.043	954.37	TOP PIPE
1241	866113.467	2030305.435	953.30	TOP PIPE
1242	866070.627	2030330.912	952.40	TOP PIPE
1243	866032.022	2030329.841	952.01	TOP PIPE
1244	866335.783	2030178.022	956.41	TOP PIPE

24in. pipe vault main ang. pt.

Point Number	Northing	Easting	Elevation	DESCRIPTION
1245	866023.136	2030337.366	952.67	TOP PIPE
1246	866001.613	2030359.460	952.82	TOP PIPE
1247	865967.095	2030395.504	952.90	TOP PIPE
1248	865931.733	2030431.688	953.37	TOP PIPE
1249	865896.014	2030468.108	953.91	TOP PIPE
1250	865861.377	2030502.598	954.20	TOP PIPE
1251	865826.512	2030538.129	954.48	TOP PIPE
1252	865790.805	2030575.069	954.67	TOP PIPE
1253	865756.851	2030609.608	955.01	TOP PIPE
1254	865720.423	2030644.924	955.30	TOP PIPE
1255	865687.864	2030677.214	955.49	TOP PIPE
1491	865681.845	2030682.313	955.54	top 24
1492	865648.323	2030714.509	955.76	top 24
1493	865688.257	2030676.122	955.39	top 24
1494	865611.414	2030749.776	955.84	top 24
1495	865576.357	2030786.251	955.86	top 24
1496	865547.468	2030816.731	955.77	top 24
1497	865538.839	2030825.185	955.86	top int 24
1498	865532.087	2030825.057	956.40	top 24
1508	865648.115	2030714.826	955.92	top 24
1509	865648.110	2030714.823	955.95	top 24
1510	865612.251	2030748.958	955.85	top 24
1511	865576.658	2030785.964	955.89	top 24
1512	865648.110	2030714.823	955.62	top 24
1513	865612.251	2030748.958	955.70	top 24
1514	865576.658	2030785.964	955.78	top 24

24in. pipe under n. berm

Point Number	Northing	Easting	Elevation	DESCRIPTION
1012	865524.368	2030824.971	956.59	TOP PIPE 24IN
1013	865482.197	2030824.696	956.76	TOP PIPE 24IN
1014	865350.034	2030824.385	957.85	TOP PIPE 24IN
1015	865296.479	2030825.269	957.71	TOP PIPE 24IN
1016	865262.568	2030824.551	958.35	TOP PIPE 24IN
1017	865208.080	2030824.922	958.59	TOP PIPE 24IN
1018	865160.372	2030825.577	958.85	TOP PIPE 24IN
1019	865482.074	2030824.613	956.75	TOP PIPE 24IN

Sherco Pond 3N
Pipe As-Built Survey Summary

Cmp 18"

Point Number	Northing	Easting	Elevation	DESCRIPTION
20515	863972.661	2030721.895	977.60	CMP 18"
20516	864199.017	2030719.277	979.12	CMP 18"
20517	864664.267	2030718.441	979.83	CMP 18"
20518	864664.248	2030718.432	979.83	CMP 18"
20519	865059.943	2030719.534	979.49	CMP 18"
20489	865132.410	2032021.690	977.29	CMP 18"
20463	864672.834	2032020.502	978.60	CMP 18"
20432	864193.190	2032022.273	979.00	CMP 18"
20416	863940.171	2032024.232	979.63	CMP 18" TOP

Manholes

Point Number	Northing	Easting	Elevation	DESCRIPTION
1007	865365.923	2031982.423	939.54	MH2 PIPE INV
1000	865370.686	2030831.632	940.05	TOP 8IN MH 1
1486	865557.021	2030624.155	963.63	170 ELEC MH

Embankment Subgrade Survey Data

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Bogart, Pederson & Associates, Inc.

LAND SURVEYING
CIVIL ENGINEERING
MAPPING

13076 First Street
Becker, MN 55308-9322

Tel : 1-763-261-2900
1-888-210-8301
Fax: 1-763-261-2902

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E. Cannon 11-2-04

Michael E. Cannon MN Reg. 40035

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7000	863979.561	2030830.523	939.50	GRD SHT
7001	863977.770	2030856.607	940.10	GRD SHT
7002	863975.106	2030906.741	940.89	GRD SHT
7003	863972.059	2030956.025	942.10	GRD SHT
7004	863968.853	2031007.220	943.14	GRD SHT
7005	864029.381	2030829.618	939.59	GRD SHT
7006	864079.180	2030829.000	939.63	GRD SHT
7007	864129.143	2030830.249	939.55	GRD SHT
7008	864179.123	2030829.588	939.61	GRD SHT
7009	864229.050	2030830.409	939.59	GRD SHT
7010	864279.230	2030831.305	939.54	GRD SHT
7011	864328.960	2030830.656	939.55	GRD SHT
7012	864379.101	2030829.950	939.60	GRD SHT
7013	864428.969	2030830.796	939.56	GRD SHT
7014	864479.064	2030830.255	939.53	GRD SHT
7015	864529.029	2030830.765	939.53	GRD SHT
7016	864579.018	2030830.304	939.50	GRD SHT
7017	864629.134	2030830.069	939.58	GRD SHT
7018	864679.044	2030829.675	939.52	GRD SHT
7019	864729.124	2030828.967	939.57	GRD SHT
7020	864779.030	2030829.993	939.62	GRD SHT
7021	864828.984	2030830.281	939.52	GRD SHT
7022	864878.985	2030829.530	939.67	GRD SHT
7023	864929.049	2030830.375	939.58	GRD SHT
7024	864978.928	2030830.605	939.43	GRD SHT
7025	865028.981	2030829.790	939.70	GRD SHT
7026	865089.940	2030833.484	939.64	GRD SHT
7027	865117.154	2030856.544	940.13	GRD SHT
7028	865154.894	2030891.460	940.94	GRD SHT
7029	865162.080	2030906.329	941.02	GRD SHT
7030	865179.211	2030956.588	941.90	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7031	865183.124	2030954.822	942.16	GRD SHT
7032	865178.963	2031006.561	942.95	GRD SHT
7033	865205.865	2031006.438	943.01	GRD SHT
7034	865228.914	2031056.401	944.23	GRD SHT
7035	865229.169	2031106.532	944.96	GRD SHT
7036	865249.794	2031106.273	945.02	GRD SHT
7037	865274.707	2031161.552	946.09	GRD SHT
7038	865298.365	2031191.774	946.74	GRD SHT
7039	865279.138	2031206.537	946.81	GRD SHT
7040	865310.860	2031206.493	947.10	GRD SHT
7041	865348.865	2031256.419	948.04	GRD SHT
7042	863979.054	2031056.336	943.89	GRD SHT
7043	865376.758	2031293.217	948.48	GRD SHT
7045	865378.289	2031306.407	949.19	GRD SHT
7046	865381.855	2031356.408	950.16	GRD SHT
7048	865379.995	2031406.455	950.86	GRD SHT
7049	865384.235	2031406.525	951.09	GRD SHT
7050	865381.047	2031456.555	950.09	GRD SHT
7051	865356.140	2031456.397	950.03	GRD SHT
7052	865377.968	2031506.350	949.00	GRD SHT
7053	865375.639	2031556.530	947.87	GRD SHT
7054	865372.622	2031606.433	947.22	GRD SHT
7055	865369.607	2031656.565	946.00	GRD SHT
7056	865366.160	2031706.531	944.90	GRD SHT
7057	865363.849	2031756.196	944.16	GRD SHT
7058	865360.519	2031806.612	942.87	GRD SHT
7059	865356.850	2031856.588	942.05	GRD SHT
7060	865355.015	2031891.739	941.34	GRD SHT
7061	865339.984	2031906.364	941.08	GRD SHT
7062	865303.798	2031939.010	940.48	GRD SHT
7063	865256.046	2031982.411	939.67	GRD SHT
7064	865209.815	2031982.634	939.50	GRD SHT
7090	865129.214	2031983.214	939.44	GRD SHT
7133	865029.821	2031983.733	939.72	GRD SHT
7134	864978.928	2031982.586	939.53	GRD SHT
7135	864929.024	2031983.141	939.67	GRD SHT
7136	864879.189	2031981.386	939.58	TOE
7137	864829.777	2031981.679	939.61	GRD SHT
7138	864778.451	2031982.370	939.59	GRD SHT
7139	864729.046	2031982.634	939.46	GRD SHT
7140	864679.187	2031982.618	939.65	GRD SHT
7141	864633.858	2031982.859	939.58	GRD SHT
7142	864579.126	2031982.543	939.69	GRD SHT
7143	864529.127	2031982.476	939.62	GRD SHT
7144	864479.189	2031983.337	939.75	GRD SHT
7145	864428.952	2031983.519	939.62	GRD SHT
7147	864379.087	2031983.964	939.64	GRD SHT
7148	863975.124	2031906.542	940.96	GRD SHT
7149	863973.509	2031856.236	941.99	GRD SHT
7150	863970.225	2031806.429	942.91	GRD SHT
7151	863966.801	2031756.321	944.15	GRD SHT
7152	863963.539	2031706.491	945.04	GRD SHT
7153	863960.737	2031656.535	946.07	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7154	863957.583	2031606.677	947.13	GRD SHT
7155	863954.373	2031556.289	948.02	GRD SHT
7156	863950.938	2031506.544	949.01	GRD SHT
7157	863948.221	2031456.402	949.86	GRD SHT
7159	864325.001	2032048.851	954.93	GRD SHT
7160	864326.396	2032028.994	955.00	GRD SHT
7161	864282.699	2032029.002	955.06	GRD SHT
7162	864282.036	2032048.945	955.01	GRD SHT
7163	864233.005	2032048.919	954.92	GRD SHT
7164	864232.592	2032029.033	955.06	GRD SHT
7165	864183.622	2032028.889	954.99	GRD SHT
7166	864182.772	2032048.824	955.04	GRD SHT
7167	864328.998	2031956.276	939.94	GRD SHT
7168	864329.111	2031982.617	939.64	GRD SHT
7169	864279.230	2031982.249	939.56	GRD SHT
7170	864229.302	2031983.501	939.48	GRD SHT
7171	864179.193	2031983.603	939.41	GRD SHT
7172	864129.172	2031983.356	939.54	GRD SHT
7173	864079.212	2031983.759	939.47	GRD SHT
7174	864029.130	2031983.459	939.51	GRD SHT
7175	863979.251	2031982.579	939.55	GRD SHT
7205	863946.168	2031406.554	950.59	GRD SHT
7209	864729.106	2031206.504	946.92	GRD SHT
7210	864179.474	2031122.305	945.99	GRD SHT
7500	865079.145	2030786.337	954.11	GRD SHT
7501	865029.060	2030785.913	953.99	GRD SHT
7502	864978.169	2030785.898	954.03	GRD SHT
7503	864925.711	2030785.809	954.08	GRD SHT
7504	864875.286	2030785.513	954.04	GRD SHT
7505	864824.691	2030785.772	953.95	GRD SHT
7506	864773.405	2030785.936	953.87	GRD SHT
7507	864723.838	2030785.784	953.75	GRD SHT
7508	864674.546	2030785.898	953.95	GRD SHT
7509	864624.166	2030786.066	953.82	GRD SHT
7510	864572.596	2030785.742	953.87	GRD SHT
7511	864520.893	2030785.840	953.84	GRD SHT
7512	864472.100	2030785.701	954.13	GRD SHT
7513	864423.313	2030785.987	954.12	GRD SHT
7514	864375.729	2030786.002	953.73	GRD SHT
7515	864326.235	2030785.791	953.96	GRD SHT
7516	864275.049	2030785.755	954.16	GRD SHT
7517	864225.008	2030785.437	954.25	GRD SHT
7518	864175.651	2030785.922	953.90	GRD SHT
7519	864126.905	2030785.472	954.14	GRD SHT
7520	864076.024	2030785.917	954.01	GRD SHT
7521	864025.459	2030786.169	954.07	GRD SHT
7522	863976.810	2030785.944	954.04	GRD SHT
7523	863938.024	2030785.886	954.28	GRD SHT
7524	863908.059	2030756.673	964.08	GRD SHT
7525	863882.060	2030731.888	972.25	GRD SHT
7526	863905.749	2030731.494	971.94	GRD SHT
7527	863950.978	2030731.656	972.11	GRD SHT
7528	864006.004	2030731.728	972.07	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7529	864058.339	2030731.529	972.27	GRD SHT
7530	864105.645	2030731.690	971.94	GRD SHT
7531	864158.861	2030731.134	972.35	GRD SHT
7532	864205.706	2030731.170	972.03	GRD SHT
7533	864257.704	2030731.465	972.32	GRD SHT
7534	864305.706	2030731.587	972.12	GRD SHT
7535	864355.436	2030731.486	972.32	GRD SHT
7536	864405.503	2030731.746	972.05	GRD SHT
7537	864455.397	2030731.643	972.48	GRD SHT
7538	864505.542	2030732.046	972.11	GRD SHT
7539	864554.188	2030732.215	972.05	GRD SHT
7540	864606.304	2030732.105	971.91	GRD SHT
7541	864659.196	2030731.754	972.27	GRD SHT
7542	864705.618	2030731.684	971.96	GRD SHT
7543	864756.990	2030731.501	972.40	GRD SHT
7544	864805.336	2030731.495	972.11	GRD SHT
7545	864857.988	2030731.959	972.38	GRD SHT
7546	864905.635	2030731.975	972.09	GRD SHT
7547	864956.767	2030732.408	971.94	GRD SHT
7548	865005.385	2030732.094	971.99	GRD SHT
7549	865053.432	2030731.843	972.24	GRD SHT
7550	865081.358	2030731.895	972.15	GRD SHT
7551	865081.639	2030666.054	995.20	GRD SHT
7552	865082.188	2030655.709	995.64	GRD SHT
7553	865106.135	2030654.678	995.33	GRD SHT
7554	865105.868	2030666.173	995.10	GRD SHT
7555	865155.281	2030667.147	994.61	GRD SHT
7556	865154.988	2030656.181	995.11	GRD SHT
7557	865206.410	2030656.016	995.44	GRD SHT
7558	865203.514	2030667.451	995.08	GRD SHT
7559	865248.986	2030666.369	995.11	GRD SHT
7560	865245.822	2030655.092	996.92	GRD SHT
7561	865249.950	2030618.565	1010.86	GRD SHT
7562	865247.742	2030635.582	1004.40	GRD SHT
7563	865265.228	2030648.067	1002.30	GRD SHT
7564	865290.349	2030662.661	1005.04	GRD SHT
7565	865312.656	2030682.751	1005.04	GRD SHT
7566	865279.257	2030679.465	997.92	GRD SHT
7567	865297.697	2030697.809	998.09	GRD SHT
7568	865285.519	2030704.076	993.58	BRK LN
7569	865297.895	2030736.301	993.62	BRK LN
7570	865311.124	2030731.967	994.18	TOE
7571	865321.309	2030759.641	994.15	TOE
7572	865313.945	2030778.793	993.61	BRK LN
7573	865326.031	2030812.879	993.76	BRK LN
7574	865339.701	2030806.852	994.12	TOE
7575	865354.504	2030856.017	994.13	TOE
7576	865344.009	2030858.740	993.77	BRK LN
7577	865352.459	2030910.601	990.08	BRK LN
7578	865359.010	2030962.068	985.87	BRK LN
7579	865363.477	2031012.476	981.83	BRK LN
7580	865366.096	2031034.344	979.90	BRK LN TOE
7581	865368.004	2031146.184	971.42	BRK LN TOE
7582	865362.075	2031100.258	975.13	BRK LN

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7583	865353.707	2031045.712	979.46	BRK LN
7584	865344.805	2031018.242	979.81	BRK LN
7585	865358.688	2031014.428	980.07	TOE
7586	865341.341	2030966.591	979.97	TOE
7587	865326.333	2030972.289	979.56	BRK LN
7588	865308.838	2030926.354	979.75	BRK LN
7589	865325.308	2030920.966	980.38	TOE
7590	865306.697	2030874.177	980.30	TOE
7591	865292.179	2030880.272	979.77	BRK LN
7592	865246.675	2030645.137	1000.53	GRD SHT
7593	865273.061	2030831.673	979.63	BRK LN
7594	865288.060	2030825.538	980.09	TOE
7595	865272.326	2030784.364	980.27	TOE
7596	865258.440	2030790.739	979.83	BRK LN
7597	865246.598	2030762.318	979.76	BRK LN
7598	865261.748	2030756.733	980.07	TOE
7599	865251.884	2030731.154	980.09	TOE
7600	865242.871	2030752.026	979.70	BRK LN
7601	865226.596	2030734.631	979.45	BRK LN
7602	865232.771	2030705.111	981.09	TOE
7603	865199.157	2030711.026	979.04	TOE
7604	865198.524	2030714.273	979.13	BRK LN
7605	865155.795	2030749.440	966.03	TOE
7606	865150.666	2030752.932	965.40	BRK LN
7607	865178.134	2030774.435	965.79	BRK LN
7608	865196.878	2030757.307	967.20	TOE
7609	865208.988	2030788.191	965.91	TOE
7610	865197.752	2030794.944	965.70	BRK LN
7611	865207.357	2030818.849	965.64	BRK LN
7612	865219.301	2030814.319	966.07	TOE
7613	865233.365	2030850.041	966.21	TOE
7614	865221.306	2030856.312	965.62	BRK LN
7615	865239.020	2030901.819	965.73	BRK LN
7616	865252.651	2030897.176	966.12	TOE
7617	865263.606	2030926.938	966.15	TOE
7618	865250.030	2030932.156	965.69	BRK LN
7619	865265.394	2030972.816	965.49	BRK LN
7620	865279.074	2030966.499	966.12	TOE
7621	865296.301	2031010.234	966.29	TOE
7622	865281.812	2031015.277	965.84	BRK LN
7623	865298.264	2031061.813	965.16	BRK LN
7624	865314.533	2031056.621	965.96	TOE
7625	865321.771	2031075.320	966.10	TOE
7626	865307.452	2031083.091	965.59	BRK LN
7627	865333.724	2031120.708	969.39	BRK LN
7628	865346.364	2031113.425	969.77	TOE
7629	865357.086	2031154.306	970.30	BRK LN
7630	865382.715	2031196.774	967.43	BRK LN
7631	865398.168	2031245.961	963.22	BRK LN
7632	865331.880	2031190.640	956.20	GRD SHT
7633	865307.188	2031154.979	956.27	GRD SHT
7634	865295.425	2031133.112	956.02	GRD SHT
7635	865272.184	2031087.857	954.24	GRD SHT
7636	865253.674	2031039.834	953.95	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7637	865238.433	2030999.314	954.08	GRD SHT
7638	865222.981	2030958.290	954.20	GRD SHT
7639	865206.370	2030914.118	953.86	GRD SHT
7640	865183.449	2030879.310	951.08	BRK LN TOE
7641	865159.929	2030847.725	951.46	BRK LN
7642	865173.894	2030832.050	953.26	TOE
7643	865152.093	2030803.178	953.27	TOE
7644	865132.579	2030787.687	952.78	TOE
7645	865102.029	2030794.983	950.98	BRK LN TOE
7646	865123.665	2030814.150	951.34	BRK LN
7647	865127.529	2030753.771	964.80	GRD SHT
7648	865130.892	2030731.292	972.19	GRD SHT
7649	865182.516	2030732.080	972.00	GRD SHT
7650	863852.364	2030736.847	972.18	BRK LN
7651	863852.089	2030787.691	972.02	BRK LN
7652	863881.528	2030788.891	971.93	BRK LN
7653	863882.471	2030835.452	971.89	BRK LN
7654	863852.459	2030831.075	971.94	BRK LN
7655	863925.808	2030833.174	957.44	GRD SHT
7656	863924.847	2030879.160	957.45	GRD SHT
7657	863881.631	2030883.841	972.03	BRK LN
7658	863852.171	2030883.403	972.04	BRK LN
7659	863852.633	2030932.290	972.00	BRK LN
7660	863881.415	2030933.213	971.98	BRK LN
7661	863924.497	2030930.651	957.84	GRD SHT
7662	863924.354	2030974.228	957.79	GRD SHT
7663	863881.611	2030979.708	971.88	BRK LN
7664	863852.144	2030980.182	972.08	BRK LN
7665	863851.922	2031028.849	972.07	BRK LN
7666	863881.831	2031029.447	971.98	BRK LN
7667	863924.262	2031028.602	957.80	GRD SHT
7668	863924.152	2031075.259	957.76	GRD SHT
7669	863881.789	2031077.787	972.02	BRK LN
7670	863852.362	2031407.942	971.93	BRK LN
7671	863881.507	2031406.858	972.00	BRK LN
7672	863917.702	2031409.051	959.96	GRD SHT
7673	863918.067	2031456.423	959.99	GRD SHT
7674	863880.347	2031456.773	972.13	BRK LN
7675	863853.190	2031456.877	971.77	BRK LN
7676	863853.023	2031507.330	971.95	BRK LN
7677	863880.647	2031507.538	971.90	BRK LN
7678	863918.269	2031509.154	959.86	GRD SHT
7679	863917.894	2031554.317	960.09	GRD SHT
7680	863880.646	2031558.836	972.02	BRK LN
7681	863853.152	2031558.494	971.88	BRK LN
7682	863852.532	2031609.517	972.05	BRK LN
7683	863881.763	2031609.479	972.16	BRK LN
7684	863918.071	2031610.771	960.17	GRD SHT
7685	863917.996	2031653.933	960.11	GRD SHT
7686	863881.162	2031652.835	971.94	BRK LN
7687	863852.476	2031653.914	971.83	BRK LN
7688	863852.349	2031702.474	972.07	BRK LN
7689	863881.384	2031702.257	971.78	BRK LN

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7690	863918.082	2031705.313	959.93	GRD SHT
7691	863917.904	2031754.687	959.97	GRD SHT
7692	863880.514	2031753.067	971.96	BRK LN
7693	863853.037	2031754.185	972.04	BRK LN
7694	863853.026	2031798.364	971.90	BRK LN
7695	863881.193	2031800.373	971.80	BRK LN
7696	863917.886	2031800.932	960.01	GRD SHT
7697	863917.765	2031855.507	959.99	TOE
7698	863917.998	2031875.518	960.03	TOE
7699	863882.640	2031873.553	960.10	TOE
7700	863883.316	2031855.428	960.09	TOE
7701	863840.561	2031854.714	960.14	TOE
7702	863840.053	2031872.550	960.04	TOE
7703	863812.280	2031871.836	959.14	TOE
7704	863816.652	2031853.999	959.99	TOE
7705	863852.242	2031817.555	972.07	BRK LN
7706	863882.294	2031817.524	971.81	BRK LN
7707	863929.940	2031863.372	956.10	GRD SHT
7708	863928.757	2031904.330	956.34	GRD SHT
7709	863929.640	2031949.337	956.20	GRD SHT
7710	863929.699	2031991.977	956.21	GRD SHT
7711	863929.542	2032019.658	956.04	GRD SHT
7712	863881.408	2032011.247	972.16	BRK LN
7713	863852.827	2032010.026	972.02	BRK LN
7714	863853.328	2031966.030	971.84	BRK LN
7715	863882.715	2031966.690	971.80	BRK LN
7716	863881.986	2031910.202	970.70	BRK LN
7717	863852.074	2031911.336	971.20	BRK LN
7718	863953.874	2032008.076	948.41	GRD SHT
7065	865410.661	2031915.206	960.04	GRD SHT
7066	865419.803	2031919.081	960.15	GRD SHT
7067	865420.893	2031875.462	960.06	GRD SHT
7068	865411.268	2031875.410	959.99	GRD SHT
7069	865411.223	2031834.955	960.00	GRD SHT
7070	865411.285	2031785.629	960.08	GRD SHT
7071	865411.134	2031736.627	960.07	GRD SHT
7072	865411.351	2031686.524	960.05	GRD SHT
7073	865411.024	2031642.434	960.12	GRD SHT
7074	865420.752	2031642.851	960.09	GRD SHT
7075	865411.117	2031592.781	960.05	GRD SHT
7076	865411.215	2031332.340	960.08	GRD SHT
7077	865410.870	2031282.605	960.05	GRD SHT
7078	865420.710	2031281.768	960.55	GRD SHT
7079	865420.953	2031785.301	960.05	GRD SHT
7080	865421.010	2031736.256	960.23	GRD SHT
7081	865420.970	2031686.169	960.12	GRD SHT
7082	865420.996	2031642.831	960.21	GRD SHT
7083	865420.837	2031534.232	960.12	GRD SHT
7092	865279.892	2030613.869	1010.55	GRD SHT
7093	865307.920	2030643.716	1009.87	GRD SHT
7094	865301.282	2030651.058	1010.27	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7095	865325.015	2030673.219	1010.09	GRD SHT
7096	865332.767	2030667.210	1010.02	GRD SHT
7097	865343.584	2030688.167	1008.25	GRD SHT
7098	865334.195	2030691.734	1008.02	GRD SHT
7099	865341.343	2030711.871	1006.07	GRD SHT
7100	862500.077	2030810.098	960.39	129 185
7101	865351.405	2030707.896	1006.17	GRD SHT
7102	866120.885	2033096.204	961.69	129 102
7103	865354.620	2030734.881	1004.50	GRD SHT
7104	865345.319	2030737.209	1004.14	GRD SHT
7105	865351.316	2030786.203	1000.11	GRD SHT
7106	865360.826	2030785.493	1000.10	GRD SHT
7107	865357.284	2030835.730	996.17	GRD SHT
7108	865365.765	2030834.885	996.27	GRD SHT
7109	865372.997	2030883.960	992.14	GRD SHT
7110	865363.360	2030885.095	992.16	GRD SHT
7111	865368.947	2030934.665	988.20	GRD SHT
7112	865378.666	2030933.721	988.15	GRD SHT
7113	865384.371	2030983.817	984.38	GRD SHT
7114	865374.845	2030984.809	984.14	GRD SHT
7115	865380.991	2031033.933	980.45	GRD SHT
7116	865390.543	2031031.799	980.62	GRD SHT
7117	865396.764	2031082.507	976.29	GRD SHT
7118	865386.852	2031083.789	976.18	GRD SHT
7119	865392.946	2031133.098	972.29	GRD SHT
7120	865402.898	2031131.467	972.15	GRD SHT
7121	865408.794	2031181.855	967.98	GRD SHT
7122	865398.996	2031183.198	968.05	GRD SHT
7123	865404.718	2031232.807	964.06	GRD SHT
7124	865415.043	2031231.709	964.07	GRD SHT
7125	865422.238	2031387.579	960.29	GRD SHT
7126	865423.023	2031388.654	960.33	GRD SHT
7127	865411.859	2031387.344	960.12	GRD SHT
7128	865411.060	2031483.309	960.09	GRD SHT
7129	865420.905	2031483.748	960.05	GRD SHT
7131	865424.432	2031836.073	960.03	GRD SHT
7132	865423.960	2031594.010	960.10	GRD SHT
7176	865397.427	2031931.175	960.04	GRD SHT
7177	865404.308	2031938.34	960.38	GRD SHT
7178	865381.744	2031957.445	960.30	GRD SHT
7179	865375.193	2031950.617	960.18	GRD SHT
7180	865342.779	2031982.759	960.39	GRD SHT
7181	865349.513	2031989.756	960.78	GRD SHT
7182	865329.098	2032009.534	960.69	GRD SHT
7183	865322.339	2032002.558	960.14	GRD SHT
7184	865289.52	2032037.781	960.39	GRD SHT
7185	865296.883	2032044.541	960.61	GRD SHT
7186	865281.924	2032043.501	960.67	GRD SHT
7187	865283.079	2032053.604	960.06	GRD SHT
7188	865242.467	2032044.041	960.22	GRD SHT
7189	865241.936	2032053.793	960.38	GRD SHT
7190	865193.586	2032044.327	960.15	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
7191	865193.077	2032054.147	960.40	GRD SHT
7192	865146.484	2032044.274	960.17	GRD SHT
7193	865145.83	2032054.077	960.62	GRD SHT
7194	865094.737	2032044.188	960.27	GRD SHT
7195	865094.143	2032053.836	960.56	GRD SHT
7196	865044.801	2032044.113	960.57	GRD SHT
7197	865044.997	2032053.851	960.60	GRD SHT
7198	864995.217	2032044.472	960.07	GRD SHT
7199	864994.925	2032053.982	960.30	GRD SHT
7200	864945.171	2032044.098	960.05	GRD SHT
7201	864945.107	2032053.799	960.17	GRD SHT
7202	864897.455	2032043.952	960.18	GRD SHT
7203	864897.023	2032053.766	960.35	GRD SHT
1340	864845.194	2032044.362	960.104	GRD SHT
1341	864845.102	2032054.18	960.037	GRD SHT
1342	864791.637	2032044.411	959.665	GRD SHT
1343	864790.897	2032054.232	960.113	GRD SHT
1344	864740.452	2032043.804	960.087	GRD SHT
1345	864740.535	2032054.118	960.329	GRD SHT
1346	864688.164	2032044.223	960.066	GRD SHT
1347	864688.552	2032054.067	960.402	GRD SHT
1348	864637.359	2032044.991	960.087	GRD SHT
1349	864636.758	2032053.991	960.377	GRD SHT
1350	864581.792	2032044.475	960.007	GRD SHT
1351	864581.43	2032054.014	960.332	GRD SHT
1352	864528.015	2032045.137	960.413	GRD SHT
1353	864527.581	2032054.959	960.539	GRD SHT
1354	864462.639	2032044.263	960.344	GRD SHT
1355	864461.75	2032052.884	960.535	GRD SHT
1356	864410.802	2032044.46	960.17	GRD SHT
1357	864411.651	2032054.309	960.173	GRD SHT
1358	864155.745	2032044.063	960.023	GRD SHT
1359	864155.544	2032053.822	959.981	GRD SHT
1360	864103.51	2032044.04	960.116	GRD SHT
1361	864103.251	2032053.914	960.18	GRD SHT
1362	864051.297	2032044.44	960.087	GRD SHT
1363	864051.289	2032054.1	960.137	GRD SHT
1364	863991.373	2032044.152	959.854	GRD SHT
1365	863990.231	2032053.652	960.213	GRD SHT
1366	863945.006	2032044.179	960.176	GRD SHT
1367	863943.754	2032053.626	960.526	GRD SHT
1368	863917.031	2032044.821	960.861	GRD SHT
1369	863914.353	2032049.302	961.053	GRD SHT
1370	863881.787	2032020.931	972.058	GRD SHT
1371	863881.729	2032035.285	972.469	GRD SHT
1372	863854.642	2032020.041	972.527	GRD SHT
1373	863852.127	2032036.569	972.036	GRD SHT
1374	863816.537	2032038.367	961.296	GRD SHT
1375	863816.004	2032050.242	960.781	GRD SHT
1376	863830.375	2032050.434	963.484	GRD SHT
1377	863796.238	2032061.319	960.008	GRD SHT
1378	863794.12	2032049.316	960.077	GRD SHT
1379	863866.488	2032027.732	973.029	GRD SHT

Sherco Pond 3N
Subgrade Outer Berm As-Built Survey Summary

Pt. Number	Northing	Easting	Elev.	DESCRIPTION
1380	863852.836	2031910.691	972.052	GRD SHT
1381	863882.048	2031910.222	972.099	GRD SHT
1382	863881.006	2031961.59	972.051	GRD SHT
1383	863852.557	2031963.681	972.062	GRD SHT
1384	863852.565	2031963.671	972.068	GRD SHT
1385	864361.215	2032044.458	960.033	GRD SHT
1386	864361.112	2032054.093	960.305	GRD SHT
1387	864313.153	2032054.278	960.348	GRD SHT
1388	864313.295	2032044.478	960.156	GRD SHT
1389	864260.35	2032044.417	960.042	GRD SHT
1390	864260.581	2032054.169	960.234	GRD SHT
1391	864208.307	2032044.154	959.993	GRD SHT
1392	864207.684	2032054.434	960.505	GRD SHT

Final As-Built Survey Data

Sherco Pond 3N
Concrete Structure As-built Survey Summary

Bogart, Pederson & Associates, Inc.

LAND SURVEYING
CIVIL ENGINEERING
MAPPING

13076 First Street
Becker, MN 55308-9322

Tel : 1-763-262-8822
1-888-210-8301
Fax: 1-763-262-8844

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael E. Cannon MN Reg. 40035

Pt. Number	Northing	Easting	Elev	DESCRIPTION
2076	865234.542	2030708.216	1009.98	TOP CONC STRUCTURE 3
2077	865186.708	2030752.072	995.96	TOP CONC STRUCTURE 2
2078	865144.058	2030799.083	981.90	TOP CONC STRUCTURE 1

Sherco Pond 3N
Final Topo As-Built Survey Summary

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Michael E. Cannon 12-15-04

Michael E. Cannon MN Reg. 40035

Pt. Number	Northing	Easting	Elev	DESCRIPTION
20000	865380.793	2031182.789	975.63	TOP SLP
20001	865341.375	2031202.586	961.52	GRD SHT
20002	865309.239	2031221.410	951.22	TOE
20003	865290.830	2031230.303	950.17	TOE
20004	865263.703	2031187.853	948.99	TOE
20005	865284.050	2031176.662	950.53	TOE
20006	865311.625	2031167.689	960.13	GRD SHT
20007	865357.691	2031148.225	975.87	TOP SLP
20008	865369.160	2031137.668	976.65	TOE
20009	865353.635	2031121.069	975.06	TOE
20010	865343.816	2031134.914	974.76	TOP SLP
20011	865327.715	2031132.831	970.09	GRD SHT
20012	865300.908	2031146.998	960.16	GRD SHT
20013	865275.056	2031159.245	950.35	TOE
20014	865251.541	2031171.377	948.43	TOE
20015	865232.073	2031129.278	947.66	TOE
20016	865253.255	2031119.522	949.39	TOE
20017	865274.389	2031109.737	956.82	GRD SHT
20018	865315.320	2031092.114	971.65	TOP SLP
20019	865330.146	2031085.021	971.91	TOE
20020	865347.982	2031076.640	978.02	GRD SHT
20021	865363.703	2031070.535	982.51	TOP SLP
20022	865350.024	2031030.628	984.64	TOP SLP
20023	865364.199	2031025.896	985.13	TOE
20024	865369.552	2031024.364	985.78	TOP SLP
20025	865362.044	2030978.814	988.52	TOP SLP
20026	865348.229	2030983.094	984.76	TOE
20027	865333.054	2030989.259	984.60	TOP SLP
20028	865317.415	2030995.166	978.06	GRD SHT

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20029	865293.673	2031003.886	970.71	TOE
20030	865280.444	2031008.714	970.58	TOP SLP
20031	865240.109	2031024.257	955.52	GRD SHT
20032	865218.167	2031032.998	948.36	TOE
20033	865198.926	2031040.439	946.50	TOE
20034	865186.712	2031001.371	946.14	TOE
20035	865204.387	2030994.629	947.37	TOE
20036	865226.972	2030986.097	956.10	GRD SHT
20037	865255.189	2030975.695	966.16	GRD SHT
20038	865265.751	2030971.020	970.88	TOP SLP
20039	865279.441	2030965.380	971.25	TOE
20040	865303.458	2030955.198	978.51	GRD SHT
20041	865319.295	2030949.215	984.43	TOP SLP
20042	865333.179	2030944.252	984.70	TOE
20043	865345.748	2030940.552	988.30	GRD SHT
20044	865359.924	2030935.199	992.38	TOP SLP
20045	865354.298	2030888.435	996.99	TOP SLP
20046	865338.992	2030892.740	992.09	GRD SHT
20047	865316.042	2030900.614	985.04	TOE
20048	865302.141	2030905.121	984.54	TOP SLP
20049	865284.960	2030910.442	978.19	GRD SHT
20050	865261.542	2030918.300	970.85	TOE
20051	865248.048	2030923.073	970.44	TOP SLP
20052	865208.452	2030937.178	955.69	GRD SHT
20053	865186.156	2030944.930	947.61	TOE
20054	865169.286	2030950.839	946.12	TOE
20055	865152.730	2030907.201	946.26	TOE
20056	865167.772	2030900.782	947.62	TOE
20057	865191.804	2030891.118	955.84	GRD SHT
20058	865219.096	2030879.533	966.73	GRD SHT
20059	865228.811	2030875.340	970.34	TOP SLP
20060	865241.974	2030868.968	970.77	TOE
20061	865265.063	2030857.576	978.26	GRD SHT
20062	865280.836	2030851.199	984.20	TOP SLP
20063	865295.656	2030845.784	985.01	TOE
20064	865318.535	2030836.592	992.17	GRD SHT
20065	865335.342	2030828.267	998.31	TOP SLP
20066	865348.641	2030824.149	998.92	TOE
20067	865333.279	2030783.554	998.38	TOE
20068	865342.908	2030780.529	1001.97	GRD SHT
20069	865352.922	2030776.638	1005.39	TOP SLP
20070	865317.414	2030789.687	997.96	TOP SLP
20071	865302.437	2030796.198	991.84	GRD SHT
20072	865280.761	2030805.186	984.81	TOE
20073	865265.201	2030810.181	984.27	TOP SLP
20074	865249.927	2030817.865	978.30	GRD SHT
20075	865225.929	2030827.434	970.63	TOE
20076	865212.346	2030832.762	970.24	TOP SLP
20077	865081.639	2030732.031	976.31	TOP SLP
20078	865020.034	2030731.618	973.81	TOP SLP
20079	864967.976	2030732.072	974.21	TOP SLP
20080	864915.353	2030734.181	974.50	TOP SLP
20081	864865.074	2030733.795	974.66	TOP SLP
20082	864812.964	2030734.019	974.50	TOP SLP

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20083	864767.311	2030732.145	974.63	TOP SLP
20084	864721.919	2030731.996	974.64	TOP SLP
20085	864671.233	2030732.037	974.49	TOP SLP
20086	864625.991	2030732.034	974.56	TOP SLP
20087	864577.566	2030732.025	974.62	TOP SLP
20088	864528.600	2030732.126	974.36	TOP SLP
20089	864478.351	2030731.930	974.37	TOP SLP
20090	864429.772	2030731.846	974.44	TOP SLP
20091	864381.442	2030731.851	974.62	TOP SLP
20092	864332.755	2030732.059	974.24	TOP SLP
20093	864284.267	2030731.983	974.24	TOP SLP
20094	864231.693	2030731.876	973.89	TOP SLP
20095	864178.861	2030731.943	974.02	TOP SLP
20096	864128.926	2030731.908	974.29	TOP SLP
20097	864079.545	2030731.976	974.04	TOP SLP
20098	864026.971	2030731.904	974.41	TOP SLP
20099	863978.911	2030731.984	975.49	TOP SLP
20100	863930.292	2030731.875	975.36	TOP SLP
20101	863882.624	2030731.730	976.24	TOP SLP
20102	863918.285	2030768.173	964.72	GRD SHT
20103	863965.946	2030767.907	963.86	GRD SHT
20104	863978.797	2030768.058	963.91	GRD SHT
20105	864027.213	2030768.102	963.96	GRD SHT
20106	864079.285	2030768.088	964.10	GRD SHT
20107	864127.827	2030767.834	964.15	GRD SHT
20108	864176.456	2030767.981	964.03	GRD SHT
20109	864231.852	2030767.994	964.00	GRD SHT
20110	864281.202	2030768.174	964.23	GRD SHT
20111	864328.841	2030768.072	964.08	GRD SHT
20112	864382.729	2030767.944	964.32	GRD SHT
20113	864428.997	2030767.843	964.17	GRD SHT
20114	864479.906	2030767.797	964.10	GRD SHT
20115	864528.588	2030767.973	964.12	GRD SHT
20116	864576.951	2030767.874	964.07	GRD SHT
20117	864624.175	2030767.971	964.31	GRD SHT
20118	864670.707	2030768.025	964.10	GRD SHT
20119	864718.471	2030767.982	964.02	GRD SHT
20120	864763.945	2030768.223	964.49	GRD SHT
20121	864823.029	2030767.749	964.46	GRD SHT
20122	864865.454	2030767.955	964.35	GRD SHT
20123	864914.740	2030767.404	964.67	GRD SHT
20124	864968.811	2030767.935	964.46	GRD SHT
20125	865013.343	2030764.254	965.66	GRD SHT
20126	865057.155	2030761.901	966.21	GRD SHT
20127	865078.025	2030761.648	966.51	GRD SHT
20128	865128.396	2030731.853	976.78	GRD SHT
20129	865141.534	2030689.780	990.63	GRD SHT
20130	865082.588	2030691.532	989.66	GRD SHT
20131	865081.522	2030666.102	996.98	TOP SLP
20132	865130.070	2030666.314	997.29	TOP SLP
20133	865160.451	2030666.130	997.06	TOP SLP
20134	865072.789	2030809.961	950.56	GRD SHT
20135	865020.363	2030810.015	950.87	GRD SHT
20136	864972.552	2030810.101	950.44	GRD SHT

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20137	864923.346	2030809.563	950.52	GRD SHT
20138	864876.227	2030809.579	950.41	GRD SHT
20139	864865.647	2030809.882	950.53	GRD SHT
20140	864823.293	2030809.535	950.25	GRD SHT
20141	864782.489	2030809.740	950.39	GRD SHT
20142	864766.328	2030810.153	950.48	GRD SHT
20143	864714.777	2030809.840	950.17	GRD SHT
20144	864666.266	2030809.779	950.23	GRD SHT
20145	864621.568	2030809.893	950.08	GRD SHT
20146	864575.983	2030809.857	949.99	GRD SHT
20147	864527.389	2030809.861	950.08	GRD SHT
20148	864479.319	2030809.827	950.03	GRD SHT
20149	864428.620	2030809.744	950.12	GRD SHT
20150	864381.968	2030809.765	950.05	GRD SHT
20151	864326.223	2030809.621	950.22	GRD SHT
20152	864278.553	2030809.835	950.02	GRD SHT
20153	864232.150	2030809.847	950.25	GRD SHT
20154	864187.561	2030810.304	949.74	GRD SHT
20155	864176.756	2030809.759	949.94	GRD SHT
20156	864127.335	2030809.726	949.90	GRD SHT
20157	864079.103	2030809.904	949.91	GRD SHT
20158	864028.202	2030809.868	950.09	GRD SHT
20159	863976.673	2030809.755	950.27	GRD SHT
20160	863959.600	2030809.819	950.81	GRD SHT
20161	863980.250	2030820.409	947.89	TOE
20162	864028.599	2030816.378	947.91	TOE
20163	864079.118	2030816.710	947.98	TOE
20164	864128.056	2030817.182	947.90	TOE
20165	864177.610	2030815.730	948.01	TOE
20166	864232.967	2030817.347	947.75	TOE
20167	864278.750	2030816.451	947.45	TOE
20168	864326.414	2030816.589	947.39	TOE
20169	864382.325	2030816.370	947.52	TOE
20170	864428.969	2030816.272	947.68	TOE
20171	864479.262	2030816.884	947.42	TOE
20172	864527.434	2030815.889	947.72	TOE
20173	864576.453	2030814.473	948.10	TOE
20174	864622.398	2030817.222	947.36	TOE
20175	864668.092	2030816.983	947.66	TOE
20176	864714.702	2030816.336	947.91	TOE
20177	864767.358	2030816.301	947.47	TOE
20178	864814.912	2030816.691	947.47	TOE
20179	864858.544	2030817.259	947.43	TOE
20180	864865.870	2030816.884	947.62	TOE
20181	864914.642	2030816.999	947.38	TOE
20182	864961.428	2030818.248	947.22	TOE
20183	865008.246	2030818.302	947.12	TOE
20184	865021.244	2030818.244	947.51	TOE
20185	865057.371	2030818.317	948.01	TOE
20186	865042.088	2030835.859	946.80	TOP SLP
20187	865017.232	2030834.144	946.58	TOP SLP
20188	864972.162	2030834.508	947.04	TOP SLP
20189	864929.430	2030834.096	946.54	TOP SLP
20190	864886.863	2030835.303	946.57	TOP SLP

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20191	864866.080	2030835.640	946.72	TOP SLP
20192	864819.745	2030834.712	946.75	TOP SLP
20193	864766.502	2030834.711	946.98	TOP SLP
20194	864712.541	2030834.584	947.33	TOP SLP
20195	864677.145	2030834.625	947.09	TOP SLP
20196	864628.879	2030834.426	946.91	TOP SLP
20197	864620.048	2030834.502	946.91	TOP SLP
20198	864575.864	2030834.254	946.84	TOP SLP
20199	864527.191	2030834.373	946.57	TOP SLP
20200	864479.590	2030834.310	946.96	TOP SLP
20201	864428.051	2030834.218	947.04	TOP SLP
20202	864382.344	2030834.389	946.91	TOP SLP
20203	864324.176	2030834.294	946.93	TOP SLP
20204	864276.265	2030834.356	946.86	TOP SLP
20205	864231.695	2030834.221	947.04	TOP SLP
20206	864177.228	2030834.424	947.78	TOP SLP
20207	864126.129	2030834.257	946.75	TOP SLP
20208	864078.734	2030834.258	947.22	TOP SLP
20209	864027.230	2030834.151	946.95	TOP SLP
20210	863985.191	2030834.152	946.80	TOP SLP
20211	865155.927	2030904.690	947.41	TOP SLP
20212	865172.388	2030950.838	946.86	TOP SLP
20213	865189.608	2031001.210	947.36	TOP SLP
20214	865204.003	2031040.802	947.81	TOP SLP
20215	865221.762	2031089.050	948.98	TOP SLP
20216	865238.101	2031126.351	949.55	TOP SLP
20217	865257.076	2031169.165	949.74	TOP SLP
20218	865267.431	2031186.368	949.71	TOP SLP
20219	865293.538	2031233.205	950.37	TOP SLP
20220	863942.043	2030810.766	955.55	GRD SHT
20221	863941.836	2030857.836	955.94	GRD SHT
20222	863941.775	2030905.123	956.50	GRD SHT
20223	863941.629	2030951.560	956.27	GRD SHT
20224	863941.665	2030951.565	956.27	GRD SHT
20225	863941.591	2030998.460	956.23	GRD SHT
20226	863941.793	2031046.872	956.14	GRD SHT
20227	863941.766	2031092.185	956.24	GRD SHT
20228	863941.790	2031140.636	956.11	GRD SHT
20229	863941.726	2031189.864	955.98	GRD SHT
20230	863941.640	2031240.840	955.77	GRD SHT
20231	863941.707	2031288.940	956.10	GRD SHT
20232	863941.833	2031339.554	956.31	GRD SHT
20233	863941.841	2031389.336	956.07	GRD SHT
20234	863941.709	2031437.601	955.89	GRD SHT
20235	863941.819	2031485.966	956.04	GRD SHT
20236	863941.833	2031530.423	956.13	GRD SHT
20237	863941.726	2031580.429	955.92	GRD SHT
20238	863941.775	2031626.605	956.04	GRD SHT
20239	863941.712	2031672.704	955.73	GRD SHT
20240	863941.848	2031716.832	955.69	GRD SHT
20241	863941.904	2031762.695	955.52	GRD SHT
20242	863942.024	2031812.645	955.51	GRD SHT
20243	863942.070	2031856.840	955.41	GRD SHT

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20245	863984.125	2030843.726	943.67	GRD SHT/SAND
20246	863975.095	2031005.669	945.38	TOE/sand
20247	863971.934	2031056.048	946.31	TOE/sand
20248	863969.176	2031106.011	947.01	TOE/sand
20249	863965.550	2031155.767	947.97	TOE/sand
20250	863962.563	2031205.501	949.25	TOE/sand
20251	863958.963	2031255.449	950.31	TOE/sand
20252	863956.091	2031304.169	951.19	TOE/sand
20253	863953.704	2031355.251	952.01	TOE/sand
20254	863950.364	2031405.901	952.66	TOE/sand
20255	863972.293	2031763.985	948.19	GRD SHT
20256	863969.773	2031715.831	949.13	GRD SHT
20257	863966.733	2031671.109	949.87	GRD SHT
20258	863963.967	2031625.882	950.93	GRD SHT
20259	863961.160	2031580.530	951.94	GRD SHT
20260	863958.413	2031530.943	952.62	GRD SHT
20261	863955.625	2031486.392	953.64	GRD SHT
20262	863952.744	2031438.289	954.46	GRD SHT
20263	863917.828	2031441.514	963.78	GRD SHT
20264	863917.961	2031487.433	964.04	GRD SHT
20265	863917.758	2031532.052	964.37	GRD SHT
20266	863917.793	2031580.047	964.57	GRD SHT
20267	863917.807	2031626.931	964.30	GRD SHT
20268	863917.777	2031673.290	964.47	GRD SHT
20269	863917.834	2031717.504	964.37	GRD SHT
20270	863917.945	2031763.461	963.95	GRD SHT
20271	863918.128	2031811.664	964.03	GRD SHT
20272	863917.987	2031858.719	964.44	GRD SHT
20273	863917.887	2031908.084	964.31	GRD SHT
20274	863881.924	2032027.947	975.94	GRD SHT
20275	863882.007	2031971.827	976.07	BRK LN
20276	863863.852	2031972.636	976.30	BRK LN
20277	863863.730	2031909.708	975.69	BRK LN
20278	863863.849	2031938.871	975.90	BRK LN
20279	863882.173	2031939.669	976.15	BRK LN
20280	863882.156	2031909.354	976.16	BRK LN
20281	863863.698	2031909.736	975.74	BRK LN
20282	863863.843	2031862.536	975.77	BRK LN
20283	863882.282	2031862.039	976.17	BRK LN
20284	863882.257	2031810.993	976.00	BRK LN
20285	863863.824	2031811.205	975.66	BRK LN
20286	863863.735	2031764.591	975.61	BRK LN
20287	863882.177	2031764.779	976.07	BRK LN
20288	863882.073	2031718.763	975.94	BRK LN
20289	863863.635	2031718.641	975.56	BRK LN
20290	863863.548	2031675.498	975.70	BRK LN
20291	863882.253	2031675.982	976.14	BRK LN
20292	863882.277	2031626.975	975.91	BRK LN
20293	863863.548	2031626.268	975.55	BRK LN
20294	863862.953	2031581.533	975.46	BRK LN
20295	863882.339	2031581.527	976.04	BRK LN
20296	863882.731	2031531.589	976.16	BRK LN
20297	863864.210	2031531.972	975.58	BRK LN
20298	863863.958	2031488.157	975.63	BRK LN

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20299	863882.485	2031488.891	975.93	BRK LN
20300	863882.474	2031441.608	976.25	BRK LN
20301	863863.913	2031440.990	976.31	BRK LN
20302	863917.840	2031388.931	963.99	GRD SHT
20303	863917.804	2031340.744	964.14	GRD SHT
20304	863917.838	2031285.700	963.93	GRD SHT
20305	863917.886	2031240.006	963.87	GRD SHT
20306	863917.948	2031189.692	964.20	GRD SHT
20307	863917.889	2031140.551	964.16	GRD SHT
20308	863918.015	2031090.670	964.21	GRD SHT
20309	863917.918	2031044.066	964.27	GRD SHT
20310	863917.810	2030999.100	964.33	GRD SHT
20311	863917.731	2030952.031	964.45	GRD SHT
20312	863917.762	2030906.281	964.47	GRD SHT
20313	863917.743	2030858.350	964.32	GRD SHT
20314	863917.668	2030811.781	964.18	GRD SHT
20315	863918.052	2030768.205	964.84	GRD SHT
20316	863882.548	2030731.914	976.24	BRK LN
20317	863863.404	2030719.619	975.54	BRK LN
20318	863863.785	2030731.239	975.73	BRK LN
20319	863863.950	2030775.074	975.70	BRK LN
20320	863882.249	2030775.492	976.19	BRK LN
20321	863882.585	2030812.245	976.05	BRK LN
20322	863864.152	2030812.271	975.64	BRK LN
20323	863864.242	2030858.901	975.90	BRK LN
20324	863882.581	2030858.348	976.19	BRK LN
20325	863882.605	2030906.818	976.23	BRK LN
20326	863864.055	2030907.512	975.88	BRK LN
20327	863863.860	2030952.585	975.80	BRK LN
20328	863882.291	2030952.624	976.22	BRK LN
20329	863882.513	2030999.571	975.99	BRK LN
20330	863864.024	2030999.966	975.74	BRK LN
20331	863864.263	2031043.757	975.75	BRK LN
20332	863882.740	2031043.695	976.04	BRK LN
20333	863882.399	2031088.654	976.10	BRK LN
20334	863864.358	2031087.906	975.74	BRK LN
20335	863864.225	2031140.898	975.94	BRK LN
20336	863882.433	2031140.818	975.97	BRK LN
20337	863882.450	2031189.435	975.96	BRK LN
20338	863863.921	2031189.873	975.95	BRK LN
20339	863863.705	2031239.356	975.61	BRK LN
20340	863882.436	2031239.562	976.00	BRK LN
20341	863882.467	2031285.567	976.03	BRK LN
20342	863863.520	2031285.955	975.65	BRK LN
20343	863863.985	2031343.064	975.78	BRK LN
20344	863882.481	2031340.887	976.02	BRK LN
20345	863882.473	2031388.573	976.05	BRK LN
20346	863863.715	2031388.204	975.67	BRK LN
20347	863863.928	2031440.791	976.21	BRK LN
20348	863882.529	2031441.468	976.37	BRK LN
20349	863881.826	2032053.953	975.57	GRD SHT
20350	863863.672	2032053.966	975.62	GRD SHT
20351	863921.844	2032053.894	975.84	GRD SHT
20352	863922.908	2032028.012	975.93	BRK LN

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20353	863925.134	2031986.389	969.82	GRD SHT
20354	863968.321	2031986.203	963.78	GRD SHT
20355	864016.324	2031986.137	961.95	GRD SHT
20356	865360.274	2031409.318	964.13	GRD SHT
20357	865361.246	2031362.366	964.89	GRD SHT
20358	865361.728	2031314.613	965.13	GRD SHT
20359	865359.167	2031268.909	964.16	GRD SHT
20360	865352.719	2031223.613	962.06	GRD SHT
20361	865315.427	2031234.768	951.59	TOE
20362	865295.736	2031241.070	950.71	TOP SLP
20363	865292.131	2031242.178	949.90	TOE
20364	865300.021	2031287.346	950.77	TOE
20365	865301.593	2031306.493	951.36	TOE
20366	865306.979	2031306.554	952.95	TOP SLP
20367	865325.711	2031306.215	953.45	TOE
20368	865307.375	2031356.755	953.91	TOP SLP
20369	865324.542	2031358.703	954.27	TOE
20370	865308.022	2031407.230	956.34	TOP SLP
20371	865329.201	2031407.213	956.48	TOE
20372	865350.640	2031466.388	961.13	GRD SHT
20373	865351.572	2031506.545	961.64	GRD SHT
20374	865351.542	2031559.848	961.68	GRD SHT
20375	865351.047	2031610.209	961.50	GRD SHT
20376	865350.619	2031659.570	961.56	GRD SHT
20377	865351.892	2031709.172	961.74	GRD SHT
20378	865350.244	2031756.217	961.34	GRD SHT
20379	865351.747	2031804.422	961.77	GRD SHT
20380	865349.479	2031854.855	960.89	GRD SHT
20381	865336.884	2031897.898	960.02	GRD SHT
20382	865320.932	2031914.863	960.08	GRD SHT
20383	865293.203	2031950.940	961.93	GRD SHT
20384	865230.478	2031927.583	943.33	TOE
20385	865179.168	2031928.236	943.95	TOE
20386	865150.959	2031920.891	944.55	TOE
20387	865257.985	2031986.185	962.81	GRD SHT
20388	865224.731	2031986.203	962.00	GRD SHT
20389	865177.459	2031986.180	962.17	GRD SHT
20390	865130.973	2031986.097	961.91	GRD SHT
20391	865074.702	2031986.101	962.14	GRD SHT
20392	865000.930	2031986.092	962.55	GRD SHT
20393	864920.160	2031986.253	962.13	GRD SHT
20394	864867.928	2031986.240	962.00	GRD SHT
20395	864811.424	2031986.064	962.04	GRD SHT
20396	864756.763	2031986.135	962.00	GRD SHT
20397	864704.626	2031986.099	961.95	GRD SHT
20398	864649.973	2031986.225	962.65	GRD SHT
20399	864601.849	2031986.153	962.74	GRD SHT
20400	864532.283	2031986.226	962.40	GRD SHT
20401	864486.252	2031986.057	962.36	GRD SHT
20402	864442.354	2031986.194	961.60	GRD SHT
20403	864411.191	2031986.004	961.92	GRD SHT
20404	864382.005	2031986.115	961.96	GRD SHT
20405	864330.942	2031986.268	962.04	GRD SHT
20406	864279.528	2031986.182	961.89	GRD SHT

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20407	864231.485	2031986.208	962.05	GRD SHT
20408	864176.379	2031986.099	962.01	GRD SHT
20409	864123.885	2031986.176	962.15	GRD SHT
20410	864069.519	2031986.138	962.08	GRD SHT
20411	864016.364	2031986.168	962.01	GRD SHT
20412	863918.899	2032104.037	975.09	BRK LN
20413	863895.719	2032098.905	975.01	BRK LN
20414	863880.311	2032088.290	974.99	BRK LN
20415	863866.308	2032064.107	975.49	BRK LN
20417	863969.432	2032028.200	976.00	BRK LN
20418	863969.708	2032054.109	975.63	BRK LN
20419	863969.911	2032103.931	974.96	BRK LN
20420	864017.154	2032103.946	975.12	BRK LN
20421	864016.963	2032054.110	975.66	BRK LN
20422	864016.611	2032028.086	976.09	BRK LN
20423	864073.628	2032027.909	976.14	BRK LN
20424	864072.229	2032053.575	975.70	GRD SHT
20425	864069.851	2032103.585	975.19	BRK LN
20426	864127.571	2032103.534	975.32	BRK LN
20427	864127.123	2032053.377	975.70	GRD SHT
20428	864126.285	2032027.943	976.03	BRK LN
20429	864174.189	2032027.925	975.96	BRK LN
20430	864174.304	2032053.443	975.79	GRD SHT
20431	864174.729	2032103.497	975.08	BRK LN
20433	864227.134	2032027.875	976.00	BRK LN
20434	864226.440	2032053.352	975.73	GRD SHT
20435	864227.391	2032103.246	974.91	BRK LN
20436	864273.969	2032103.350	975.07	BRK LN
20437	864275.217	2032053.302	975.84	GRD SHT
20438	864275.753	2032027.705	976.08	BRK LN
20439	864325.197	2032027.524	976.02	BRK LN
20440	864326.630	2032053.330	975.75	GRD SHT
20441	864328.214	2032103.369	975.16	BRK LN
20442	864371.173	2032103.255	974.98	BRK LN
20443	864375.737	2032053.508	975.90	GRD SHT
20444	864378.029	2032027.666	975.99	BRK LN
20445	864429.526	2032027.897	976.03	BRK LN
20446	864428.472	2032053.503	975.65	GRD SHT
20447	864429.213	2032102.766	975.25	BRK LN
20448	864482.774	2032103.256	975.24	BRK LN
20449	864483.214	2032053.781	975.57	GRD SHT
20450	864483.631	2032027.811	975.99	BRK LN
20451	864530.179	2032027.877	976.03	BRK LN
20452	864530.219	2032053.726	975.64	GRD SHT
20453	864530.433	2032103.046	975.19	BRK LN
20454	864580.176	2032103.091	975.02	BRK LN
20455	864581.224	2032053.857	975.67	GRD SHT
20456	864581.476	2032027.976	976.02	BRK LN
20457	864631.334	2032028.318	975.21	BRK LN
20458	864634.079	2032054.226	975.51	GRD SHT
20459	864631.947	2032102.486	975.33	BRK LN
20460	864671.369	2032102.571	975.23	BRK LN

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20461	864671.116	2032053.959	975.55	GRD SHT
20462	864670.593	2032027.342	976.08	BRK LN
20464	864706.632	2032028.135	976.06	BRK LN
20465	864706.920	2032053.926	975.71	GRD SHT
20466	864707.066	2032102.907	975.06	BRK LN
20467	864758.737	2032101.655	975.28	BRK LN
20468	864757.983	2032053.977	975.70	GRD SHT
20469	864758.151	2032028.167	976.05	BRK LN
20470	864810.396	2032027.937	976.09	BRK LN
20471	864868.067	2032027.919	975.97	BRK LN
20472	864868.250	2032053.854	975.94	GRD SHT
20473	864868.025	2032103.252	975.20	BRK LN
20474	864919.935	2032103.729	974.90	BRK LN
20475	864919.573	2032053.785	975.80	GRD SHT
20476	864919.964	2032027.980	976.33	BRK LN
20477	864972.432	2032027.817	975.94	BRK LN
20478	864972.886	2032053.806	975.64	GRD SHT
20479	864974.024	2032103.113	975.02	BRK LN
20480	865024.856	2032103.282	975.06	BRK LN
20481	865024.801	2032053.904	975.62	GRD SHT
20482	865024.644	2032027.836	976.07	BRK LN
20483	865074.713	2032027.799	976.03	BRK LN
20484	865075.211	2032053.970	975.54	GRD SHT
20485	865075.590	2032103.171	975.03	BRK LN
20486	865127.755	2032103.321	975.20	BRK LN
20487	865127.641	2032053.748	975.77	GRD SHT
20488	865126.170	2032028.019	975.96	BRK LN
20490	865176.675	2032028.089	976.11	BRK LN
20491	865177.731	2032055.984	976.03	GRD SHT
20492	865177.380	2032104.408	975.08	BRK LN
20493	865225.107	2032103.618	975.00	BRK LN
20494	865225.199	2032053.874	975.55	GRD SHT
20495	865225.765	2032027.962	976.01	BRK LN
20496	865275.209	2032028.071	976.00	BRK LN
20497	865288.825	2032052.277	975.92	GRD SHT
20498	865312.687	2032093.996	975.04	BRK LN
20499	865364.654	2032044.807	975.31	BRK LN
20500	865327.226	2032015.172	976.04	GRD SHT
20501	865304.819	2031998.400	975.90	BRK LN
20502	865353.542	2031949.791	975.99	BRK LN
20503	865395.372	2031908.311	976.07	BRK LN
20504	865419.452	2031917.067	975.83	GRD SHT
20505	863803.176	2030958.245	961.99	BRK LN
20506	863822.434	2030953.319	962.87	TOE
20507	863835.412	2031004.812	966.68	TOE
20508	863815.130	2031007.049	967.05	BRK LN
20509	863827.298	2031056.105	970.58	BRK LN
20510	863846.673	2031051.499	970.65	TOE
20511	863852.433	2031074.657	972.92	TOE
20512	863832.931	2031079.558	972.47	BRK LN
20513	863838.404	2031103.946	973.84	BRK LN
20514	863858.561	2031098.993	974.21	TOE

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20522	865394.981	2031858.225	976.06	BRK LN/sg
20523	865353.405	2031949.620	976.04	BRK LN/sg
20524	865366.188	2031936.942	975.81	BRK LN/sg
20525	865383.970	2031955.787	976.22	GRD SHT/sg
20526	865412.319	2032001.637	975.69	BRK LN/topsoil
20527	865442.971	2031967.961	975.79	BRK LN/topsoil
20528	865466.247	2031934.709	975.72	BRK LN/topsoil
20529	865419.534	2031917.262	975.80	GRD SHT
20530	865392.483	2031907.002	975.91	BRK LN/sg
20531	865421.096	2031857.071	975.74	GRD SHT/sg
20532	865471.031	2031856.336	975.58	BRK LN/topsoil
20533	865471.271	2031806.912	975.87	BRK LN/topsoil
20534	865421.062	2031808.296	975.82	GRD SHT/sg
20535	865394.963	2031808.807	975.99	BRK LN/sg
20536	865395.046	2031758.749	976.09	BRK LN/sg
20537	865421.010	2031758.290	975.67	GRD SHT/sg
20538	865471.368	2031759.781	975.60	BRK LN/topsoil
20539	865471.176	2031706.861	975.93	BRK LN/topsoil
20540	865421.364	2031709.053	975.92	GRD SHT/sg
20541	865421.435	2031709.048	975.82	GRD SHT/sg
20542	865421.430	2031709.069	975.65	GRD SHT/sg
20543	865395.231	2031710.426	976.00	BRK LN/sg
20544	865395.106	2031660.515	976.00	BRK LN/sg
20545	865421.138	2031660.248	975.70	GRD SHT/sg
20546	865471.007	2031659.601	975.87	BRK LN/topsoil
20547	865471.037	2031612.661	975.66	BRK LN/topsoil
20548	865421.199	2031611.386	975.77	GRD SHT/sg
20549	865395.064	2031610.751	976.02	BRK LN/sg
20550	865395.253	2031561.434	975.99	BRK LN/sg
20551	865421.056	2031560.945	975.81	GRD SHT/sg
20552	865471.243	2031559.857	975.80	BRK LN/topsoil
20553	865471.145	2031510.414	975.74	BRK LN/topsoil
20554	865421.040	2031511.349	975.70	GRD SHT/sg
20555	865395.153	2031511.700	976.02	BRK LN/sg
20556	865395.246	2031460.580	976.06	BRK LN/sg
20557	865421.284	2031460.307	975.65	GRD SHT/sg
20558	865471.155	2031460.524	975.71	BRK LN/topsoil
20559	865471.385	2031411.606	975.98	BRK LN/topsoil
20560	865421.125	2031410.708	975.70	GRD SHT/sg
20561	865395.225	2031410.127	975.96	BRK LN/sg
20562	865395.092	2031360.135	976.00	BRK LN/sg
20563	865420.966	2031359.558	975.69	GRD SHT/sg
20564	865471.401	2031358.348	976.20	BRK LN/topsoil
20565	865471.406	2031309.737	975.94	BRK LN/topsoil
20566	865395.059	2031308.919	976.10	BRK LN/sg
20567	865395.074	2031283.542	975.99	BRK LN/sg
20568	865421.140	2031272.121	975.65	GRD SHT/sg
20569	865420.995	2031308.956	975.67	GRD SHT/sg
20570	865471.345	2031277.420	976.29	BRK LN/topsoil
20571	865471.306	2031230.779	976.57	BRK LN/topsoil
20572	865453.690	2031227.220	975.28	GRD SHT/sg
20573	865421.069	2031232.636	975.74	GRD SHT/sg
20574	865395.205	2031232.931	975.49	BRK LN/sg

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20575	865376.891	2031181.926	975.98	BRK LN/sg
20576	865471.197	2031174.320	976.73	BRK LN/topsoil
20577	865479.587	2031123.013	975.92	BRK LN/sg
20578	865490.620	2031078.542	976.09	BRK LN/sg
20579	865471.080	2031073.835	976.01	TOE/sg
20580	865477.162	2031049.683	973.89	TOE/sg
20581	865496.683	2031054.234	973.95	BRK LN/sg
20582	865502.530	2031029.966	972.13	BRK LN/sg
20583	865483.256	2031025.124	971.92	TOE/sg
20584	865489.116	2031001.037	970.05	TOE/sg
20585	865508.550	2031005.752	969.99	BRK LN/sg
20586	865514.487	2030981.642	968.24	BRK LN/sg
20587	865495.192	2030976.707	968.09	TOE/sg
20588	865501.220	2030952.643	966.66	TOE/sg
20589	865520.580	2030957.273	966.25	BRK LN/sg
20590	865454.767	2031075.447	980.69	BRK LN/topsoil
20591	865412.827	2031080.865	980.10	GRD SHT/sg
20592	865407.218	2031031.011	984.42	GRD SHT/sg
20593	865400.755	2030981.471	988.28	GRD SHT/sg
20594	865394.771	2030931.770	992.12	GRD SHT/sg
20595	865389.055	2030882.322	996.10	GRD SHT/sg
20596	865349.795	2030886.715	995.99	BRK LN/sg
20597	865355.808	2030936.417	992.06	BRK LN/sg
20598	865361.743	2030986.250	987.99	BRK LN/sg
20599	865364.988	2031010.727	986.08	BRK LN/sg
20600	865367.850	2031036.024	984.93	BRK LN/sg
20601	865447.236	2031026.252	985.12	BRK LN/topsoil
20602	865433.868	2030975.390	989.16	BRK LN/topsoil
20603	865423.304	2030928.528	992.96	BRK LN/topsoil
20604	865411.232	2030879.655	996.84	BRK LN/topsoil
20605	865398.159	2030826.072	1001.02	BRK LN/topsoil
20606	865386.997	2030781.358	1004.67	BRK LN/topsoil
20607	865372.786	2030732.495	1009.00	BRK LN/topsoil
20608	865369.520	2030708.536	1010.15	BRK LN/topsoil
20609	865417.461	2030700.467	994.67	GRD SHT/topsoil
20610	865504.148	2030683.865	965.96	TOE/topsoil
20611	865507.984	2030764.140	965.18	TOE/topsoil
20612	865445.497	2030771.061	985.26	GRD SHT/topsoil
20613	865452.775	2030824.246	982.89	GRD SHT/topsoil
20614	865508.196	2030814.337	965.22	TOE/topsoil
20615	865508.926	2030876.166	965.41	TOE/topsoil
20616	865456.513	2030876.971	981.76	GRD SHT/topsoil
20617	865461.281	2030925.627	980.11	GRD SHT/topsoil
20618	865464.753	2030977.270	979.12	GRD SHT/topsoil
20619	865462.230	2031025.134	979.91	GRD SHT/topsoil
20620	865529.526	2030959.058	965.65	GRD SHT/topsoil
20621	865534.979	2030959.703	964.75	TOE/topsoil
20622	865532.333	2030987.141	965.08	TOE/topsoil
20623	865523.731	2030984.196	966.87	GRD SHT/topsoil
20624	865519.413	2031009.311	968.00	GRD SHT/topsoil
20625	865531.308	2031011.608	965.10	TOE/topsoil
20626	865528.910	2031036.762	965.18	TOE/topsoil
20627	865515.327	2031033.381	968.95	GRD SHT/topsoil
20628	865509.575	2031057.866	970.22	GRD SHT/topsoil

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20629	865527.310	2031061.265	964.94	TOE/topsoil
20630	865526.046	2031088.786	964.82	TOE/topsoil
20631	865508.476	2031082.862	970.04	GRD SHT/topsoil
20632	865498.257	2031125.476	971.91	GRD SHT/topsoil
20633	865522.123	2031128.412	965.00	TOE/topsoil
20634	865517.368	2031180.295	965.79	TOE/topsoil
20635	865494.206	2031177.635	971.86	GRD SHT/topsoil
20636	865492.224	2031230.658	972.05	GRD SHT/topsoil
20637	865515.520	2031230.923	966.54	TOE/topsoil
20638	865513.433	2031290.741	966.99	TOE/topsoil
20639	865491.768	2031287.706	972.38	GRD SHT/topsoil
20640	865490.861	2031357.979	972.32	GRD SHT/topsoil
20641	865512.200	2031357.718	966.86	TOE/topsoil
20642	865512.498	2031410.687	965.88	TOE/topsoil
20643	865491.858	2031412.057	971.70	GRD SHT/topsoil
20644	865491.234	2031460.723	971.56	GRD SHT/topsoil
20645	865513.877	2031459.420	965.36	TOE/topsoil
20646	865514.394	2031510.110	964.84	TOE/topsoil
20647	865492.815	2031510.111	971.16	GRD SHT/topsoil
20648	865492.415	2031559.613	971.30	GRD SHT/topsoil
20649	865515.530	2031558.247	964.80	TOE/topsoil
20650	865516.556	2031611.665	964.37	TOE/topsoil
20651	865492.484	2031612.968	971.15	GRD SHT/topsoil
20652	865492.336	2031659.861	971.38	GRD SHT/topsoil
20653	865515.940	2031659.444	964.51	TOE/topsoil
20654	865515.719	2031706.991	964.52	TOE/topsoil
20655	865494.145	2031705.992	971.01	GRD SHT/topsoil
20656	865493.702	2031760.042	970.67	GRD SHT/topsoil
20657	865516.300	2031759.633	963.86	TOE/topsoil
20658	865516.222	2031807.610	963.45	TOE/topsoil
20659	865493.176	2031806.787	970.33	GRD SHT/topsoil
20660	865493.039	2031856.435	969.75	GRD SHT/topsoil
20661	865515.805	2031857.290	963.02	TOE/topsoil
20662	865513.842	2031905.965	962.68	TOE/topsoil
20663	865487.999	2031903.486	970.18	GRD SHT/topsoil
20664	865484.779	2031941.941	969.15	GRD SHT/topsoil
20665	865484.752	2031941.945	969.14	GRD SHT/topsoil
20666	865506.752	2031946.962	962.75	TOE/topsoil
20667	865485.904	2031990.609	962.08	TOE/topsoil
20668	865466.864	2031976.106	968.65	GRD SHT/topsoil
20669	865429.627	2032017.726	967.86	GRD SHT/topsoil
20670	865444.680	2032030.538	960.81	TOE/topsoil
20671	865400.703	2032076.689	960.51	TOE/topsoil
20672	865384.151	2032061.288	968.42	GRD SHT/topsoil
20673	865350.477	2032091.213	968.72	GRD SHT/topsoil
20674	865338.208	2032074.129	975.49	BRK LN/topsoil
20675	865367.065	2032045.326	975.78	BRK LN/topsoil
20676	865369.821	2032110.927	959.77	TOE/topsoil
20677	865334.862	2032134.262	960.03	TOE/topsoil
20678	865323.517	2032115.008	967.42	GRD SHT/topsoil
20679	865312.676	2032094.376	975.17	BRK LN/topsoil
20680	865265.622	2032101.702	975.67	BRK LN/topsoil
20681	865266.096	2032120.352	970.41	GRD SHT/topsoil
20682	865269.355	2032149.456	960.88	TOE/topsoil

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20683	865221.413	2032149.787	961.77	TOE/topsoil
20684	865224.476	2032126.877	969.26	GRD SHT/topsoil
20685	865225.212	2032103.673	975.90	BRK LN/topsoil
20686	865175.691	2032103.718	975.88	BRK LN/topsoil
20687	865175.445	2032123.498	970.39	GRD SHT/topsoil
20688	865174.811	2032147.753	962.52	TOE/topsoil
20689	865125.482	2032145.174	963.66	TOE/topsoil
20690	865127.431	2032124.193	969.96	GRD SHT/topsoil
20691	865127.644	2032103.294	975.74	BRK LN/topsoil
20692	865075.674	2032103.175	975.58	BRK LN/topsoil
20693	865075.538	2032120.049	971.12	GRD SHT/topsoil
20694	865074.198	2032143.591	964.36	TOE/topsoil
20695	865022.103	2032139.766	964.80	TOE/topsoil
20696	865024.013	2032121.319	970.79	GRD SHT/topsoil
20697	865024.970	2032103.285	975.70	BRK LN/topsoil
20698	864972.971	2032101.358	975.75	BRK LN/topsoil
20699	864973.609	2032119.027	971.17	GRD SHT/topsoil
20700	864973.045	2032138.070	965.13	TOE/topsoil
20701	864920.903	2032137.176	965.45	TOE/topsoil
20702	864919.914	2032118.627	971.28	GRD SHT/topsoil
20703	864919.996	2032103.706	975.71	BRK LN/topsoil
20704	864868.143	2032103.354	976.02	BRK LN/topsoil
20705	864870.885	2032118.889	971.73	GRD SHT/topsoil
20706	864874.445	2032140.157	965.85	TOE/topsoil
20707	864853.205	2032133.067	971.11	GRD SHT/topsoil
20708	864837.242	2032129.222	975.55	BRK LN/topsoil
20709	864848.449	2032109.586	975.61	BRK LN/topsoil
20710	864836.380	2032178.778	972.71	BRK LN/topsoil
20711	864863.806	2032179.848	965.97	TOE/topsoil
20712	864858.781	2032229.198	964.73	TOE/topsoil
20713	864836.980	2032229.040	968.85	BRK LN/topsoil
20714	864806.896	2032229.281	968.43	BRK LN/topsoil
20715	864772.124	2032228.433	962.01	TOE/topsoil
20716	864768.947	2032180.732	962.45	TOE/topsoil
20717	864806.774	2032179.130	972.27	BRK LN/topsoil
20718	864806.827	2032129.308	975.71	BRK LN/topsoil
20719	864783.680	2032138.681	969.10	GRD SHT/topsoil
20720	864753.545	2032157.410	961.62	TOE/topsoil
20721	864770.733	2032125.368	969.39	GRD SHT/topsoil
20722	864782.756	2032105.935	975.17	BRK LN/topsoil
20723	864757.166	2032104.024	975.64	BRK LN/topsoil
20724	864754.328	2032120.837	970.23	GRD SHT/topsoil
20725	864707.700	2032149.793	961.52	TOE/topsoil
20726	864708.968	2032126.452	968.90	GRD SHT/topsoil
20727	864706.848	2032104.054	975.39	BRK LN/topsoil
20728	864656.982	2032103.978	975.49	BRK LN/topsoil
20729	864656.494	2032124.282	970.13	GRD SHT/topsoil
20730	864657.228	2032150.429	961.35	TOE/topsoil
20731	864607.079	2032149.123	961.92	TOE/topsoil
20732	864607.450	2032123.848	970.17	GRD SHT/topsoil
20733	864607.365	2032104.772	975.47	BRK LN/topsoil
20734	864580.860	2032104.026	975.84	BRK LN/topsoil
20735	864580.758	2032121.401	971.10	GRD SHT/topsoil
20736	864580.484	2032150.690	962.01	TOE/topsoil

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20737	864530.256	2032147.965	962.83	TOE/topsoil
20738	864531.326	2032124.936	969.98	GRD SHT/topsoil
20739	864531.253	2032103.992	975.70	BRK LN/topsoil
20740	864482.842	2032104.052	976.03	BRK LN/topsoil
20741	864482.473	2032122.071	970.86	GRD SHT/topsoil
20742	864482.171	2032147.415	963.49	TOE/topsoil
20743	864427.442	2032148.594	962.74	TOE/topsoil
20744	864427.759	2032126.493	969.98	GRD SHT/topsoil
20745	864427.454	2032104.111	975.79	BRK LN/topsoil
20746	864376.314	2032104.096	975.67	BRK LN/topsoil
20747	864376.282	2032123.715	970.39	GRD SHT/topsoil
20748	864376.602	2032151.240	962.29	TOE/topsoil
20749	864326.285	2032150.425	962.28	TOE/topsoil
20750	864327.231	2032126.077	969.36	GRD SHTbtopsoil
20751	864327.307	2032104.098	975.70	BRK LN/topsoil
20752	864274.398	2032104.297	975.46	BRK LN/topsoil
20753	864274.808	2032124.338	970.03	GRD SHT/topsoil
20754	864274.558	2032151.895	961.86	TOE/topsoil
20755	864223.074	2032147.346	963.40	TOE/topsoil
20756	864224.877	2032125.399	969.91	GRD SHT/topsoil
20757	864225.479	2032104.124	975.43	BRK LN/topsoil
20758	864175.180	2032104.023	975.49	BRK LN/topsoil
20759	864175.038	2032125.256	969.92	GRD SHT/topsoil
20760	864174.809	2032147.992	963.20	TOE/topsoil
20761	864126.211	2032147.058	963.51	TOE/topsoil
20762	864126.453	2032125.776	970.12	GRD SHT/topsoil
20763	864126.616	2032103.929	975.69	BRK LN/topsoil
20764	864070.809	2032104.042	975.52	BRK LN/topsoil
20765	864071.783	2032123.585	970.67	GRD SHT/topsoil
20766	864071.697	2032147.523	963.23	68/topsooil
20767	864018.033	2032147.761	962.11	TOE/topsoil
20768	864017.483	2032125.172	969.94	GRD SHT/topsoil
20769	864017.444	2032104.087	975.43	BRK LN/topsoil
20770	863970.620	2032104.084	975.66	BRK LN/topsoil
20771	863969.314	2032125.478	969.84	GRD SHT/topsoil
20772	863968.698	2032147.477	962.24	TOE/topsoil
20773	863915.268	2032146.560	961.93	TOE/topsoil
20774	863917.256	2032123.358	969.80	GRD SHT/topsoil
20775	863918.751	2032104.047	975.76	BRK LN/topsoil
20776	863880.345	2032088.285	975.60	BRK LN/topsoil
20777	863863.682	2032110.429	968.17	GRD SHT/topsoil
20778	863852.268	2032129.343	961.77	TOE/topsoil
20779	863839.055	2032098.711	970.92	BRK LN/topsoil
20780	863784.515	2032128.042	963.09	BRK LN/topsoil
20781	863788.765	2032141.595	960.75	TOE/topsoil
20782	863774.380	2032101.398	962.41	BRK LN/topsoil
20783	863770.547	2032090.485	960.69	TOE/topsoil
20784	863789.470	2032061.211	960.09	TOE/topsoil
20785	863838.827	2032075.268	972.08	BRK LN/topsoil
20786	863856.435	2032053.353	975.34	BRK LN/topsoil
20787	863863.098	2032027.695	976.15	BRK LN/topsoil
20788	863835.185	2032026.765	967.60	GRD SHT/topsoil
20789	863791.697	2032025.865	959.00	TOE/topsoil
20790	863794.238	2031972.363	957.80	TOE/topsoil

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20791	863831.137	2031971.638	965.67	GRD SHT/topsoil
20792	863862.830	2031970.714	976.34	BRK LN/topsoil
20793	863862.806	2031909.755	976.14	BRK LN/topsoil
20794	863831.047	2031910.106	965.52	GRD SHT/topsoil
20795	863797.833	2031909.034	957.20	TOE/topsoil
20796	863798.515	2031859.721	956.34	TOE/topsoil
20797	863830.415	2031861.942	965.25	GRD SHT/topsoil
20798	863863.782	2031862.367	976.26	BRK LN/topsoil
20799	863863.093	2031811.132	976.35	BRK LN/topsoil
20800	863828.436	2031810.746	964.88	GRD SHT/topsoil
20801	863791.659	2031810.477	955.08	TOE/topsoil
20802	863789.246	2031762.281	954.21	TOE/topsoil
20803	863827.074	2031764.651	964.33	GRD SHT/topsoil
20804	863862.902	2031764.434	976.37	BRK LN/topsoil
20805	863862.766	2031718.518	976.31	BRK LN/topsoil
20806	863828.071	2031718.044	965.12	6226/topsoil
20807	863793.486	2031717.325	954.43	TOE/topsoil
20808	863790.132	2031674.366	953.52	TOE/topsoil
20809	863826.634	2031674.895	964.57	GRD SHT/topsoil
20810	863862.375	2031675.505	976.37	BRK LN/topsoil
20811	863862.503	2031626.096	976.10	BRK LN/topsoil
20812	863828.645	2031625.144	965.13	GRD SHT/topsoil
20813	863783.474	2031622.562	952.37	TOE/topsoil
20814	863782.804	2031578.122	952.33	TOE/topsoil
20815	863823.444	2031580.995	963.69	GRD SHT/topsoil
20816	863861.779	2031581.323	976.12	BRK LN/topsoil
20817	863862.543	2031541.268	976.18	BRK LN/topsoil
20818	863823.998	2031541.608	963.72	GRD SHT/topsoil
20819	863785.206	2031540.287	952.53	TOE/topsoil
20820	863786.792	2031486.605	952.96	TOE/topsoil
20821	863822.518	2031488.073	963.28	GRD SHT/topsoil
20822	863862.114	2031488.105	976.58	BRK LN/topsoil
20823	863862.657	2031440.856	976.91	BRK LN/topsoil
20824	863824.032	2031439.208	963.62	GRD SHT/topsoil
20825	863786.528	2031438.796	952.76	TOE/topsoil
20826	863787.832	2031387.284	953.04	TOE/topsoil
20827	863823.612	2031387.866	963.30	GRD SHT/topsoil
20828	863862.934	2031388.295	976.21	BRK LN/topsoil
20829	863862.692	2031340.832	976.04	BRK LN/topsoil
20830	863822.935	2031341.364	963.19	GRD SHT/topsoil
20831	863788.365	2031340.321	953.20	TOE/topsoil
20832	863791.187	2031288.154	953.82	TOE/topsoil
20833	863825.436	2031287.168	964.48	GRD SHT/topsoil
20834	863863.176	2031285.440	976.43	BRK LN/topsoil
20835	863861.751	2031239.739	976.34	BRK LN/topsoil
20836	863821.445	2031239.843	962.93	GRD SHT/topsoil
20837	863784.653	2031241.941	952.84	TOE/topsoil
20838	863783.703	2031210.526	952.85	TOE/topsoil
20839	863823.276	2031208.392	963.99	GRD SHT/topsoil
20840	863862.768	2031206.468	976.69	BRK LN/topsoil
20841	863851.158	2031152.848	976.27	BRK LN/topsoil
20842	863817.812	2031157.653	963.14	GRD SHT/topsoil
20843	863785.799	2031161.520	953.11	TOE/topsoil
20844	863776.020	2031115.252	952.59	TOE/topsoil

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
20845	863812.809	2031110.541	963.92	GRD SHT/topsoil
20846	863840.271	2031105.803	974.58	BRK LN/topsoil
20847	863832.880	2031079.668	972.77	BRK LN/topsoil
20848	863804.090	2031086.383	962.26	GRD SHT/topsoil
20849	863770.508	2031091.032	952.77	TOE/topsoil
20850	863770.728	2031065.233	953.33	TOE/topsoil
20851	863797.980	2031060.594	960.94	GRD SHT/topsoil
20852	863826.451	2031055.286	970.58	BRK LN/topsoil
20853	863820.901	2031031.060	968.86	BRK LN/topsoil
20854	863796.512	2031035.677	961.16	GRD SHT/topsoil
20855	863771.256	2031040.458	953.97	TOE/topsoil
20856	863770.344	2031018.860	954.73	TOE/topsoil
20857	863795.307	2031011.528	961.31	GRD SHT/topsoil
20858	863814.587	2031006.863	966.85	BRK LN/topsoil
20859	863808.500	2030982.554	964.56	BRK LN/topsoil
20860	863787.951	2030986.313	959.96	GRD SHT/topsoil
20861	863768.543	2030989.583	956.31	TOE/topsoil
20862	863767.243	2030966.817	957.30	TOE/topsoil
20863	863789.272	2030961.553	960.10	GRD SHT/topsoil
20864	863802.434	2030958.262	962.58	BRK LN/topsoil
20865	863796.223	2030933.947	960.77	BRK LN/topsoil
20866	863801.168	2030782.069	961.28	TOE/topsoil
20867	863834.822	2030778.261	967.53	GRD SHT/topsoil
20868	863862.830	2030775.666	976.33	BRK LN/topsoil
20869	863863.490	2030812.328	976.32	BRK LN/topsoil
20870	863839.884	2030813.239	968.72	GRD SHT/topsoil
20871	863804.319	2030816.344	960.73	TOE/topsoil
20872	863809.868	2030860.814	960.64	TOE/topsoil
20873	863838.981	2030859.375	968.38	GRD SHT/topsoil
20874	863863.201	2030859.003	976.70	BRK LN/topsoil
20875	863862.898	2030908.308	976.43	BRK LN/topsoil
20876	863842.631	2030908.563	969.41	GRD SHT/topsoil
20877	863815.621	2030910.251	960.68	TOE/topsoil
20878	863822.595	2030953.301	962.40	TOE/topsoil
20879	863845.946	2030953.110	970.10	GRD SHT/topsoil
20880	863863.074	2030952.622	976.54	BRK LN/topsoil
20881	863864.407	2030999.863	976.04	BRK LN/topsoil
20882	863849.240	2031000.889	971.04	GRD SHT/topsoil
20883	863834.547	2031001.977	966.50	TOE/topsoil
20884	863846.549	2031050.491	970.91	TOE/topsoil
20885	863854.566	2031046.786	973.14	GRD SHT/topsoil
20886	863864.075	2031043.830	976.27	BRK LN/topsoil
20887	863864.214	2031087.877	976.21	BRK LN/topsoil
20888	865459.039	2031117.120	976.25	GRD SHT/sg
20889	865450.397	2031129.486	975.91	GRD SHT/sg
20890	865438.659	2031132.318	975.70	GRD SHT/sg
20891	865419.230	2031131.591	976.01	GRD SHT/sg
1499	863880.290	2031080.400	976.13	TOE C5
1500	863889.173	2031087.319	975.93	BRK LN C5
1501	863911.844	2031041.414	969.66	BRK LN C5
1502	863901.881	2031036.137	970.04	TOE C5
1503	863912.801	2031014.411	966.94	TOE C5

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1504	863923.555	2031016.513	966.40	BRK LN C5
1505	863930.392	2030976.374	963.49	BRK LN C5
1506	863920.029	2030970.970	964.12	TOE C5
1507	863880.931	2031106.115	976.71	BRK LN C5
1257	863881.507	2030731.805	976.09	BRK LN C5
1258	863865.930	2030731.935	976.11	BRK LN C5
1259	863865.475	2030812.413	976.20	BRK LN C5
1260	863880.995	2030812.320	976.39	BRK LN C5
1261	863881.015	2030858.247	976.57	BRK LN C5
1262	863865.617	2030858.813	976.40	BRK LN C5
1263	863865.616	2030907.046	976.49	BRK LN C5
1264	863881.035	2030906.937	976.65	BRK LN C5
1265	863880.782	2030952.704	976.69	BRK LN C5
1266	863865.222	2030953.061	976.41	BRK LN C5
1267	863865.400	2031000.096	976.29	BRK LN C5
1268	863880.929	2030999.523	976.74	BRK LN C5
1269	863881.123	2031043.908	976.58	BRK LN C5
1270	863865.869	2031043.529	976.40	BRK LN C5
1271	863865.548	2031088.688	976.32	BRK LN C5
1272	863880.978	2031088.745	976.67	BRK LN C5
1273	863865.731	2031123.863	976.34	BRK LN C5
1274	863880.841	2031140.905	976.71	BRK LN C5
1275	863852.501	2031152.439	976.70	BRK LN C5
1276	863864.251	2031123.762	976.12	TOE C5
1277	863858.669	2031101.063	974.85	TOE C5
1278	863853.155	2031077.732	973.15	TOE C5
1279	863846.243	2031050.481	970.78	TOE C5
1280	863840.346	2031025.880	968.68	TOE C5
1281	863834.343	2031002.125	966.73	TOE C5
1282	863828.342	2030977.528	964.72	TOE C5
1283	863822.468	2030953.486	962.39	TOE C5
1284	863813.778	2030921.926	960.29	TOE C5
1285	863795.970	2030922.993	959.89	TOE C5
1286	863804.384	2030958.045	962.37	BRK LN C5
1287	863810.067	2030982.248	964.55	BRK LN C5
1288	863816.408	2031006.737	966.84	BRK LN C5
1289	863821.943	2031031.254	968.89	BRK LN C5
1290	863828.114	2031055.603	970.79	BRK LN C5
1291	863835.209	2031083.247	973.13	BRK LN C5
1292	863840.936	2031105.669	974.86	BRK LN C5
1293	863861.565	2031189.202	976.67	BRK LN C5
1294	863881.035	2031189.253	976.68	BRK LN C5
1295	863880.953	2031239.732	976.62	BRK LN C5
1296	863864.940	2031239.734	976.30	BRK LN C5
1297	863865.604	2031285.618	976.30	BRK LN C5
1298	863881.051	2031285.712	976.43	BRK LN C5
1299	863881.128	2031341.032	976.48	BRK LN C5
1300	863865.669	2031341.282	976.21	BRK LN C5
1301	863865.764	2031389.327	976.33	BRK LN C5
1302	863881.071	2031388.603	976.69	BRK LN C5
1303	863881.104	2031441.577	976.62	BRK LN C5
1304	863865.649	2031441.408	976.46	BRK LN C5

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1305	863865.746	2031489.322	976.24	BRK LN C5
1306	863880.936	2031488.971	976.76	BRK LN C5
1307	863880.707	2031538.621	976.55	BRK LN C5
1308	863865.280	2031538.475	976.17	BRK LN C5
1309	863865.768	2031582.085	976.30	BRK LN C5
1310	863881.069	2031581.573	976.66	BRK LN C5
1311	863880.977	2031626.755	976.49	BRK LN C5
1312	863865.458	2031626.586	976.05	BRK LN C5
1313	863865.340	2031675.957	976.13	BRK LN C5
1314	863880.715	2031675.705	976.51	BRK LN C5
1315	863880.731	2031718.363	976.43	BRK LN C5
1316	863865.238	2031718.265	976.05	BRK LN C5
1317	863865.194	2031764.509	976.06	BRK LN C5
1318	863880.659	2031764.548	976.44	BRK LN C5
1319	863880.707	2031810.955	976.50	BRK LN C5
1320	863865.409	2031810.644	976.17	BRK LN C5
1321	863865.328	2031862.282	976.25	BRK LN C5
1322	863880.683	2031861.952	976.68	BRK LN C5
1323	863880.589	2031909.138	976.68	BRK LN C5
1324	863865.041	2031909.378	976.15	BRK LN C5
1325	863864.802	2031964.218	976.05	BRK LN C5
1326	863880.316	2031963.831	976.28	BRK LN C5
1327	863865.320	2032027.943	976.23	BRK LN C5
1328	863880.189	2032050.813	976.38	GRD SHT C5
1329	863880.053	2031999.140	976.16	BRK LN C5
1330	863889.915	2032018.280	976.30	BRK LN C5
1331	863901.488	2032028.430	976.37	BRK LN C5
1332	863922.559	2032029.312	976.53	BRK LN C5
1333	863921.631	2032052.692	976.25	GRD SHT C5
1334	863969.896	2032052.823	976.10	GRD SHT C5
1335	863969.241	2032029.388	976.66	BRK LN C5
1336	864016.446	2032029.402	976.50	BRK LN C5
1337	864017.235	2032052.967	976.22	GRD SHT C5
1338	864073.760	2032052.806	976.20	GRD SHT C5
1339	864073.700	2032029.472	976.63	BRK LN C5
1340	864126.239	2032029.403	976.41	BRK LN C5
1341	864126.760	2032052.933	976.22	GRD SHT C5
1342	864174.915	2032052.842	976.16	GRD SHT C5
1343	864174.306	2032029.412	976.56	BRK LN C5
1344	864227.034	2032029.456	976.43	BRK LN C5
1345	864227.125	2032052.890	976.14	GRD SHT C5
1346	864275.713	2032052.504	976.19	GRD SHT C5
1347	864275.650	2032029.079	976.55	BRK LN C5
1348	864325.153	2032028.993	976.39	BRK LN C5
1349	864325.393	2032052.490	976.21	GRD SHT C5
1350	864378.225	2032052.473	976.31	GRD SHT C5
1351	864378.133	2032029.097	976.48	BRK LN C5
1352	864429.686	2032029.285	976.46	BRK LN C5
1353	864428.658	2032052.841	976.25	GRD SHT C5
1354	864483.288	2032052.712	976.30	GRD SHT C5
1355	864483.651	2032029.195	976.41	BRK LN C5
1356	864530.239	2032029.269	976.53	BRK LN C5
1357	864529.786	2032052.785	976.41	GRD SHT C5
1358	864581.665	2032052.668	976.37	GRD SHT C5

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1359	864581.512	2032029.335	976.31	BRK LN C5
1360	864646.451	2032029.568	976.62	BRK LN C5
1361	864647.246	2032052.994	976.32	GRD SHT C5
1362	864706.380	2032052.838	976.24	GRD SHT C5
1363	864706.458	2032029.504	976.51	BRK LN C5
1364	864757.602	2032029.449	976.67	BRK LN C5
1365	864757.540	2032052.988	976.16	GRD SHT C5
1366	864785.467	2032063.998	976.17	GRD SHT C5
1367	864802.428	2032083.454	975.86	GRD SHT C5
1368	864806.842	2032105.570	975.62	GRD SHT C5
1369	864806.687	2032128.608	975.38	BRK LN C5
1370	864808.783	2032156.162	974.26	BRK LN C5
1371	864807.467	2032203.787	970.30	BRK LN C5
1372	864807.690	2032246.642	967.48	BRK LN C5
1373	864807.163	2032280.488	965.98	BRK LN C5
1374	864836.619	2032278.973	966.33	BRK LN C5
1375	864836.701	2032252.442	966.91	BRK LN C5
1376	864836.614	2032229.125	968.42	BRK LN C5
1377	864836.453	2032204.203	970.30	BRK LN C5
1378	864836.449	2032178.774	972.43	BRK LN C5
1379	864836.754	2032153.966	974.23	BRK LN C5
1380	864836.029	2032128.036	975.43	BRK LN C5
1381	864836.831	2032104.306	975.73	GRD SHT C5
1382	864841.644	2032083.596	975.93	GRD SHT C5
1383	864858.066	2032064.377	976.35	GRD SHT C5
1384	864884.028	2032053.562	976.52	GRD SHT C5
1385	864868.096	2032029.517	976.23	BRK LN C5
1386	864810.392	2032029.416	976.80	BRK LN C5
1387	864919.020	2032029.869	976.55	BRK LN C5
1388	864919.170	2032053.293	976.44	GRD SHT C5
1389	864972.741	2032052.628	976.31	GRD SHT C5
1390	864972.394	2032029.322	976.35	BRK LN C5
1391	865024.560	2032029.474	976.43	BRK LN C5
1392	865024.527	2032052.893	976.42	GRD SHT C5
1393	865074.906	2032052.854	976.41	GRD SHT C5
1394	865074.942	2032029.384	976.53	BRK LN C5
1395	865126.134	2032029.418	976.47	BRK LN C5
1396	865126.134	2032052.954	976.40	GRD SHT C5
1397	865176.707	2032052.808	976.43	GRD SHT C5
1398	865176.646	2032029.435	976.58	BRK LN C5
1399	865225.583	2032029.297	976.46	BRK LN C5
1400	865226.408	2032052.732	976.24	GRD SHT C5
1401	865284.169	2032051.101	976.41	GRD SHT C5
1402	865276.134	2032029.029	976.55	BRK LN C5
1403	865305.876	2031999.344	976.38	BRK LN C5
1404	865322.353	2032016.138	976.38	GRD SHT C5
1405	865371.572	2031966.943	976.54	GRD SHT C5
1406	865354.468	2031950.773	976.52	BRK LN C5
1407	865396.070	2031908.589	976.72	BRK LN C5
1408	865418.927	2031914.598	976.28	GRD SHT C5
1409	865419.570	2031858.557	976.10	GRD SHT C5
1410	865396.356	2031858.204	976.52	BRK LN C5
1411	865396.239	2031808.956	976.26	BRK LN C5
1412	865419.437	2031809.131	976.17	GRD SHT C5

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1413	865396.364	2031758.887	976.57	BRK LN C5
1414	865419.855	2031758.849	976.31	GRD SHT C5
1415	865419.868	2031710.891	976.27	GRD SHT C5
1416	865396.446	2031710.493	976.58	BRK LN C5
1417	865396.357	2031660.665	976.42	BRK LN C5
1418	865419.739	2031661.711	976.26	GRD SHT C5
1419	865419.651	2031610.664	976.34	GRD SHT C5
1420	865396.358	2031610.861	976.47	BRK LN C5
1421	865396.478	2031561.599	976.34	BRK LN C5
1422	865419.924	2031563.385	976.47	GRD SHT C5
1423	865419.742	2031510.575	976.28	GRD SHT C5
1424	865396.406	2031511.765	976.37	BRK LN C5
1425	865396.743	2031460.734	976.36	BRK LN C5
1426	865419.770	2031460.359	976.33	GRD SHT C5
1427	865397.127	2031405.492	976.46	BRK LN C5
1428	865420.097	2031404.538	976.28	GRD SHT C5
1429	865421.044	2031359.307	976.21	GRD SHT C5
1430	865396.896	2031359.191	976.48	BRK LN C5
1431	865431.552	2031311.554	976.01	GRD SHT C5
1432	865397.314	2031308.469	976.45	BRK LN C5
1433	865397.211	2031251.543	976.28	BRK LN C5
1434	865446.554	2031250.904	975.99	GRD SHT C5
1435	865459.244	2031201.023	975.94	GRD SHT C5
1436	865397.121	2031224.730	976.51	BRK LN C5
1437	865391.044	2031205.213	976.64	BRK LN C5
1438	865379.503	2031183.067	976.59	BRK LN C5
1439	865459.153	2031201.138	975.94	GRD SHT C5
1440	865470.482	2031156.141	975.91	GRD SHT C5
1441	865480.059	2031118.977	976.46	BRK LN C5
1442	865462.729	2031111.764	976.68	TOE C5
1443	865472.500	2031074.414	976.27	TOE C5
1444	865488.366	2031078.015	976.52	BRK LN C5
1445	865494.825	2031053.900	974.66	BRK LN C5
1446	865478.630	2031050.107	974.60	TOE C5
1447	865113.502	2031927.556	944.75	TOE
1448	865129.451	2031926.905	948.65	BRK LN
1449	865138.012	2031926.794	948.80	BRK LN
1450	865150.268	2031925.602	945.67	TOE
1451	865148.628	2031879.918	945.70	TOE
1452	865137.803	2031878.686	948.99	BRK LN
1453	865129.485	2031878.368	949.04	BRK LN
1454	865117.992	2031877.155	945.15	TOE
1455	865119.081	2031827.745	945.13	TOE
1456	865129.400	2031828.956	949.92	BRK LN
1457	865137.592	2031829.488	949.92	BRK LN
1458	865148.663	2031829.143	945.89	TOE
1459	865149.145	2031784.273	946.19	TOE
1460	865137.840	2031783.921	950.68	BRK LN
1461	865129.535	2031784.007	950.63	BRK LN
1462	865116.134	2031783.012	945.74	TOE
1463	865114.897	2031734.702	946.63	TOE
1464	865129.149	2031734.703	951.77	BRK LN
1465	865137.320	2031734.979	951.88	BRK LN
1466	865152.627	2031734.444	946.71	TOE

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1467	865151.639	2031686.630	947.73	TOE
1468	865137.037	2031686.718	952.70	BRK LN
1469	865128.450	2031686.522	952.50	BRK LN
1470	865115.077	2031685.806	947.60	TOE
1471	865115.529	2031634.867	948.62	TOE
1472	865128.258	2031635.438	953.41	BRK LN
1473	865136.723	2031635.119	953.48	BRK LN
1474	865150.050	2031634.387	948.76	TOE
1475	865148.271	2031588.633	949.62	TOE
1476	865136.033	2031588.564	954.42	BRK LN
1477	865128.344	2031587.873	954.54	BRK LN
1478	865115.833	2031587.797	949.58	TOE
1479	865115.424	2031537.628	950.52	TOE
1480	865128.108	2031537.769	955.25	BRK LN
1481	865136.490	2031537.702	955.54	BRK LN
1482	865149.206	2031537.220	950.58	TOE
1483	865149.065	2031489.597	951.48	TOE
1484	865136.359	2031489.452	956.32	BRK LN
1485	865127.599	2031489.026	956.77	BRK LN
1486	865114.832	2031488.268	951.55	TOE
1487	865115.078	2031439.867	953.16	TOE
1488	865126.697	2031439.839	957.56	BRK LN
1489	865136.570	2031439.159	957.44	BRK LN
1490	865147.619	2031438.178	952.62	TOE
1491	865145.125	2031395.427	953.48	TOE
1492	865133.742	2031395.621	958.11	BRK LN
1493	865125.219	2031395.769	957.99	BRK LN
1494	865112.870	2031396.396	953.41	TOE
1495	865110.319	2031363.574	952.91	TOE
1496	865122.760	2031361.850	957.40	BRK LN
1497	865130.351	2031361.646	957.44	BRK LN
1498	865143.619	2031359.567	952.82	TOE
1499	865137.353	2031313.697	951.73	TOE
1500	865125.304	2031314.868	956.30	BRK LN
1501	865117.728	2031315.671	956.25	BRK LN
1502	865105.936	2031315.571	951.80	TOE
1503	865099.094	2031267.292	950.52	TOE
1504	865111.877	2031266.636	955.19	BRK LN
1505	865120.120	2031265.704	955.30	BRK LN
1506	865131.600	2031264.209	950.53	TOE
1507	865125.350	2031218.684	949.82	TOE
1508	865114.323	2031219.092	954.58	BRK LN
1509	865106.542	2031219.812	954.73	BRK LN
1510	865093.869	2031220.148	949.64	TOE
1511	865087.665	2031174.259	948.55	TOE
1512	865101.107	2031172.584	953.64	BRK LN
1513	865109.338	2031171.426	953.65	BRK LN
1514	865119.287	2031169.662	949.05	TOE
1515	865113.764	2031124.242	948.01	TOE
1516	865103.300	2031124.147	952.23	BRK LN
1517	865094.294	2031124.939	952.42	BRK LN
1518	865081.553	2031126.884	947.53	TOE
1519	865076.183	2031078.615	946.67	TOE
1520	865088.415	2031077.226	951.39	BRK LN

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Pt. Number	Northing	Easting	Elev	DESCRIPTION
1521	865097.406	2031076.485	951.35	BRK LN
1522	865106.626	2031075.354	947.10	TOE
1523	865101.805	2031027.432	945.92	TOE
1524	865091.644	2031029.251	950.57	BRK LN
1525	865082.848	2031030.347	950.62	BRK LN
1526	865069.878	2031031.476	945.58	TOE
1527	865063.817	2030984.064	945.03	TOE
1528	865075.591	2030981.931	949.49	BRK LN
1529	865085.335	2030980.743	949.57	BRK LN
1530	865094.612	2030979.898	945.26	TOE
1531	865088.291	2030930.124	945.04	TOE
1532	865079.197	2030930.868	948.77	BRK LN
1533	865068.608	2030931.624	948.55	BRK LN
1534	865057.214	2030932.372	944.27	TOE
1535	865054.573	2030884.688	944.20	TOE
1536	865062.986	2030883.213	947.70	BRK LN
1537	865074.202	2030882.399	947.85	BRK LN
1538	865081.458	2030883.141	944.83	TOE
1539	865074.007	2030883.862	947.94	BRK LN
1540	865079.973	2030859.706	945.32	TOE
1541	865071.374	2030849.364	947.10	BRK LN
1542	865061.166	2030846.116	947.25	BRK LN
1543	865044.754	2030841.118	944.37	TOE
1544	865234.846	2030624.963	1011.48	BRK TOPSOIL
1545	865175.302	2030619.746	1011.72	BRK TOPSOIL
1547	865109.965	2030614.757	1012.19	BRK TOPSOIL
1548	865026.539	2030612.624	1011.93	BRK TOPSOIL
1549	864945.254	2030622.372	1008.90	GS EDG TOPSOIL
1550	864865.347	2030627.817	1007.38	GS EDG TOPSOIL
1551	864781.106	2030632.566	1005.79	GS EDG TOPSOIL
1552	864700.428	2030637.545	1004.35	GS EDG TOPSOIL
1553	864622.107	2030644.764	1001.50	GS EDG TOPSOIL
1554	864539.035	2030656.711	998.18	GS EDG TOPSOIL
1555	864457.855	2030664.033	995.45	GS EDG TOPSOIL
1556	864369.109	2030670.65	993.33	GS EDG TOPSOIL
1557	864289.029	2030676.969	990.93	GS EDG TOPSOIL
1558	864203.072	2030683.157	989.11	GS EDG TOPSOIL
1559	864119.841	2030681.291	989.77	GS EDG TOPSOIL
1560	864037.458	2030683.441	988.43	GS EDG TOPSOIL
1561	863959.55	2030682.392	988.88	GS EDG TOPSOIL
1562	863883.216	2030683.2	988.91	GS EDG TOPSOIL
1563	863833.66	2030695.681	984.86	GS EDG TOPSOIL
1564	863787.75	2030726.818	974.52	GS EDG TOPSOIL
1565	863755.791	2030760.997	964.16	GS EDG TOPSOIL
1566	863811.552	2030770.572	963.38	TS TOPSOIL
1567	863859.155	2030730.471	975.96	BRK TOPSOIL
1568	863882.236	2030733.357	976.53	BRK TOPSOIL
1569	863952.302	2030731.671	976.26	GS TOPSOIL
1575	864039.651	2030732.785	975.68	GS TOPSOIL
1576	864111.892	2030734.031	975.46	GS TOPSOIL
1577	864200.625	2030734.974	974.89	GS TOPSOIL
1578	864277.871	2030734.016	975.49	GS TOPSOIL
1579	864279.749	2030710.329	982.90	GS TOPSOIL
1580	864359.464	2030705.474	985.29	GS TOPSOIL

Sherco Pond 3N
Final Topo As-Built Survey Summary

Pt. Number	Northing	Easting	Elev	DESCRIPTION
1581	864362.937	2030735.332	975.24	GS TOPSOIL
1582	864461.213	2030734.033	975.38	GS TOPSOIL
1583	864461.786	2030698.602	988.11	GS TOPSOIL
1584	864545.975	2030691.33	990.30	GS TOPSOIL
1585	864549.39	2030733.762	975.33	GS TOPSOIL
1586	864628.77	2030734.135	975.45	GS TOPSOIL
1587	864631.357	2030686.998	992.31	GS TOPSOIL
1588	864712.495	2030679.345	994.83	GS TOPSOIL
1589	864718.137	2030733.287	975.66	GS TOPSOIL
1590	864797.722	2030733.671	975.57	GS TOPSOIL
1591	864798.392	2030673.303	997.46	GS TOPSOIL
1592	864886.988	2030664.083	1000.02	GS TOPSOIL
1593	864893.186	2030728.063	977.02	GS TOPSOIL
1594	864969.096	2030730.049	976.07	GS TOPSOIL
1595	864971.26	2030688.932	990.21	GS TOPSOIL
1596	864970.98	2030655.596	1001.97	GS TOPSOIL
1597	865050.493	2030656.374	1001.21	GS TOPSOIL
1598	865050.751	2030699.382	985.90	GS TOPSOIL
1599	865052.682	2030732.914	975.45	GS TOPSOIL
1600	865110.223	2030734.947	974.85	GS TOPSOIL
1601	865110.545	2030677.856	994.04	GS TOPSOIL
1602	865168.289	2030675.256	995.32	GS TOPSOIL
1603	865232.871	2030667.164	998.35	GS TOPSOIL
1604	865274.133	2030624.004	1012.37	BRK TOPSOIL
1605	865308.142	2030664.654	1010.91	BRK TOPSOIL
1606	865335.382	2030700.045	1009.91	BRK TOPSOIL
1607	865350.395	2030767.643	1005.95	BRK TOPSOIL
1608	865328.013	2030769.312	998.93	TS TOPSOIL
1609	865299.397	2030714.437	998.74	TS TOPSOIL
1610	865249.767	2030681.779	996.14	TS TOPSOIL
1611	865278.922	2030709.956	996.88	BRK TOPSOIL
1612	865306.106	2030754.121	998.07	BRK TOPSOIL
1613	865327.661	2030809.39	998.17	BRK TOPSOIL
1614	865288.511	2030832.904	984.70	TS TOPSOIL
1615	865271.098	2030779.457	984.87	TS TOPSOIL
1616	865254.032	2030739.466	986.95	TS TOPSOIL
1617	865242.467	2030748.021	985.27	BRK TOPSOIL
1618	865257.415	2030786.533	984.55	BRK TOPSOIL
1619	865276.539	2030837.647	984.24	BRK TOPSOIL
1620	865227.926	2030873.031	969.95	BRK TOPSOIL
1621	865202.514	2030813.833	969.87	BRK TOPSOIL
1622	865180.277	2030783.199	971.28	BRK TOPSOIL
1623	865216.21	2030789.883	972.02	TS TOPSOIL
1624	865232.506	2030844.897	970.73	TS TOPSOIL
1625	865246.587	2030884.388	970.82	TS TOPSOIL
1626	865202.8	2030895.656	958.66	GS TOPSOIL
1627	865179.141	2030908.271	950.60	TS TOPSOIL
1628	865163.244	2030840.169	955.79	GS TOPSOIL
1629	865139.296	2030850.316	950.63	TS TOPSOIL
1633	865114.044	2030827.939	949.95	TS TOPSOIL
1641	865145.586	2030761.523	968.42	GS TOPSOIL
1642	865179.683	2030729.603	979.01	GS TOPSOIL
1643	865214.763	2030693.379	990.47	GS TOPSOIL
1648	865265.872	2030678.972	999.12	GS TOPSOIL

Sherco Pond 3N
Final Topo As-Built Survey Summary

Pt. Number	Northing	Easting	Elev	DESCRIPTION
1649	865247.427	2030668.778	998.53	GS TOPSOIL
1650	865263.066	2030638.708	1008.40	GS TOPSOIL
1651	865280.462	2030658.266	1007.30	GS TOPSOIL

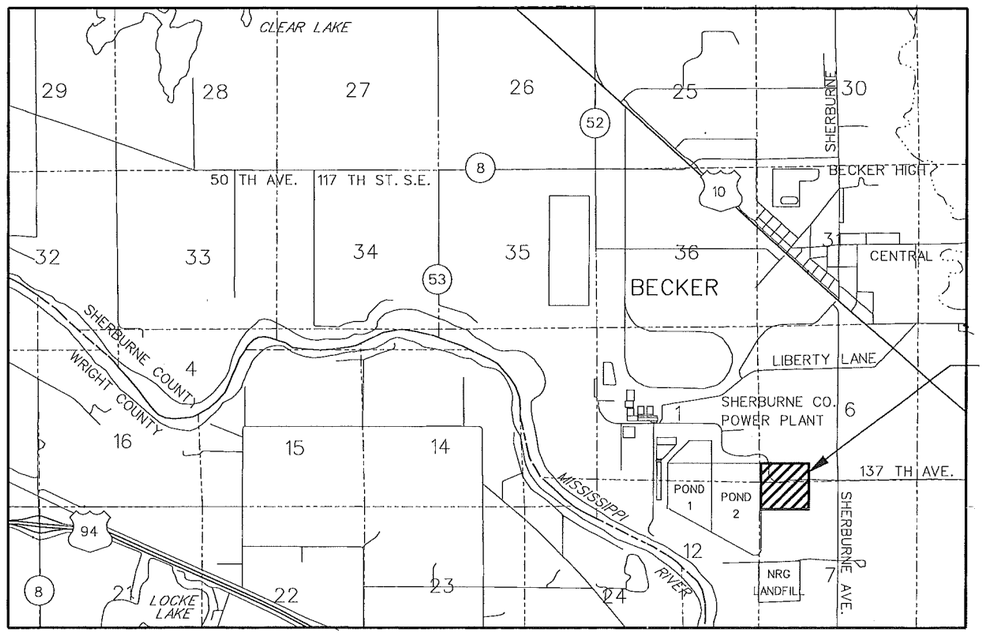
Appendix I

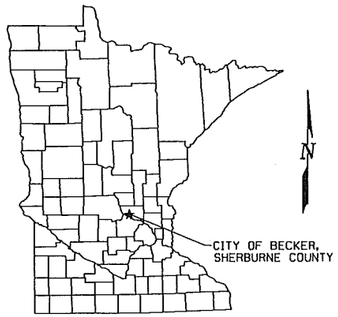
Record Drawings

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

RECORD DRAWINGS
SHERBURNE COUNTY (SHERCO) GENERATING PLANT
SCRUBBER SOLIDS POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER

SECTION 35, T34N, R29W
BECKER, MINNESOTA
NORTHERN STATES POWER COMPANY
dba XCEL ENERGY, INC.





0 1000 2000 3000 4000 5000
SCALE IN FEET

SITE LOCATION MAP

SHEET	DRAWING TITLE
NH-194808-01	INDEX SHEET
NH-194808-02	PLANT LAYOUT
NH-194808-03	SITE FEATURES AND PROJECT AREA
NH-194808-04	EXISTING CONDITIONS
NH-194808-05	GENERAL PROJECT LAYOUT
NH-194808-06	PROJECT CROSS SECTIONS
NH-194808-07	2004 PHASING CROSS SECTIONS
NH-194808-08	2004 PHASING CROSS SECTIONS
NH-194808-09	2005 PHASING CROSS SECTIONS
NH-194808-10	2005 PHASING CROSS SECTIONS
NH-194808-11	BASE LINER AND STOCKPILE PLAN
NH-194808-12	BASE LINER AND STOCKPILE SURVEY DATA
NH-194808-13	NW BASE LINER PLAN AND SURVEY DATA
NH-194808-14	UPSTREAM BARRIER PLAN
NH-194808-15	BASE LINER SECTIONS AND DETAILS
NH-194808-16	BASE LINER SECTIONS AND DETAILS
NH-194808-17	BASE LINER SECTIONS AND DETAILS
NH-194808-18	BASE LINER SECTIONS AND DETAILS
NH-194808-19	BASE LINER SECTIONS AND DETAILS
NH-194808-20	BASE LINER SECTIONS AND DETAILS
NH-194808-21	UPSTREAM BARRIER SECTIONS AND DETAILS
NH-194808-22	DECANT PIPING DETAILS
NH-194808-23	NW CORNER CONNECTION DETAILS
NH-194809-1	POND DISCHARGE MECH. SYSTEM - GENERAL ARRANGEMENT
NH-194809-2	POND DISCHARGE MECH. SYSTEM - PIPING & BUILDING DETAILS
NH-194809-3	POND DISCHARGE MECH. SYSTEM - ELEVATION
NH-194809-4	POND DISCHARGE MECH. SYSTEM - PIPE SUPPORT DETAILS
NH-194809-5	POND DISCHARGE MECH. SYSTEM - DETAILS
NH-194810-1	POND 3 NORTH, STRUCTURAL, GENERAL NOTES
NH-194810-2	POND 3 NORTH, GRADING AT DISCHARGE STRUCTURES
NH-194810-3	POND 3 NORTH, STRUCTURAL, PLAN & ELEVATION
NH-194810-4	POND 3 NORTH, STRUCTURAL, CONCRETE, PLANS, SECTIONS & DETAILS
NH-194810-5	POND 3 NORTH, STRUCTURAL, SECTIONS & DETAILS
NH-194810-6	POND 3 NORTH, STRUCTURAL, SECTIONS & DETAILS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schnake
Date 4/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO DATE 02/24/04
DGN'R DSS CHK'D JRM
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
INDEX SHEET

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲
SHT 01 OF 23 SHTS

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

COAL YARD

LIBERTY LANE

COOLING TOWERS

MAIN GUARD HOUSE

CONTRACTORS PARKING AREA

UNIT 3

UNIT 2

UNIT 1

ADMIN. PARKING

COOLING TOWERS

OPERATIONS & MAINTENANCE PARKING

COOLING TOWERS

SUBSTATION

RECYCLE BASIN

BOTTOM ASH POND

SHERBURNE AVE.

CONSTRUCTION TRAILER

WATER FILL STATION

137TH STREET

GREENHOUSES

POND NO. 1

POND NO. 2

GATE NO. 20, EQUIPMENT AND MATERIAL DELIVERY ONLY

MISSISSIPPI RIVER

FUTURE POND 3 SOUTH AREA

POND 3 NORTH

LEGEND

CONTRACTORS ACCESS ROUTE AND PARKING AREA

N

0 500 1000

SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schulke

Date: 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DSNR DSS	CHK'D JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
PLANT LAYOUT

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 02 OF 23 SHTS

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29 NOV 104

REVISIONS

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

N 867,500 | N 867,000 | N 866,500 | N 866,000 | N 865,500 | N 865,000 | 137TH STREET | N 864,500 | N 864,000 | N 863,500

E 2,033,500 | E 2,033,000 | E 2,032500 | E 2,032,000 | E 2,031,500 | E 2,031,000 | E 2,030,500 | E 2,030,000

N 862,000

SHERBURNE AVE.

SHERBURNE AVE.

NRG LANDFILL ENTRANCE ROAD

IRRIGATION WELL

BECKER SUB-STATION

SURVEY MONUMENT
N 866,120.88
E 2,033,096.20
Elev. 961.69

VISUAL SCREENING BERM

TREE PILE

CONSTRUCTION TRAILERS

SECURITY GATE No. 20
(HAUL TRUCKS,
DELIVERIES ONLY)

CONTRACTOR EQUIPMENT PARKING AND MAINTENANCE AREA

SURVEY MONUMENT
N 864,720.82
E 2,033,076.44
Elev. 961.32

UNDERGROUND ELECTRIC, CONTROL, AND WATER SUPPLY LINE, ABANDONED

SURVEY MONUMENT
N 863,276.26
E 2,033,082.00
Elev. 962.88

VISUAL SCREENING BERM

▲ SCREENING BERM LOCATION MOVED AROUND EXISTING BEND IN FENCE.

GRAVEL/BOULDER STOCKPILE AREA

GCL/GEOMEMBRANE STORAGE AREA

IRRIGATOR PIVOT POINT

TOPSOIL STOCKPILE AREA

UNDERGROUND ELECTRIC, CONTROL, AND WATER SUPPLY LINE

1 / 03 VISUAL SCREENING BERM
N.T.S.

10' | 6" TOPSOIL ON BERM | EX. FENCE | 3 | 1 | 40' | 10' | RANDOM FILL | STRIP TOPSOIL

▲ VISUAL SCREENING BERM MOVED 20' WEST FROM ORIGINAL LOCATION.

LPI PROPERTY

FENCE

IRRIGATOR PIVOT POINT

SHERCO PROPERTY LINE

REDUCED CONSTRUCTION LIMIT AREA BY NOT CREATING ORIGINALLY PLANNED STOCKPILES ON NORTH AND EAST SIDES.

POND 3 NORTH ~~AND STOCKPILE AREA~~

SURVEY MONUMENT
N 862,500.00
E 2,030,810.00
EL.960.43

TREE PILE

POND 3N DISCHARGE PIPE

LPI PROPERTY

SURVEY MONUMENT
N 866,700.00
E 2,030,592.72
EL. 964.85

SURVEY MONUMENT
N 866,700.00
E 2,030,200.00
EL. 964.77

UNDERGROUND UTILITIES

BLOWER HOUSE ELECTRICAL (BY OTHERS)

POND 2 DISCHARGE STRUCTURE

POND 2

SCRUBBER WATER RETURN PUMP HOUSE

WEATHER STATION

SURVEY MONUMENT
N 866,500.00
E 2,030,000.00
EL. 963.72

0 200 400
SCALE IN FEET

NOTES:

EXISTING POND 2 EMBANKMENT CONTOURS SHOWN AT 5 FOOT INTERVAL

LEGEND

- OHE — OVERHEAD ELECTRIC LINE
- DST — OVERHEAD DISTRIBUTION LINE
- TRANS — OVERHEAD TRANSMISSION LINE
- VISUAL SCREENING BERM
- FENCE
- CON LM — CONSTRUCTION LIMITS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schmidt
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DSNR DSS	CHK'D JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
SITE FEATURES AND PROJECT AREA

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV

SHT 03 OF 23 SHTS ▲

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	LJF	JRM

REDUCED CONSTRUCTION AREA LIMITS BY NOT CREATING ORIGINALLY PLANNED STOCKPILES ON NORTH AND EAST SIDES OF POND

APPROXIMATE EXTENT OF GRAVEL ROAD

APPROXIMATE EXTENT OF PAVED ROAD, SEE NOTE

APPROXIMATE EXTENTS OF PREVIOUSLY STRIPPED TOPSOIL

CON LIM

SSP2-W03 SSP2-W04 SSP2-W05 SSP2-W06

POND 2 DECANT STRUCTURE/PIPE

POND 2

LEGEND

- EXISTING CONTOURS
- CON LIM — CONSTRUCTION LIMITS/TOPSOIL STRIPPING LIMITS
- SSP2-W04 — EXISTING POND 2 INCLINED DEWATERING WELL
- EXISTING TREES

NOTES:

SALVAGE AND STOCKPILE GRAVEL FROM EXISTING ROADS

EXISTING PAVED ROAD SECTION (9" THICK, 320' LENGTH, 24' WIDE) CONTAINS ASH MATERIAL IN PAVEMENT AND SUB BASE. REMOVE ALL PAVEMENT AND SOIL ABOVE EL. 963 AND PLACE IN POND NO.2 AS DIRECTED BY OWNER. REMOVE AND SEPERATELY DISPOSE OF SETTLEMENT PLATES.

REMAINING TREES/SHRUBS IN POND 3 AREA TO BE CLEARED AND GRUBBED, PLACE IN TREE PILE(S) SHOWN ON SHEET 3.

▲ REMOVED EXISTING PAVED ROAD TO EL. 961.5, 40' WIDE.

0 100 200
SCALE IN FEET

EXISTING TOPOGRAPHY PROVIDED BY:
MARKHURD, INC. 06/01/2002

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schwartz
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DSNR DSS	CHKD JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
EXISTING CONDITIONS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 04 OF 23 SHTS

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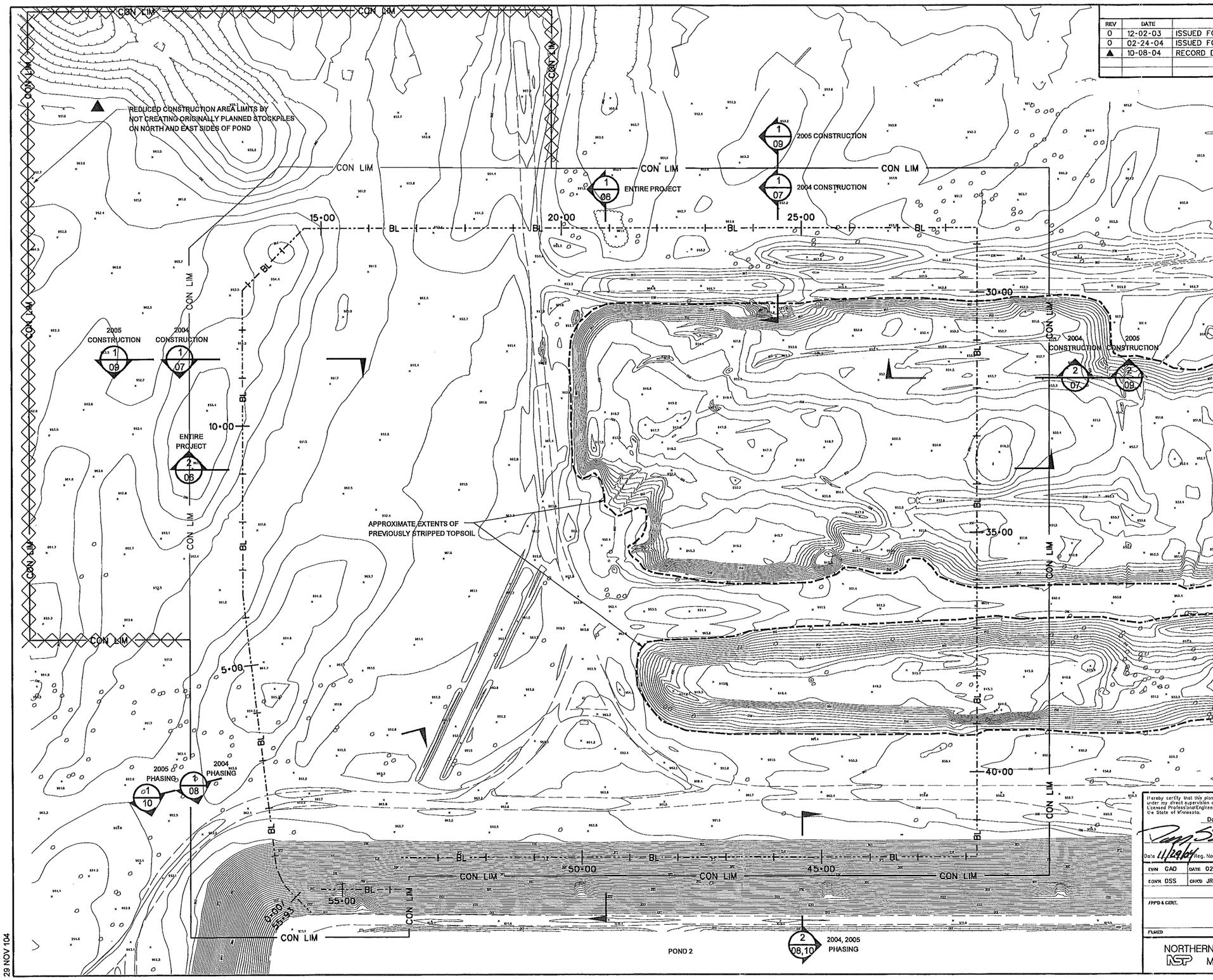
29 NOV 104



REVISIONS

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

LEGEND

- EXISTING CONTOURS
- BL — BASELINE
- CON LIM — CONSTRUCTION LIMITS/TOPSOIL STRIPPING LIMITS
- EXISTING TREES

SECTION IDENTIFIER (TYP.)
LIMITS OF SECTION CUT
SECTION REFERENCES (TYP.)
EG. SECTION IS LOCATED ON SHEET 06

SECTION VIEW CALLOUT

SECTION IDENTIFIER (TYP.)
SECTION: SOUTH DIKE
SECTION REFERENCES (TYP.)
EG. SECTION IS CALLED OUT ON SHEET 08

SECTION VIEW TITLE

0 100 200
SCALE IN FEET

EXISTING TOPOGRAPHY PROVIDED BY: MARKHURD, INC. 06/01/2002

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwake

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
EGNR DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION GENERAL PROJECT LAYOUT	
APP'D & CERT.			
FILMED			
NORTHERN STATES POWER COMPANY NSP Minneapolis Minnesota		DRAWING NO. NH-194808	REV
		SHT 05 OF 23 SHTS	▲

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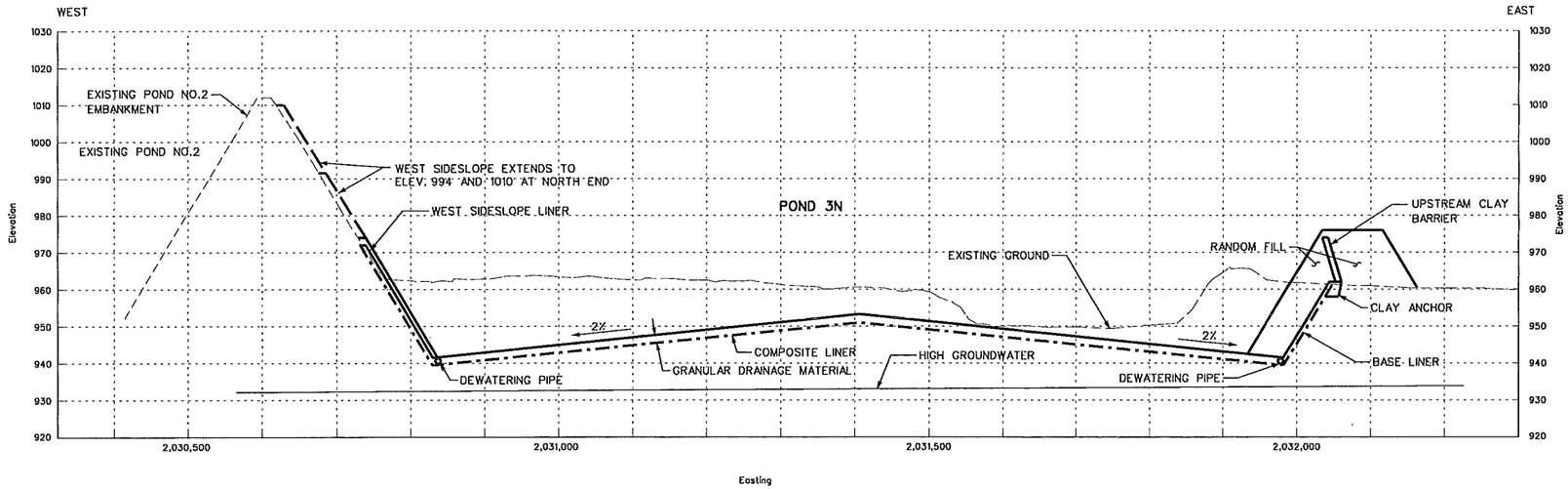
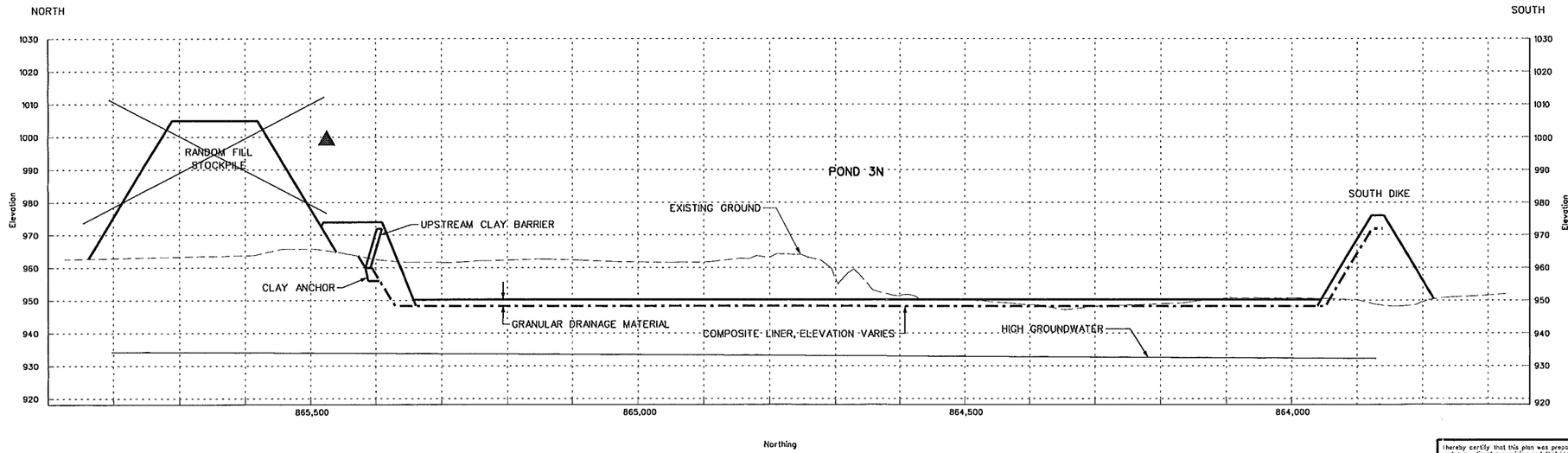
29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/05 PROJECT CROSS SECTION: EAST-WEST POND 3 NORTH



2/05 PROJECT CROSS SECTION: NORTH-SOUTH POND 3 NORTH

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schubke

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DGN'R DSS	CHK'D JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
PROJECT CROSS SECTIONS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 06 OF 23 SHTS

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHKD
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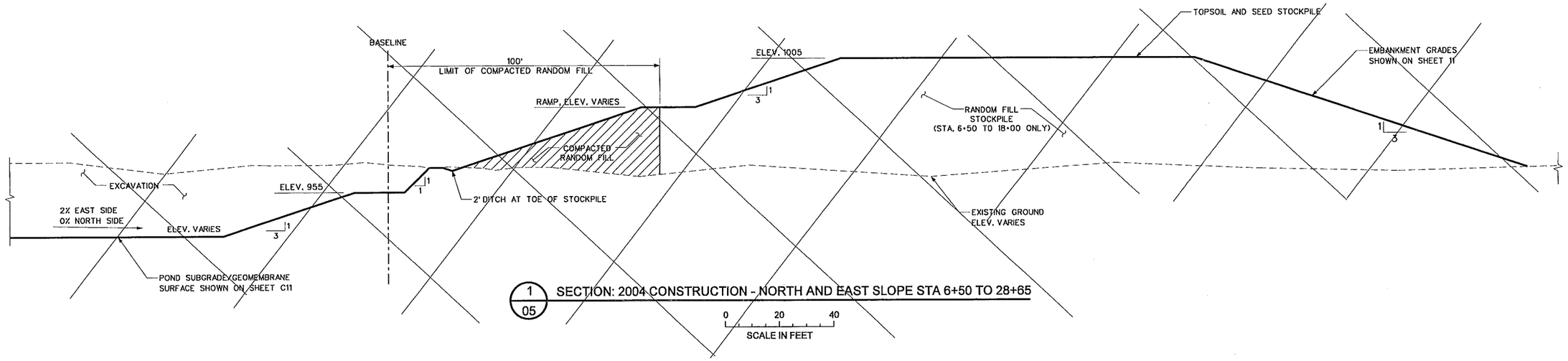
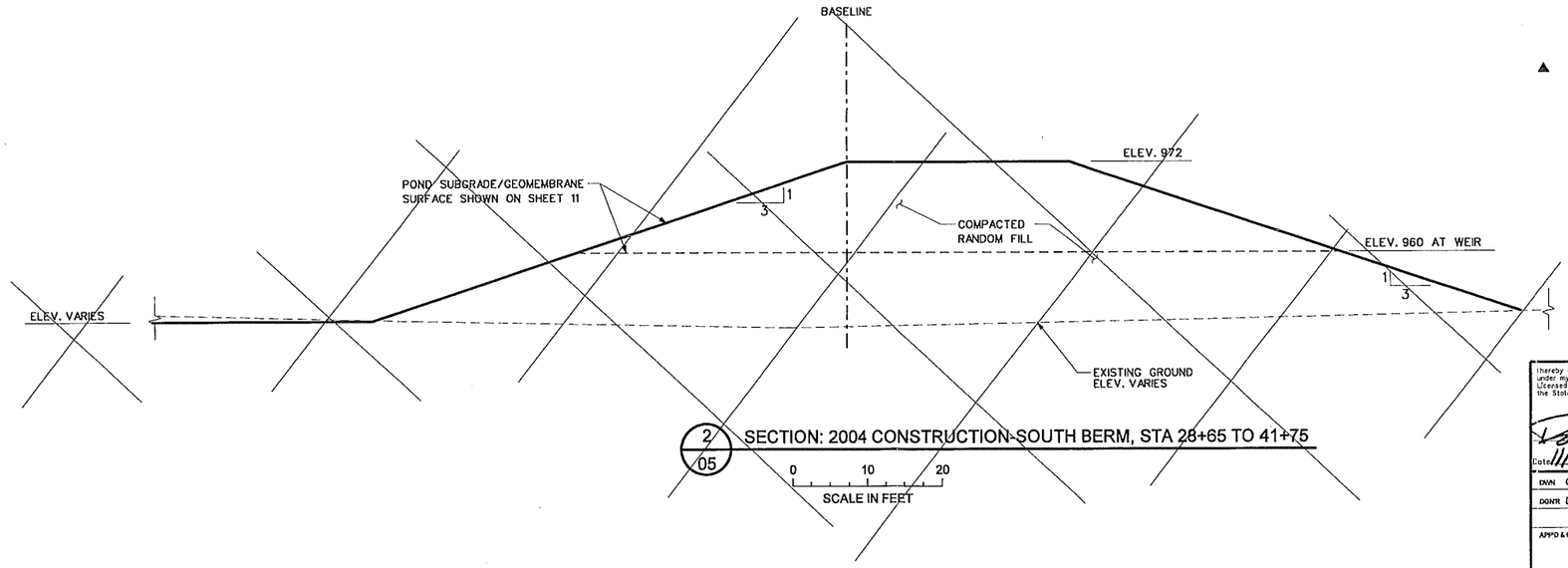
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/05 SECTION: 2004 CONSTRUCTION - NORTH AND EAST SLOPE STA 6+50 TO 28+65



2/05 SECTION: 2004 CONSTRUCTION-SOUTH BERM, STA 28+65 TO 41+75

▲ NOTE:

CONSTRUCTION WAS COMPLETED IN ONE YEAR.
PHASING DRAWINGS DO NOT APPLY.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schwake
Date 11/24/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DGNR DSS	CHKD JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
2004 PHASING CROSS SECTIONS

NORTHERN STATES POWER COMPANY
Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 07 OF 23 SHTS

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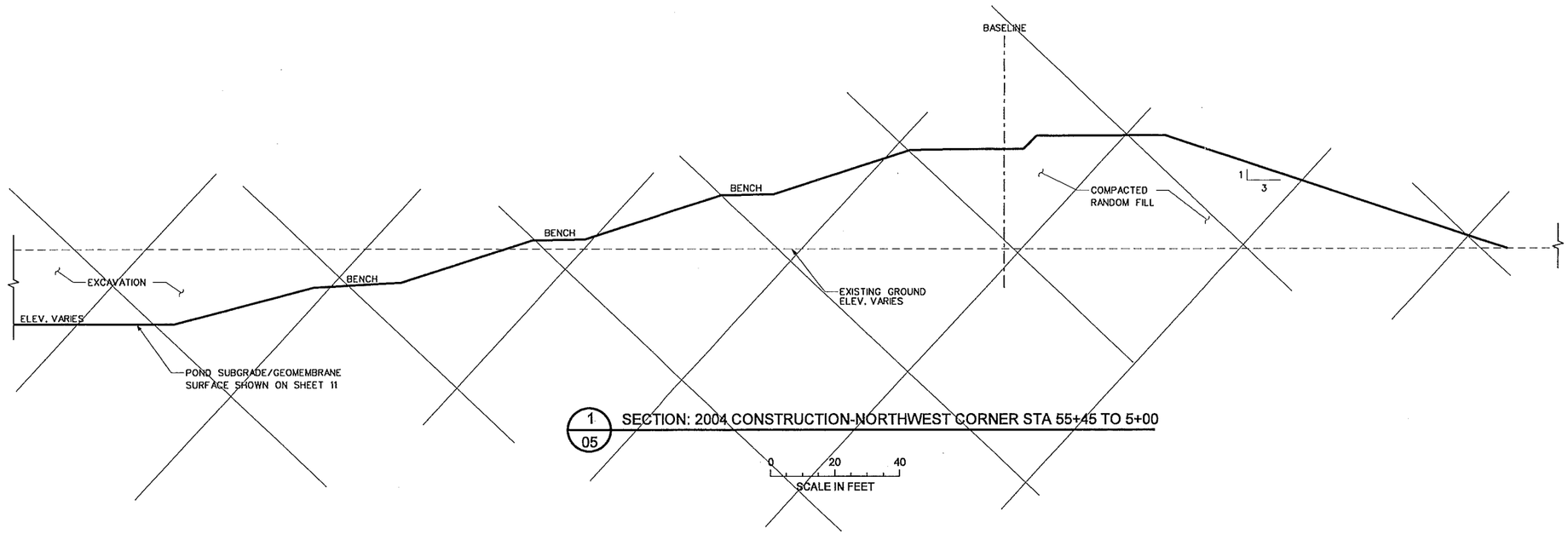
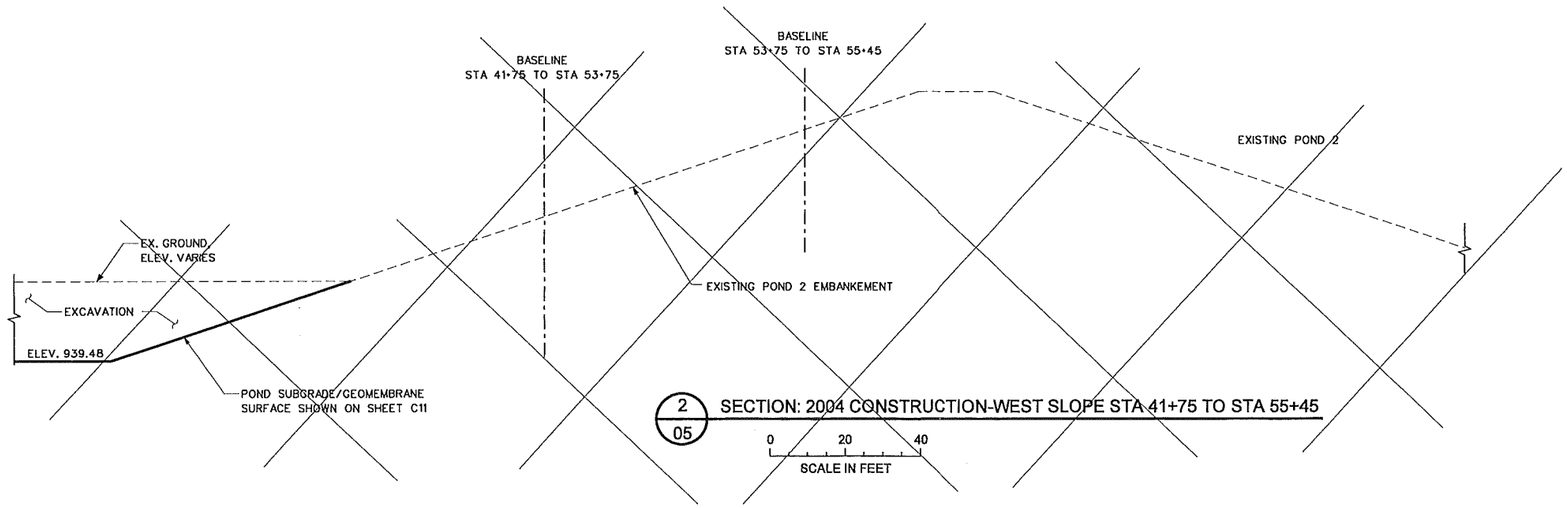
29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHKD
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/05 SECTION: 2004 CONSTRUCTION-NORTHWEST CORNER STA 55+45 TO 5+00



2/05 SECTION: 2004 CONSTRUCTION-WEST SLOPE STA 41+75 TO STA 55+45

▲ NOTE:

CONSTRUCTION WAS COMPLETED IN ONE YEAR.
PHASING DRAWINGS DO NOT APPLY.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schwake
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT
DGNR DSS	CHKD JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION 2004 PHASING CROSS SECTIONS
APP'D & CERT.		
FILMED		

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 08 OF 23 SHTS

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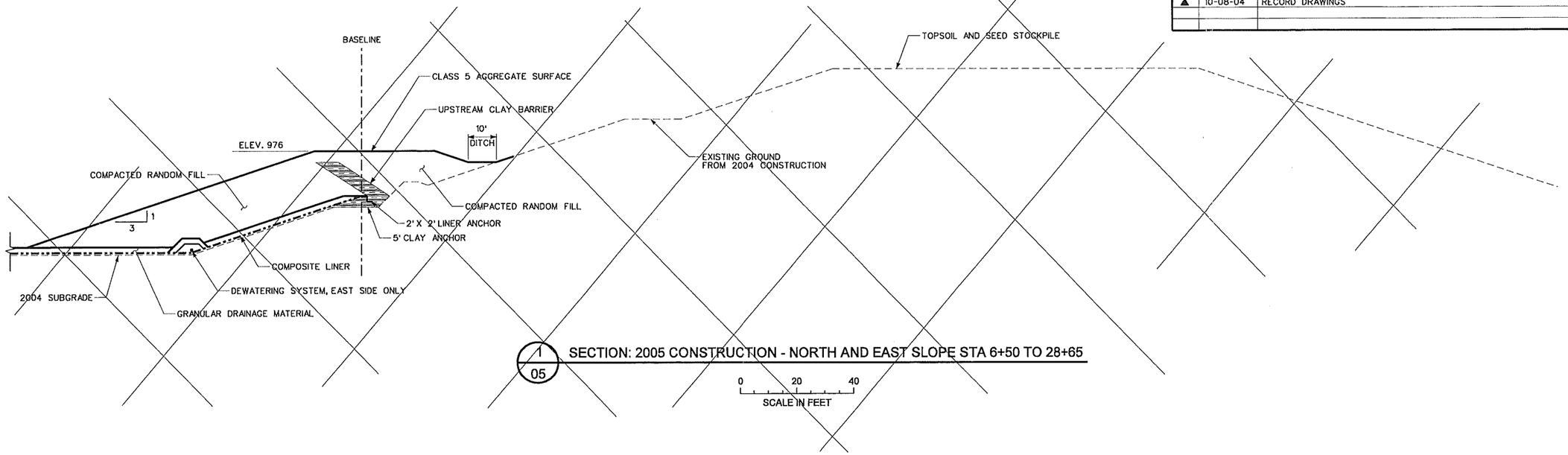
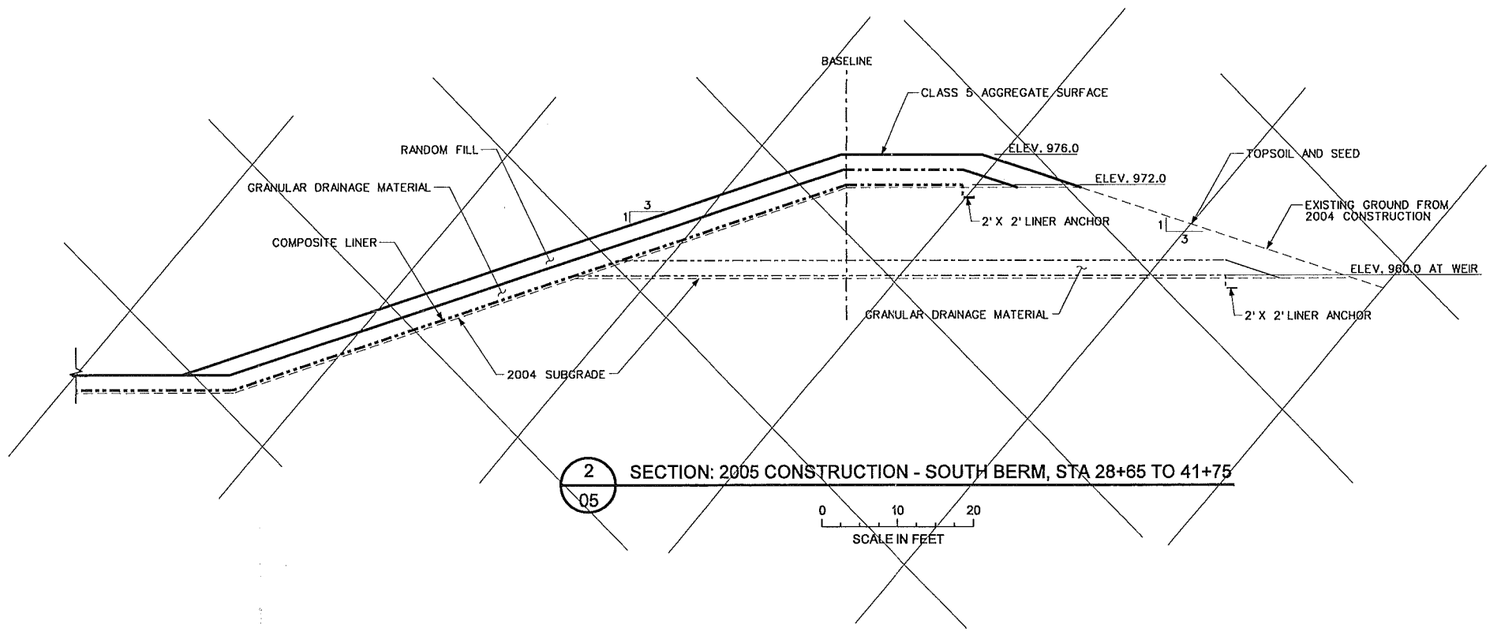
29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
0	12-02-03	ISSUED FOR BIDDING	DSS	GAO	JRM
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/05 SECTION: 2005 CONSTRUCTION - NORTH AND EAST SLOPE STA 6+50 TO 28+65

0 20 40
SCALE IN FEET



2/05 SECTION: 2005 CONSTRUCTION - SOUTH BERM, STA 28+65 TO 41+75

0 10 20
SCALE IN FEET

▲ NOTE:

CONSTRUCTION WAS COMPLETED IN ONE YEAR.
PHASING DRAWINGS DO NOT APPLY.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schmitz
Date 11/8/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO DATE 02/24/04
DSNR DSS CHK'D JRM
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
2005 PHASING CROSS SECTIONS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲
SHT 09 OF 23 SHTS

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28 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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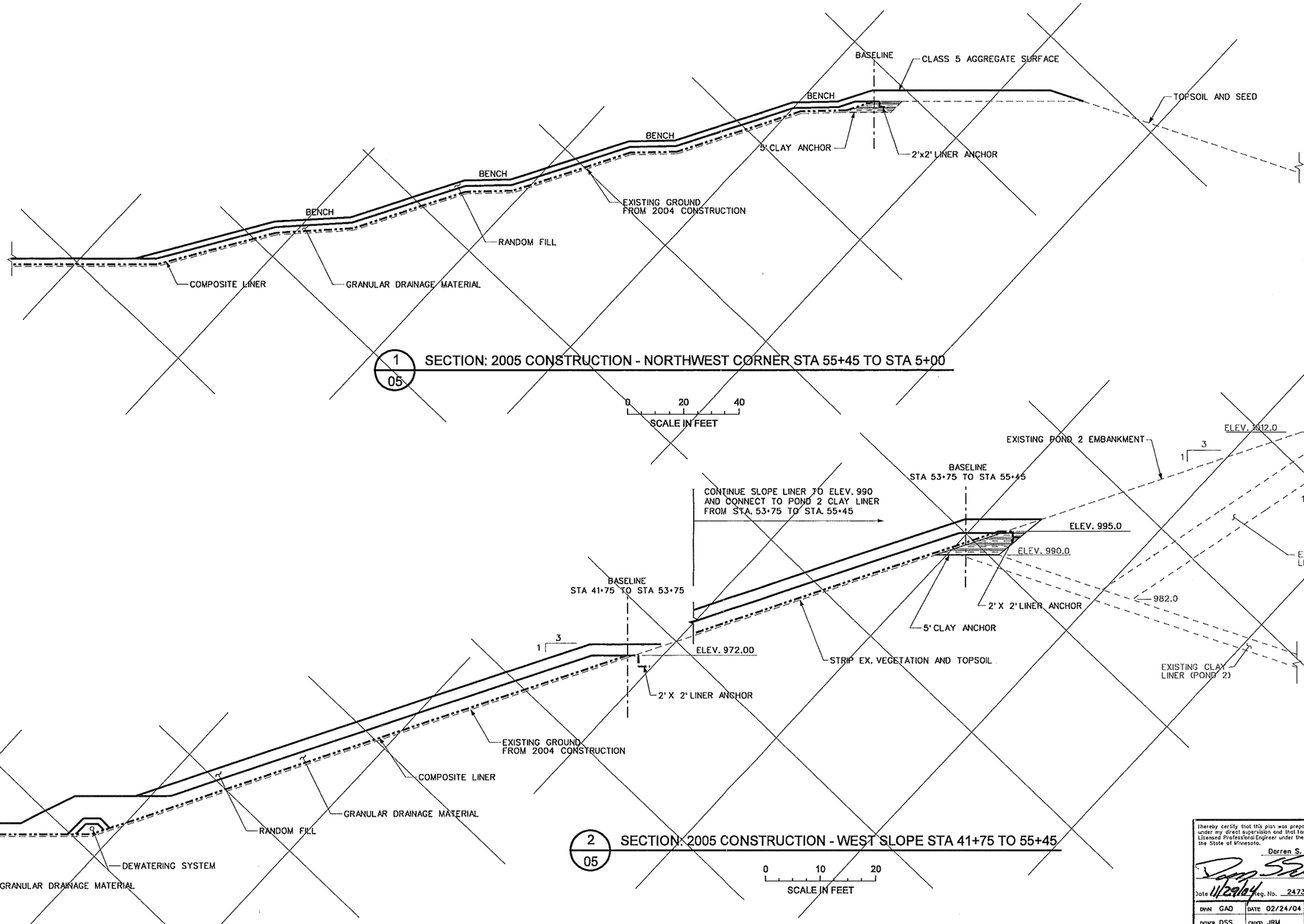
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/05 SECTION: 2005 CONSTRUCTION - NORTHWEST CORNER STA 55+45 TO STA 5+00

0 20 40
SCALE IN FEET

▲ NOTE:

CONSTRUCTION WAS COMPLETED IN ONE YEAR.
PHASING DRAWINGS DO NOT APPLY.

2/05 SECTION: 2005 CONSTRUCTION - WEST SLOPE STA 41+75 TO 55+45

0 10 20
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwaller

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DSN'R DSS	CHK'D JRM
APPD & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
2005 PHASING CROSS SECTIONS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 10 OF 23 SHTS

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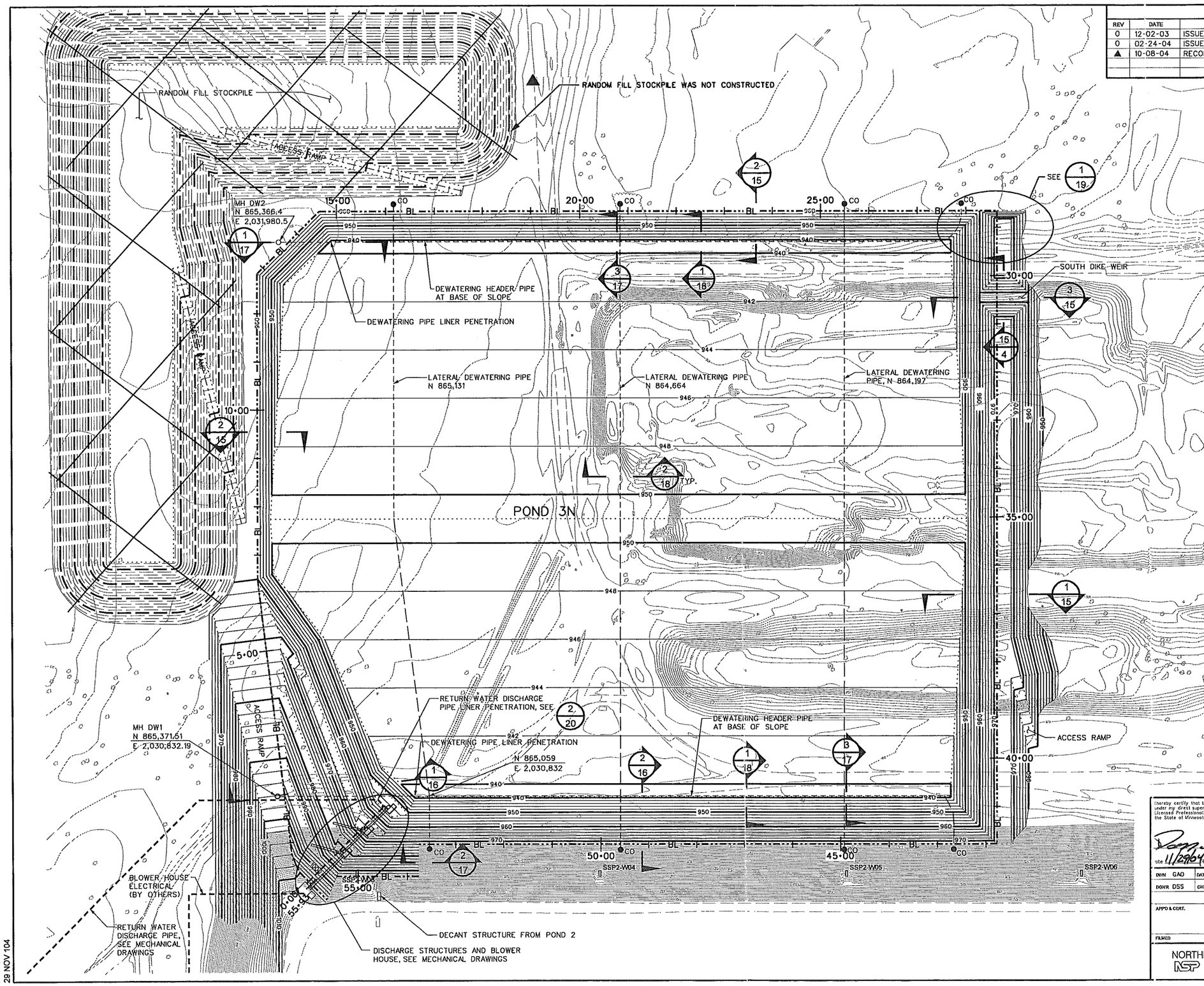

REVISIONS

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

LEGEND

- EXISTING CONTOURS
- 950 INDEX CONTOURS (PROPOSED)
- INTERMEDIATE CONTOURS (PROPOSED)
- BL BASELINE
- GRADE BREAKS
- 950 STOCKPILE INDEX CONTOURS (PROPOSED)
- STOCKPILE INTERMEDIATE CONTOURS (PROPOSED)
- DEWATERING PIPE
- DEWATERING MANHOLE
- CO DEWATERING PIPE CLEANOUTS
- SSP2-W04 EXISTING POND 2 INCLINED DEWATERING WELL

NOTES:

PROPOSED CONTOURS INSIDE OF BASELINE REPRESENT TOP OF GCL, PROPOSED CONTOURS OUTSIDE OF BASELINE REPRESENT EXCAVATION OR EMBANKMENT GRADE. REFER TO SECTIONS FOR DETAILS.

POND 3N TO BE CONSTRUCTED OVER 2 YEARS, REFER TO PHASING CROSS SECTIONS FOR SEQUENCE DETAILS.

PROTECT POND 2 DEWATERING WELLS DURING CONSTRUCTION. RE-GRADE GROUND SURFACE AROUND DEWATERING WELL SSP2-W03 AS NECESSARY TO PLACE CLAY, GCL, AND GEOMEMBRANE TO ELEVATION 994

CONSTRUCT RAMPS ON RANDOM FILL STOCKPILES AS SHOWN. RAMPS SHALL BE 20' WIDE WITH 8% MAX. SLOPE. ALTERNATE STOCKPILE CONFIGURATION AND/OR RAMP ALIGNMENTS MUST BE APPROVED BY OWNER.

STRIP TOPSOIL FROM STOCKPILE AREAS PRIOR TO PLACING STOCKPILE MATERIALS. REPLACE 6" TOPSOIL ON FINISHED STOCKPILE AND ESTABLISH TURF.

PLACE 6" CLASS 5 AGGREGRATE SURFACE COURSE ON DRIVING SURFACES AS SHOWN ON THE UPSTREAM BARRIER PLAN, SHEET 14

0 100 200
SCALE IN FEET

EXISTING TOPOGRAPHY PROVIDED BY:
MARKHURD, INC. 06/01/2002
CONTOUR INTERVAL = 1 FOOT

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schwake
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DGN'R DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION BASE LINER AND STOCKPILE PLAN	
APP'D & CERT.			
FILMED			

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲
SHT 11 OF 23 SHTS

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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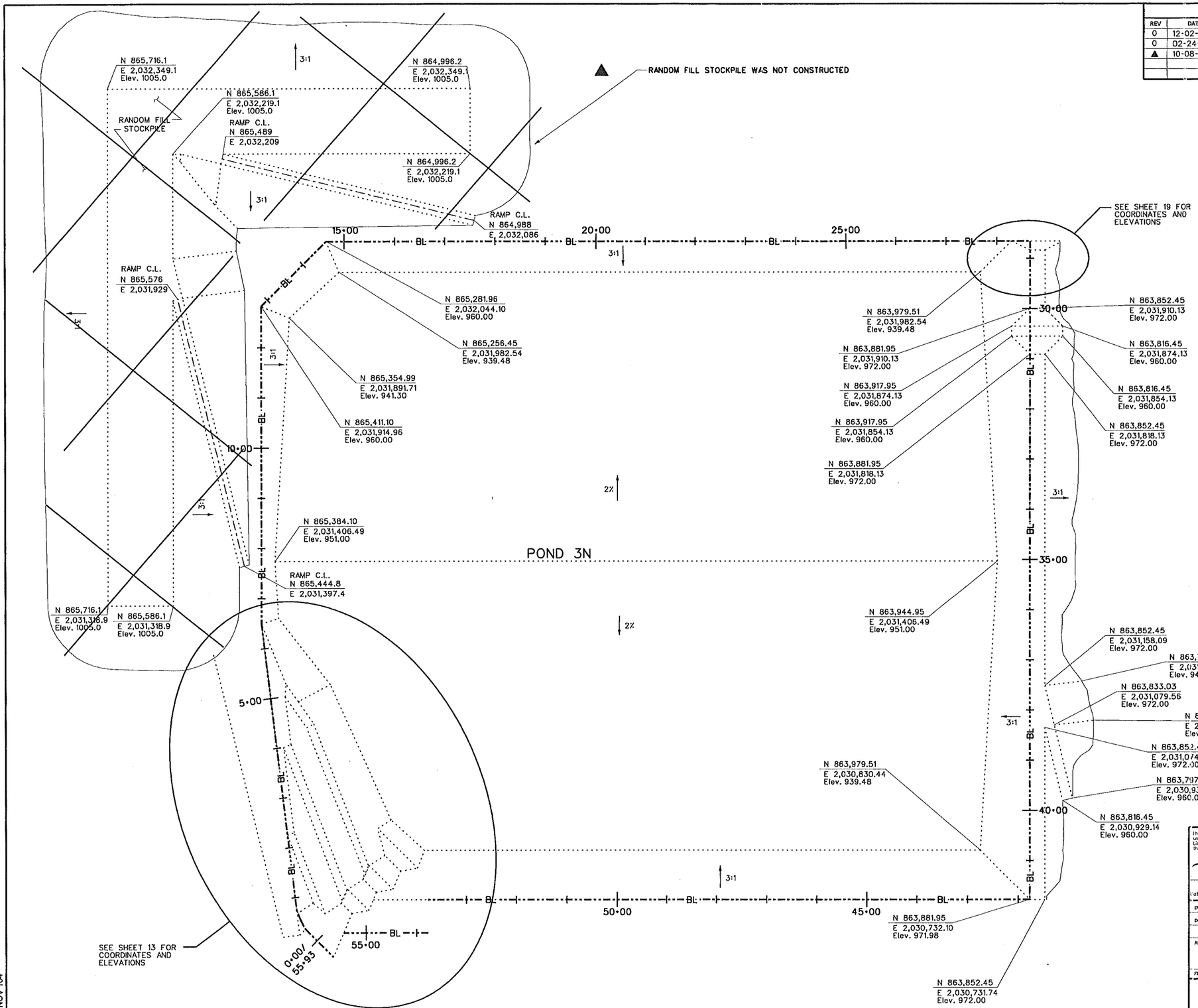
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



LEGEND

GRADE BREAKS

BL BASELINE

NOTES:

COORDINATES AND ELEVATIONS INSIDE BASELINE REPRESENT GCL/GEOMEMBRANE GRADES.

COORDINATES AND ELEVATIONS OUTSIDE BASELINE REPRESENT EXCAVATION OR EMBANKMENT GRADES.

REFER TO SECTIONS AND DETAILS SHEETS FOR LOCATIONS OF GRADE BREAKS AND BASELINER CLAY LIMITS.

POND 3N TO BE CONSTRUCTED OVER 2 YEARS, REFER TO PHASING CROSS SECTIONS FOR SEQUENCE DETAILS.

DEWATERING PIPES AND CLEANOUTS NOT SHOWN, SEE SHEET 11

ALTERNATE STOCKPILE CONFIGURATION MUST BE APPROVED BY OWNER.

0 100 200
SCALE IN FEET

Thereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwaker

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT
DGN'R DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION BASE LINER AND STOCKPILE SURVEY DATA
APP'D & CERT.		
FILMED		

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 12 OF 23 SHTS

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHKD
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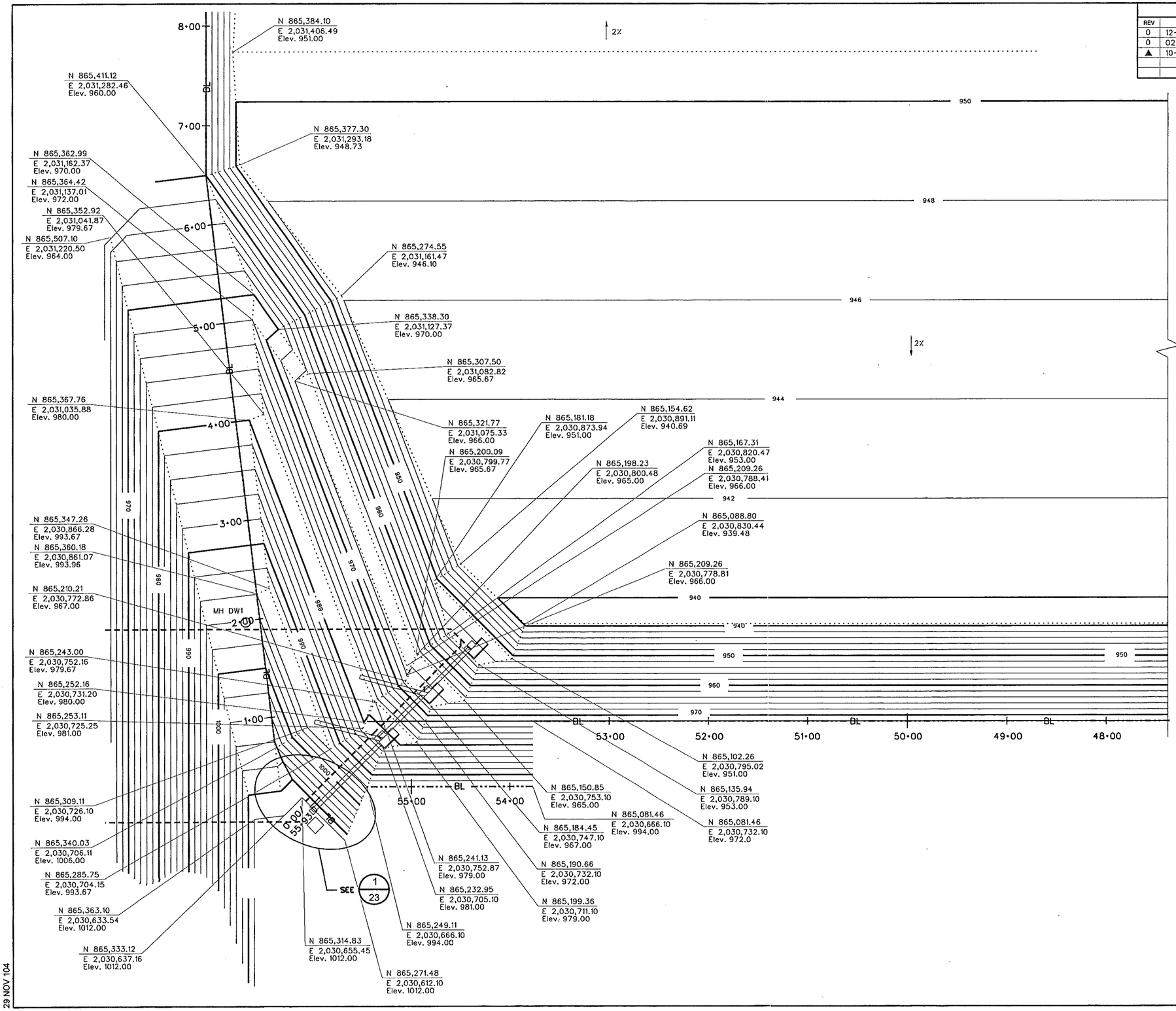
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-03-04	RECORD DRAWINGS	DSS	IJF	JRM



LEGEND

950 INDEX CONTOURS (PROPOSED)

INTERMEDIATE CONTOURS (PROPOSED)

BL BASELINE

GRADE BREAKS

NOTES:

COORDINATES AND ELEVATIONS INSIDE BASELINE REPRESENT GCL/GEOMEMBRANE GRADES.

COORDINATES AND ELEVATIONS OUTSIDE BASELINE REPRESENT EXCAVATION OR EMBANKMENT GRADES.

REFER TO SECTIONS AND DETAILS SHEETS FOR LOCATIONS OF GRADE BREAKS AND BASELINER CLAY LIMITS.

▲ POND 3N TO BE CONSTRUCTED OVER 2 YEARS, REFER TO PHASING CROSS SECTIONS FOR SEQUENCE DETAILS.

DEWATERING PIPES AND CLEANOUTS NOT SHOWN, SEE SHEET 11

0 100 200
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwake

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
FSNR DSS	CHKD JRM
APPD & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
NW BASE LINER PLAN AND SURVEY DATA

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV

SHT 13 OF 23 SHTS ▲

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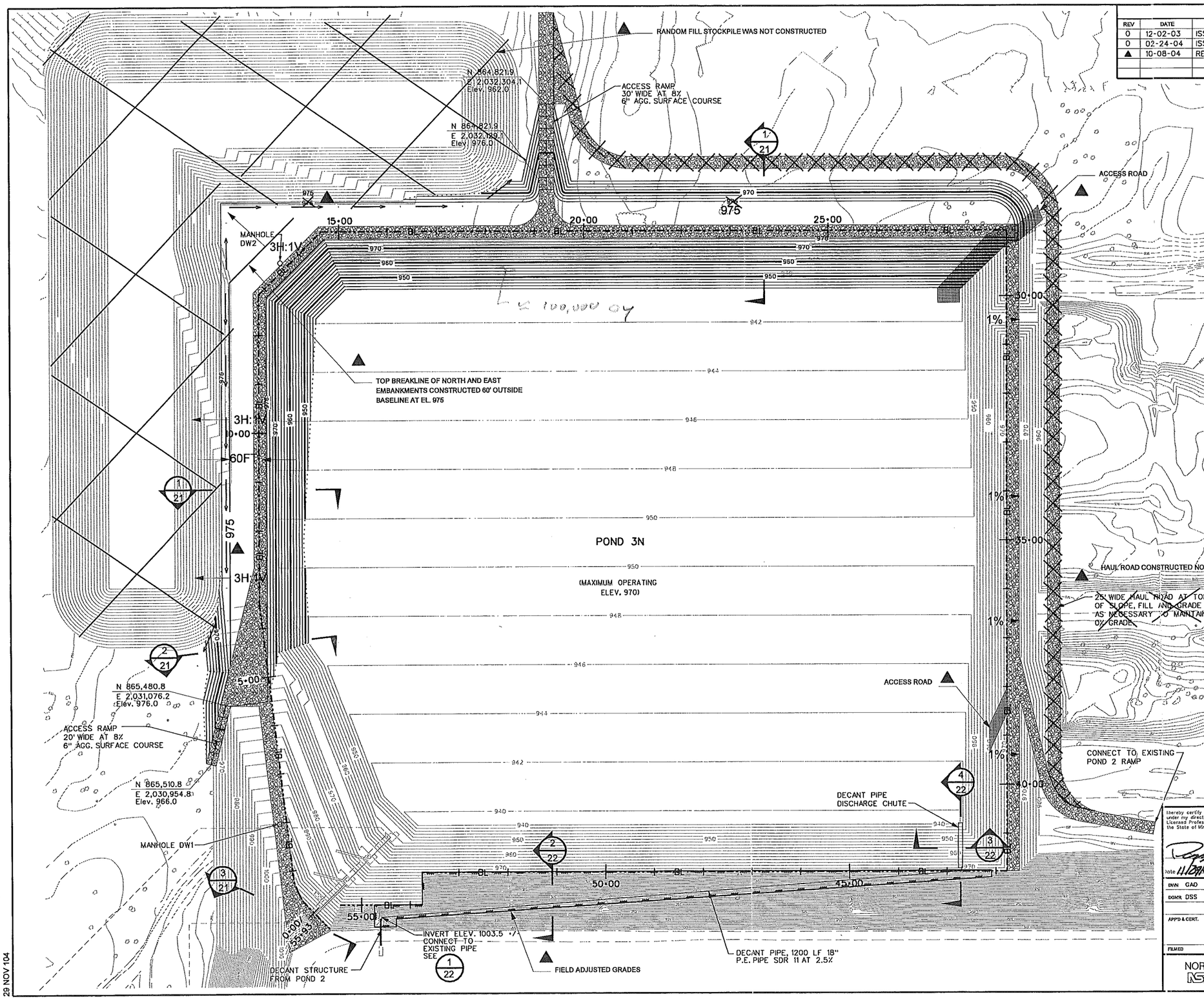

REVISIONS

REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

LEGEND

- EXISTING CONTOURS
- 950 INDEX CONTOURS (PROPOSED)
- INTERMEDIATE CONTOURS (PROPOSED)
- BREAKLINES
- BL BASELINE
- DITCH
- 6" CLASS 5 AGGREGATE SURFACING

NOTES:

UPSTREAM BARRIER TO BE CONSTRUCTED DURING 2005, REFER TO PHASING CROSS SECTIONS FOR DETAILS

PROPOSED CONTOURS REPRESENT FINISHED EMBANKMENT SLOPE, REFER TO SECTIONS AND DETAILS FOR CLAY BARRIER AND RANDOM FILL LIMITS.

▲ SEE APPENDIX H IN CONSTRUCTION DOCUMENTATION REPORT FOR AS-BUILT SURVEY DATA

0 100 200
SCALE IN FEET

EXISTING TOPOGRAPHY PROVIDED BY: MARKHURD, INC. 06/01/2002

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwalbe

Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DGN'R DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION UPSTREAM BARRIER PLAN	
APP'D & CERT.			
FILMED			

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 14 OF 23 SHTS

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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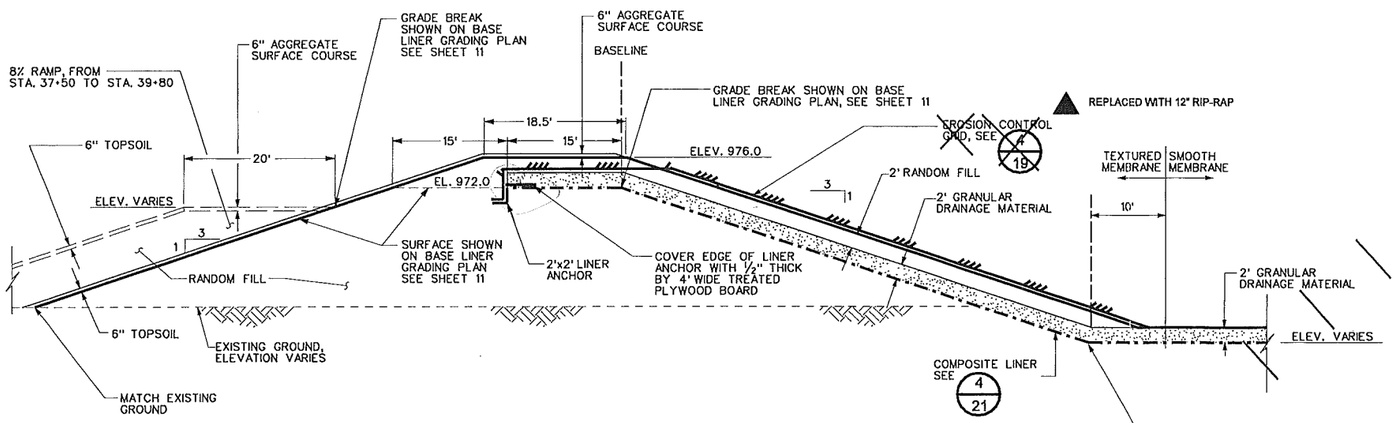
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/11 SECTION: SOUTH DIKE, STA. 28+65 TO STA. 41+75

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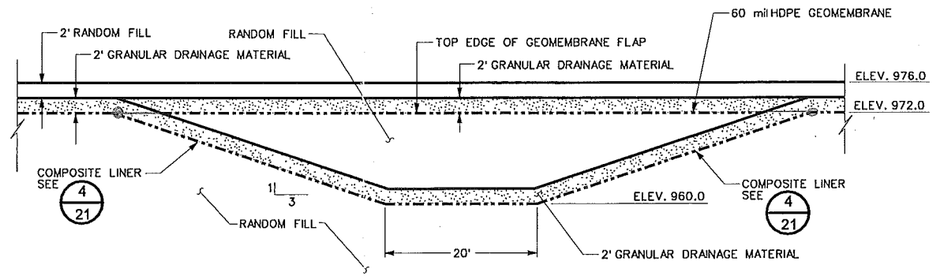
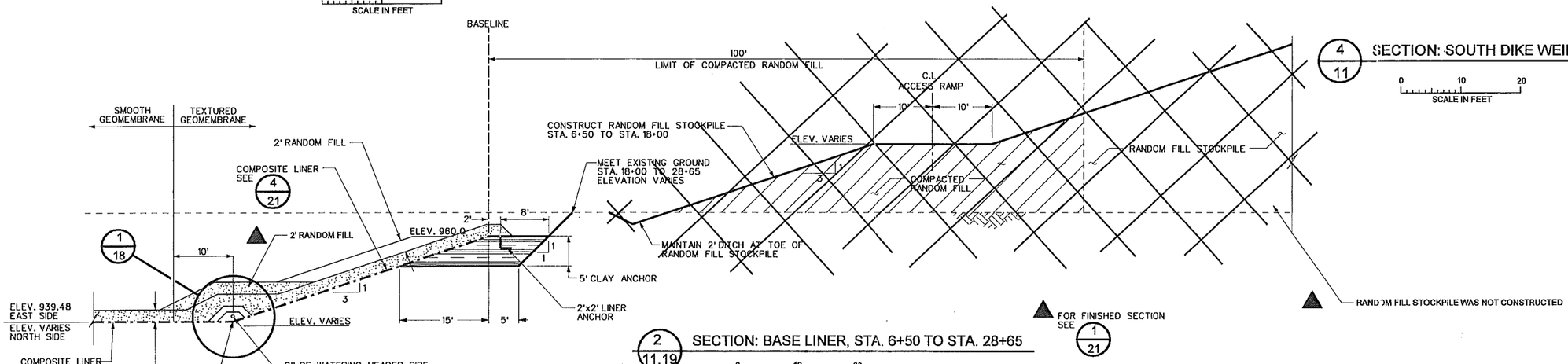
SCALE IN FEET



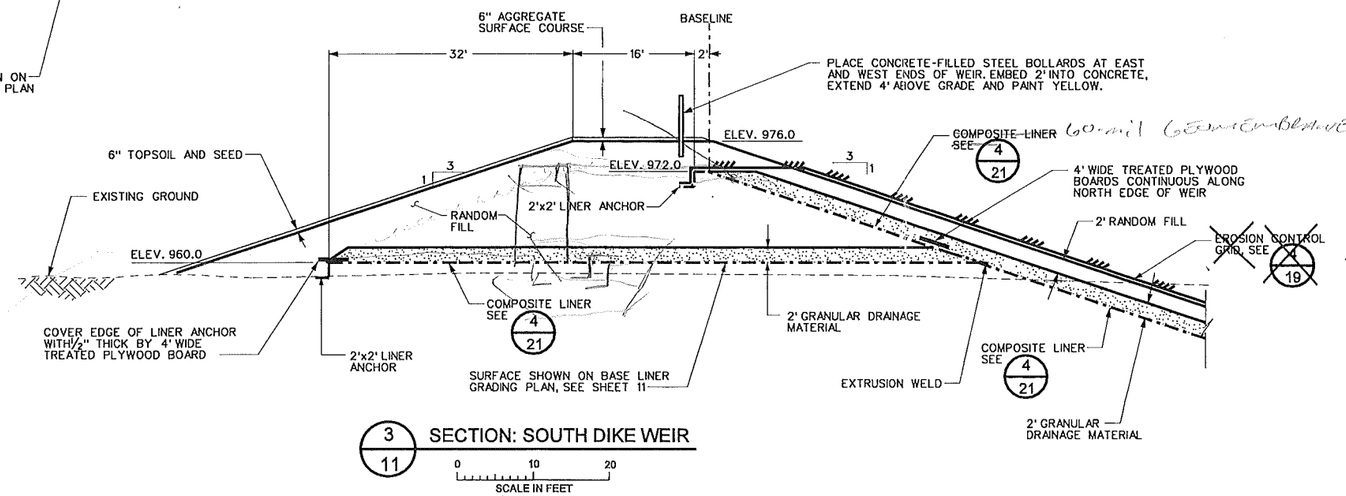
4/11 SECTION: SOUTH DIKE WEIR

0 10 20
SCALE IN FEET



2/11,19 SECTION: BASE LINER, STA. 6+50 TO STA. 28+65

0 10 20
SCALE IN FEET



3/11 SECTION: SOUTH DIKE WEIR

0 10 20
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Sothwell
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04
DSN'R DSS	CHK'D JRM
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
BASE LINER SECTIONS AND DETAILS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV ▲

SHT 15 OF 23 SHTS

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29 NOV 1104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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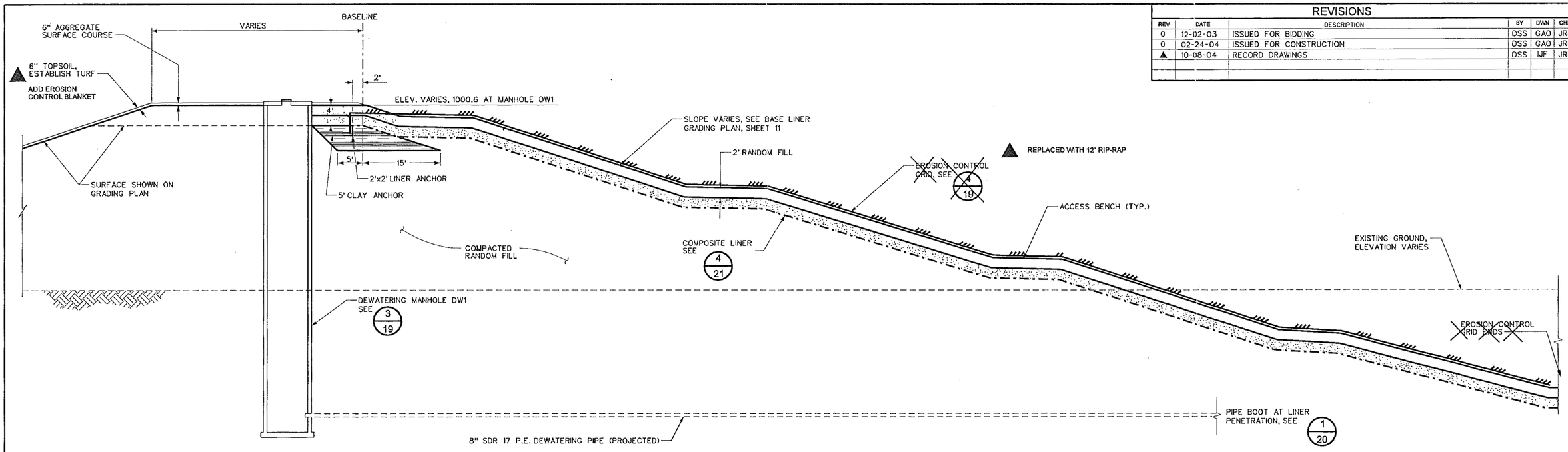
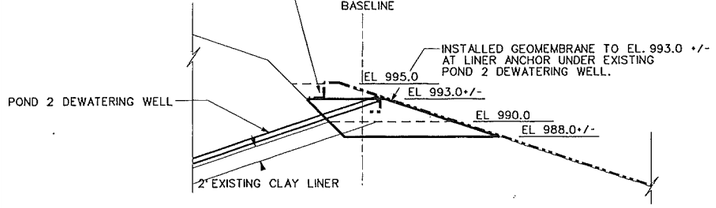
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



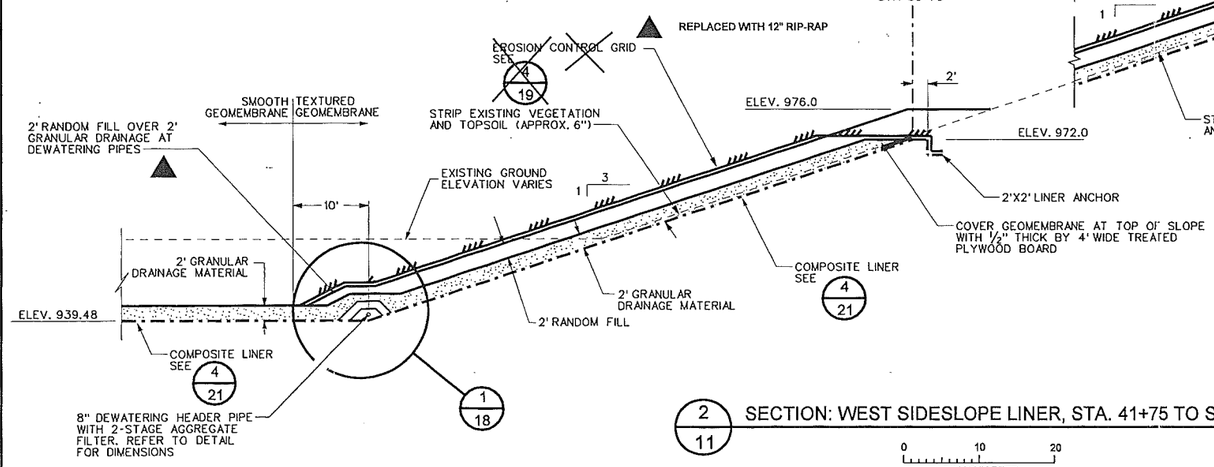
1/11 SECTION: NORTHWEST EMBANKMENT STA 55+45 TO STA ~~5+80~~ 6+50, AND DEWATERING MANHOLE DW1

0 10 20 SCALE IN FEET



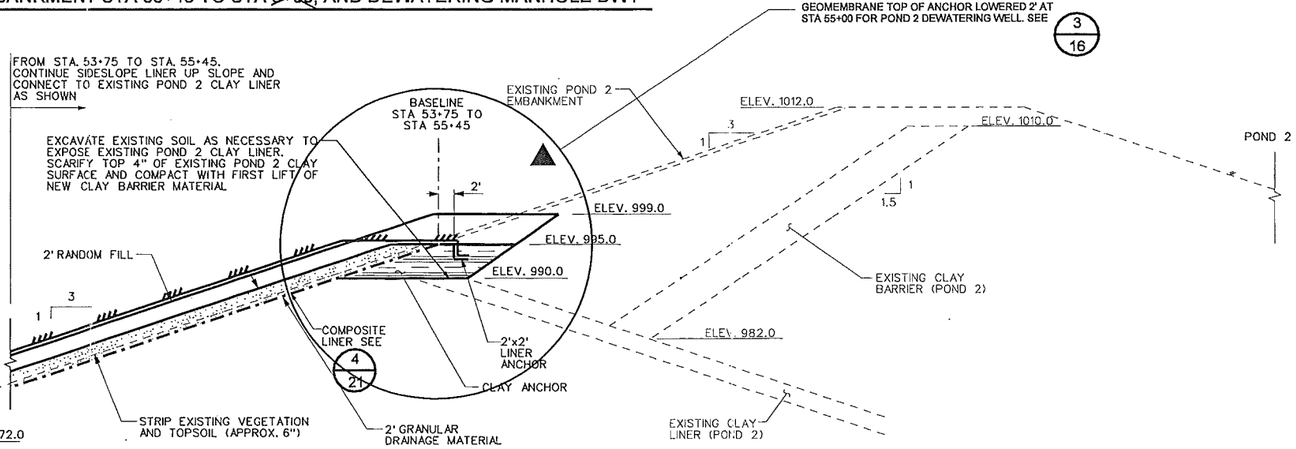
3/16 DETAIL: GEOMEMBRANE ANCHOR AT STA 55+00

0 10 20 SCALE IN FEET



2/11 SECTION: WEST SIDESLOPE LINER, STA. 41+75 TO STA. 55+45

0 10 20 SCALE IN FEET



I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schwartz
Date 11/29/04 Reg. No. 24730

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT	
DSGN'R DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION BASE LINER SECTIONS AND DETAILS	
APP'D & CERT.			
FILMED			
NORTHERN STATES POWER COMPANY NSP Minneapolis Minnesota		DRAWING NO. NH-194808	REV ▲
		SHT 16 OF 23 SHTS	

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29 NOV 104

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHKD
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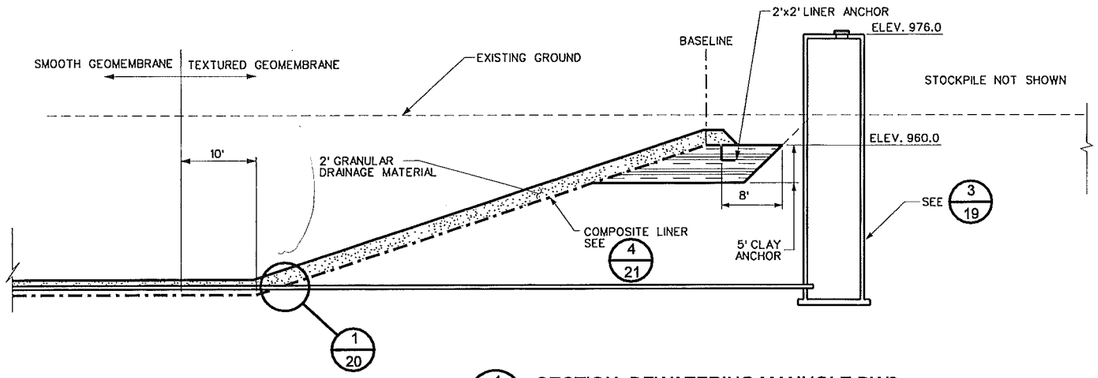
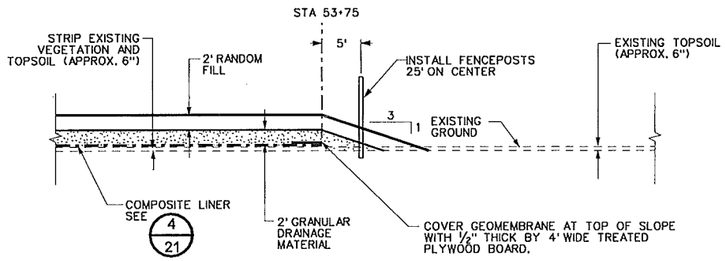
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



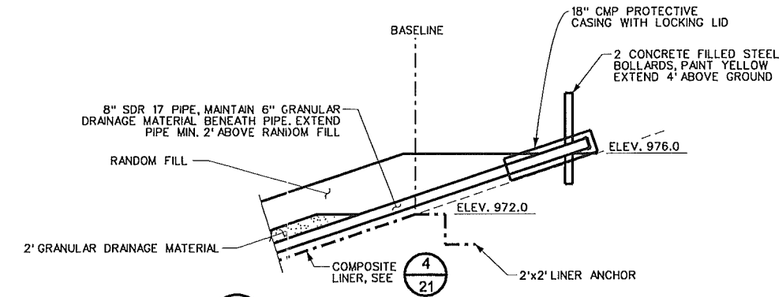
1/11 SECTION: DEWATERING MANHOLE DW2

SCALE IN FEET 0 10 20



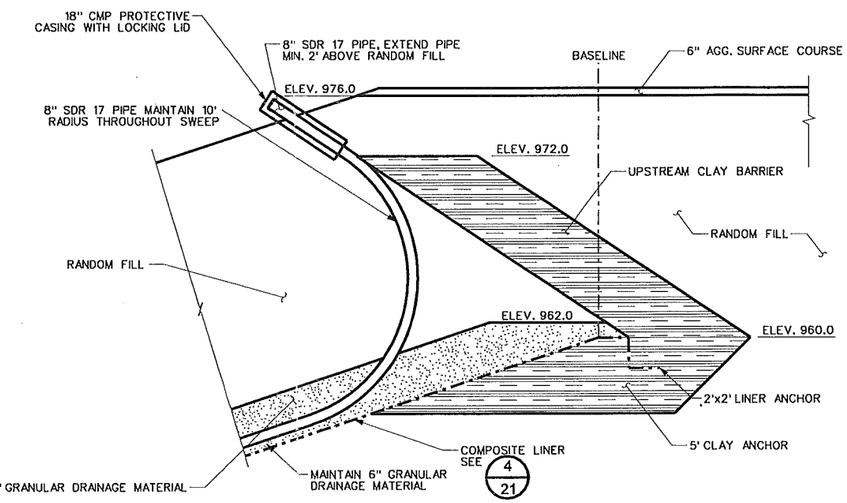
2/11 DETAIL: LINER EDGE

SCALE IN FEET 0 10 20



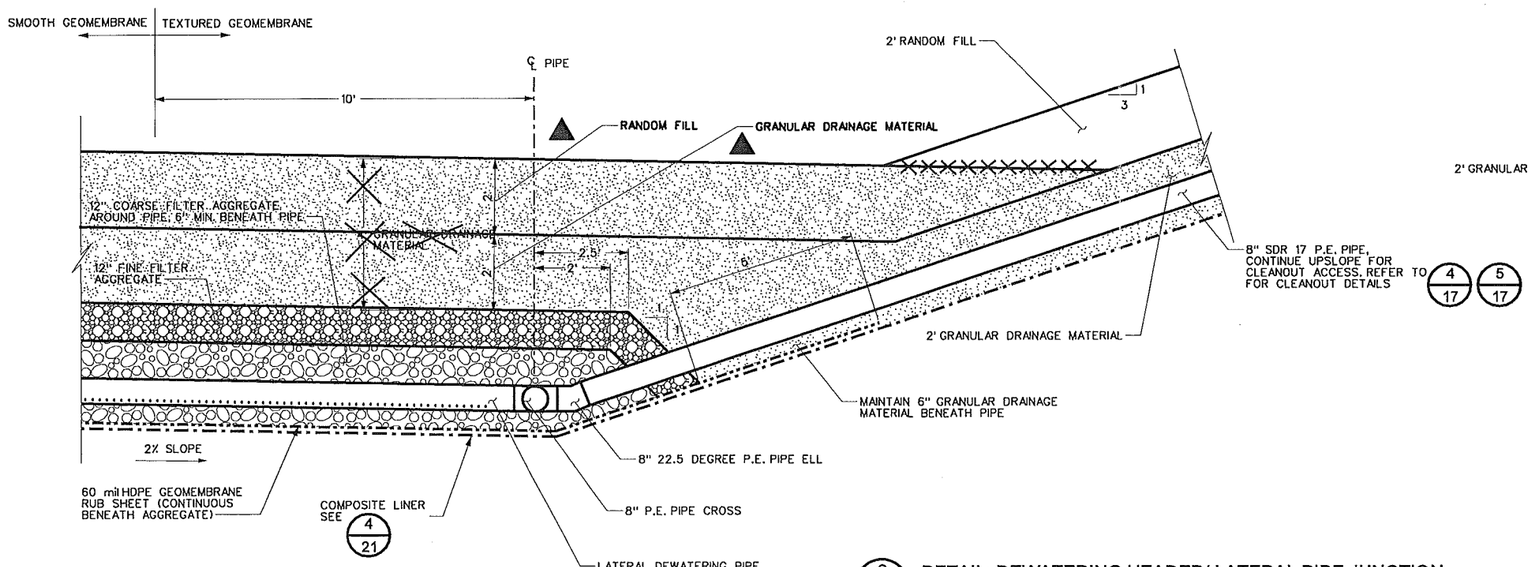
4/17 DETAIL: CLEANOUT TERMINATION WEST SIDE

SCALE IN FEET 0 5 10



5/17 DETAIL: CLEANOUT TERMINATION EAST SIDE

SCALE IN FEET 0 5 10



3/11 DETAIL: DEWATERING HEADER/ LATERAL PIPE JUNCTION

SCALE IN FEET 0 2 4

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Darren S. Schwahn

Date 11/29/04 Reg. No. 24730

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DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT
DGNR DSS	CHKD JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION BASE LINER SECTIONS AND DETAILS
APP'D & CERT.		
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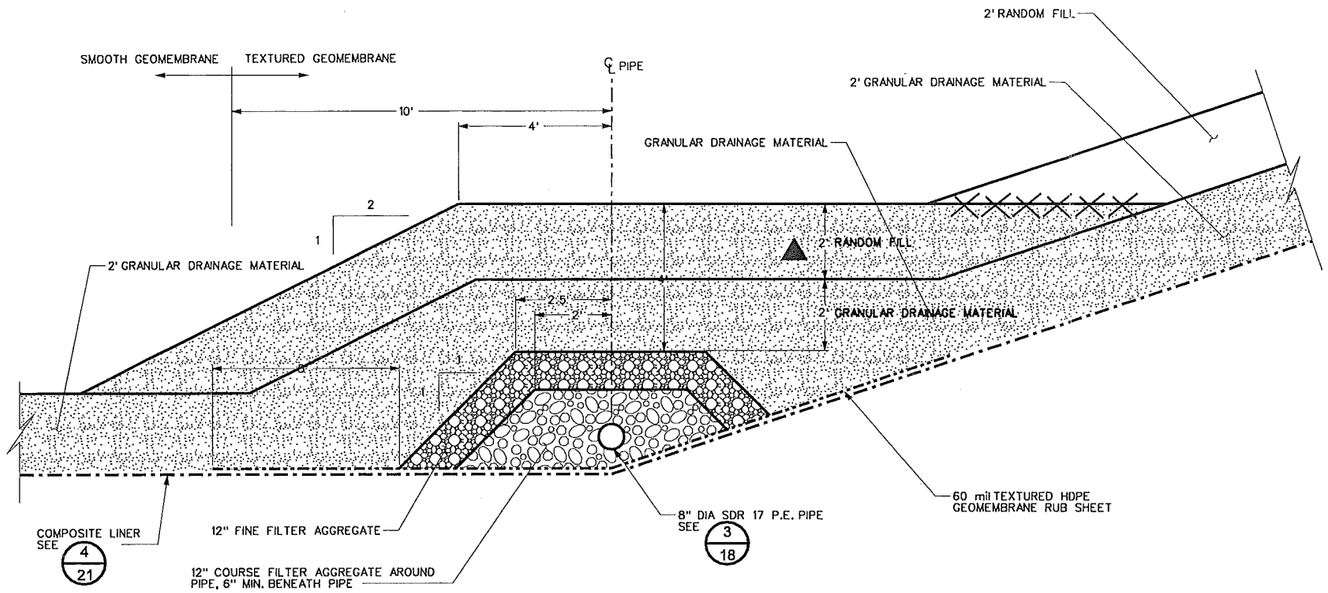
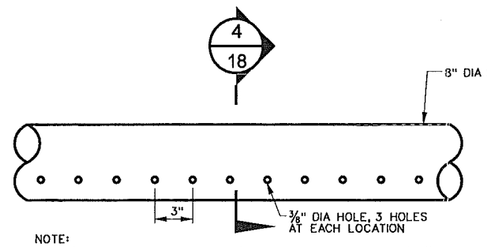
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM

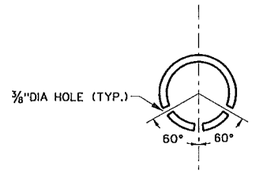


1 / 11,15,16 SECTION: DEWATERING HEADER PIPE

0 2 4
SCALE IN FEET

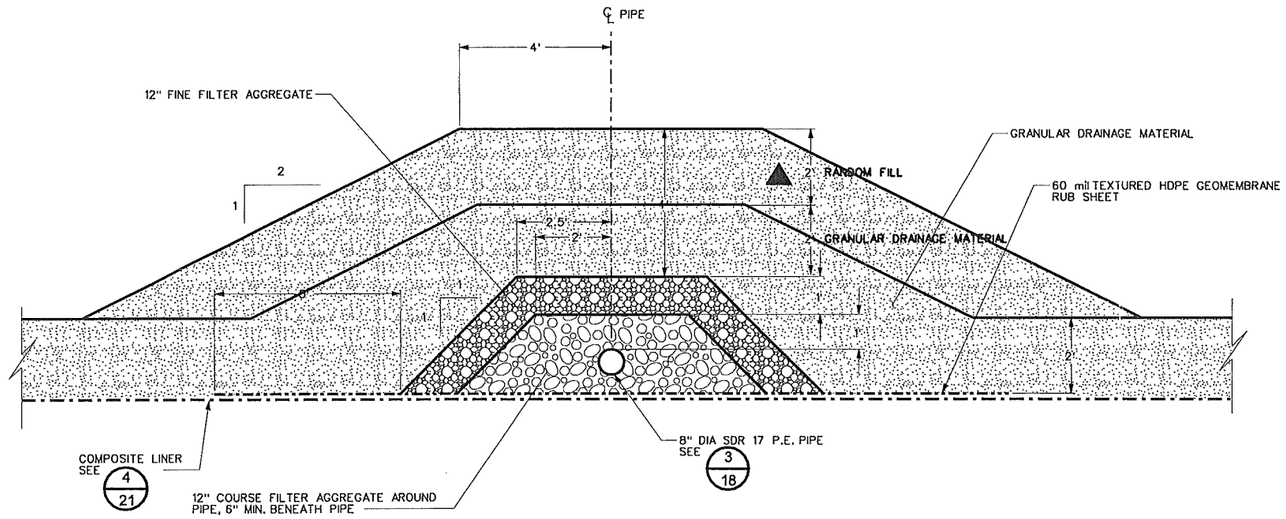


NOTE:
DO NOT PERFORATE PIPE WITHIN 1' OF THE ENDS OF THE PIPE. PERFORATIONS MUST BE FACTORY DRILLED. CLEAN SHAVINGS OUT OF PIPE PRIOR TO INSTALLATION.



3 / 18 DETAIL: PIPE PERFORATIONS
NOT TO SCALE

4 / 18 SECTION: PIPE PERFORATION
NOT TO SCALE



2 / 11 SECTION: LATERAL DEWATERING PIPE

0 2 4
SCALE IN FEET

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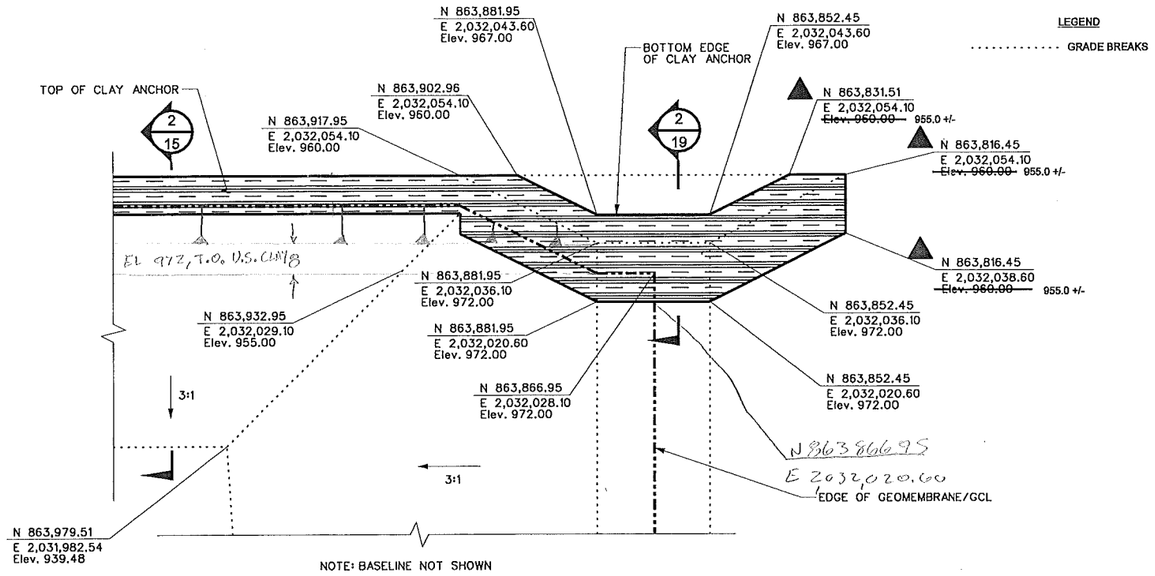
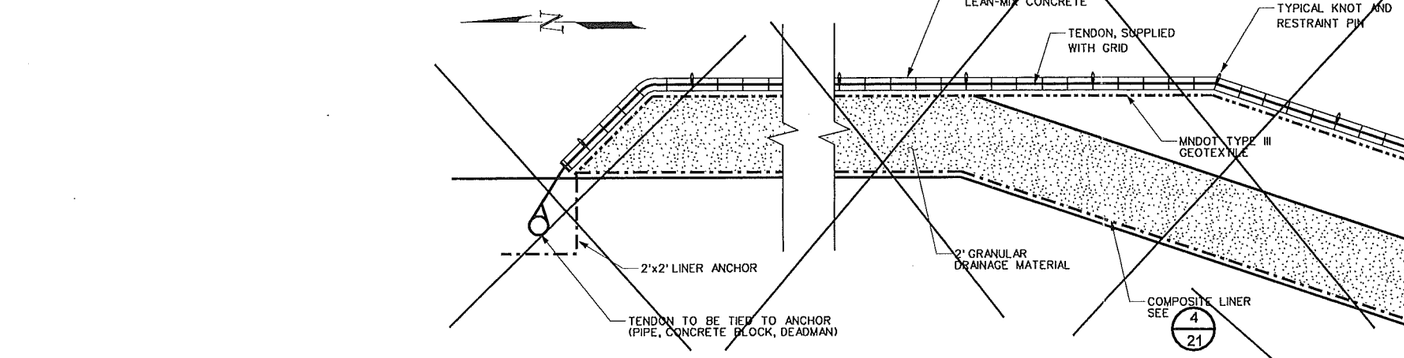
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



NOTE: BASELINE NOT SHOWN

1/11 PLAN: SOUTHEAST CORNER

0 20 40
SCALE IN FEET

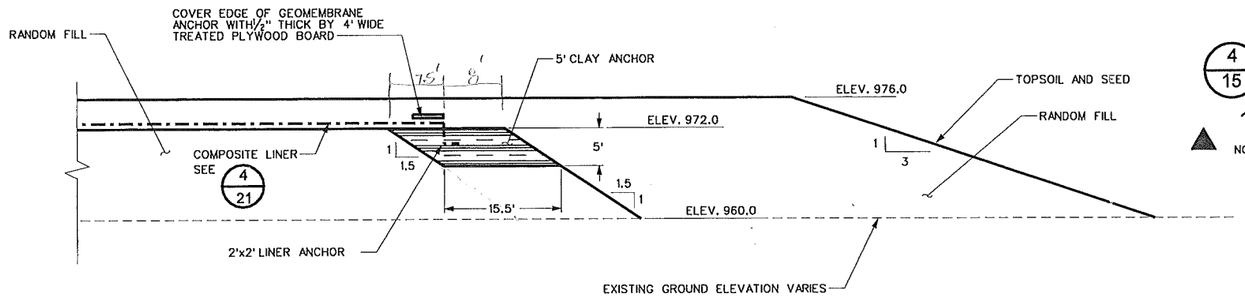


NOTE: FILL GRID WITH 1-1/2" MINUS ROCK FROM STA 28+65 TO STA 53+75
FILL GRID WITH LEAN-MIX CONCRETE FROM STA 53+75 TO STA 6+50

4/15 DETAIL: EROSION CONTROL GRID, STA 28+65 TO STA 6+50

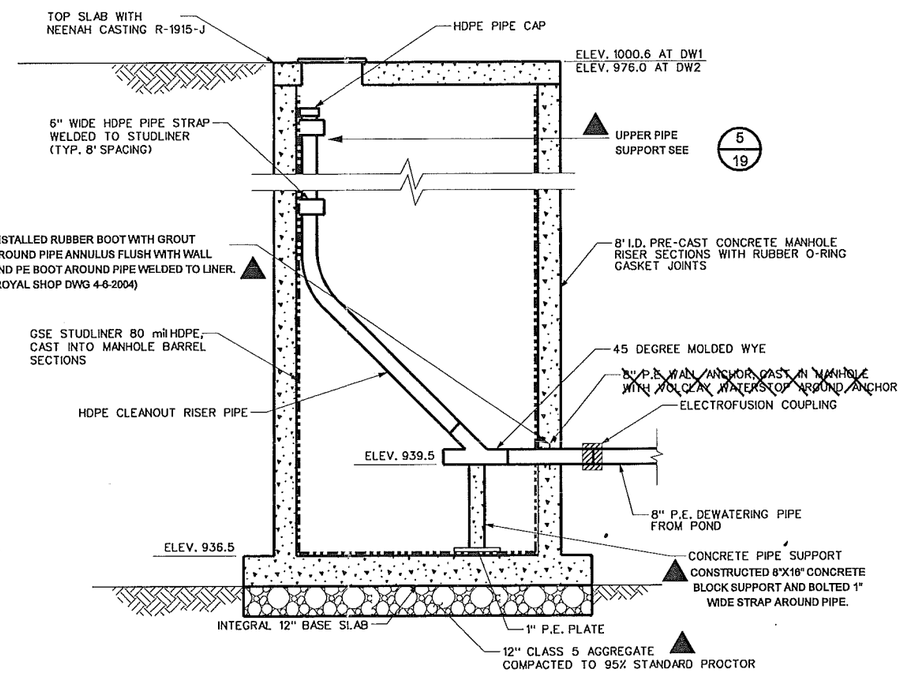
0 2 4
SCALE IN FEET

▲ NOTE: REPLACED WITH 12" RIP-RAP FROM STA 28+65 TO 7+05



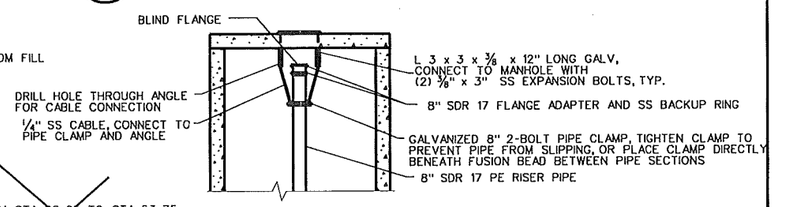
2/19 DETAIL: SOUTHEAST CORNER

0 10 20
SCALE IN FEET



3/16,17 DETAIL: DEWATERING MANHOLE DW1 AND DW2

NOT TO SCALE



▲ 5/19 DETAIL: DEWATERING MANHOLE UPPER PIPE SUPPORT

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Darren S. Schoeke
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FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
BASE LINER SECTIONS AND DETAILS

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REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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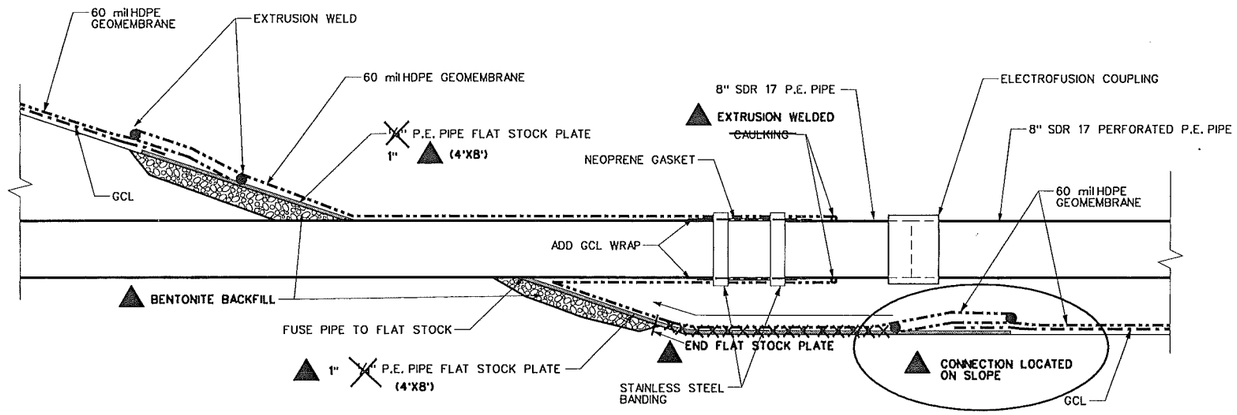
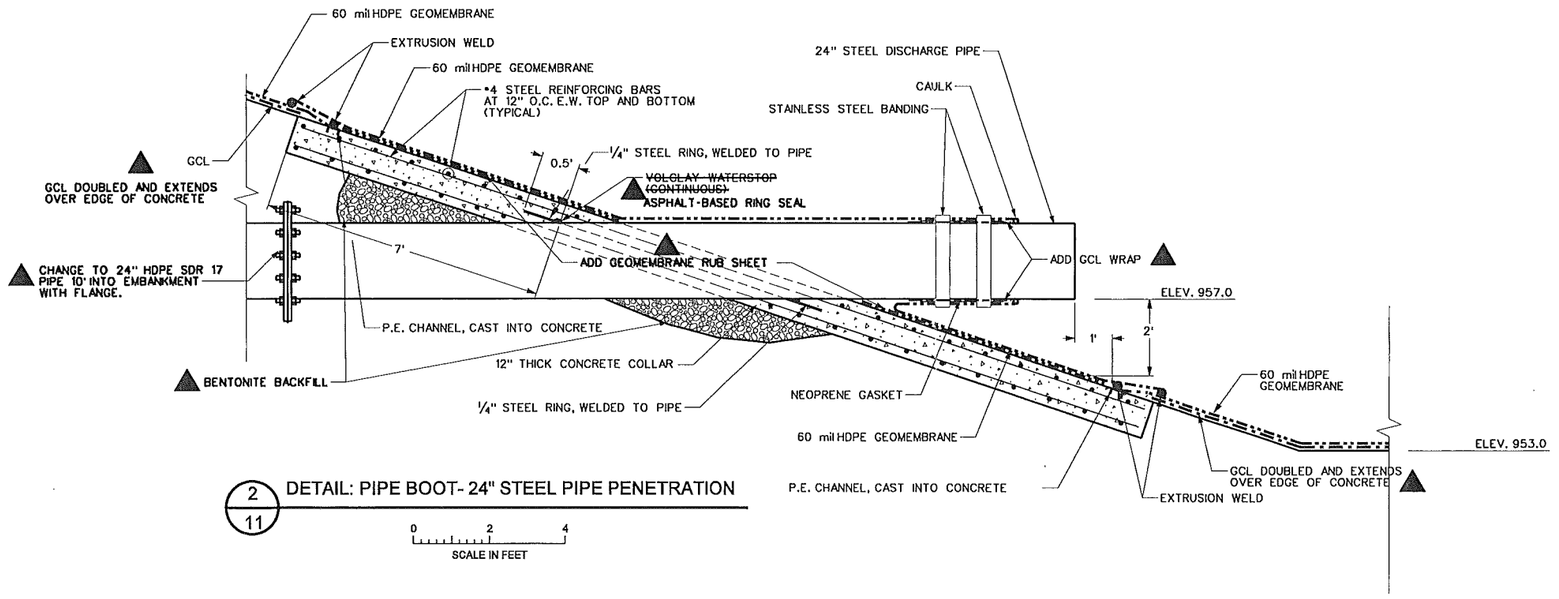
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1 / 16,17 DETAIL: PIPE BOOT- 8" PE PIPE PENETRATION

0 2 4
SCALE IN FEET



2 / 11 DETAIL: PIPE BOOT- 24" STEEL PIPE PENETRATION

0 2 4
SCALE IN FEET

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Darren S. Schlicht
Date 11/29/04 Reg. No. 24730

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DWN GAO	DATE 02/24/04	FACILITY: SHERBURNE COUNTY GENERATING PLANT
DGN'R DSS	CHK'D JRM	TITLE: POND 3 NORTH BASE LINER AND UPSTREAM BARRIER CONSTRUCTION BASE LINER SECTIONS AND DETAILS
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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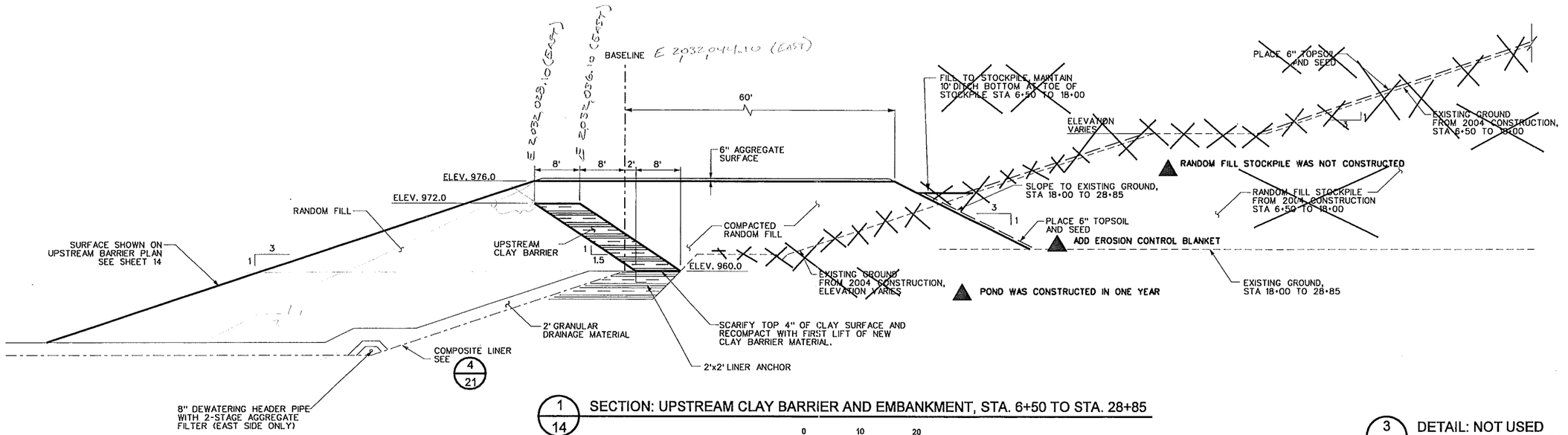
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



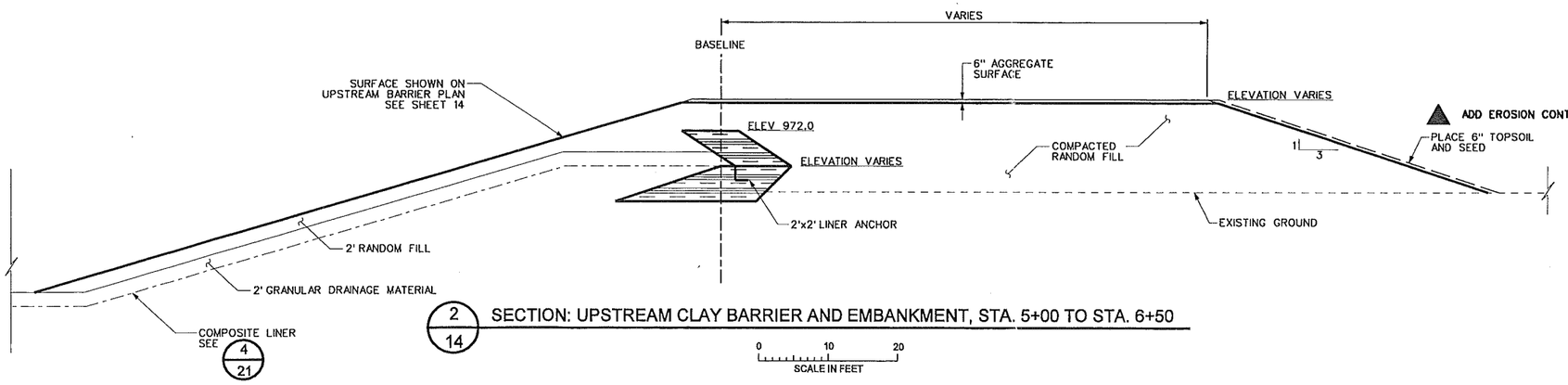
1/14 SECTION: UPSTREAM CLAY BARRIER AND EMBANKMENT, STA. 6+50 TO STA. 28+85

0 10 20
SCALE IN FEET

3/14 DETAIL: NOT USED



4/15-22 DETAIL: COMPOSITE LINER
NOT TO SCALE



2/14 SECTION: UPSTREAM CLAY BARRIER AND EMBANKMENT, STA. 5+00 TO STA. 6+50

0 10 20
SCALE IN FEET

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Darren S. Schwade
Date 11/04/04 Reg. No. 24730

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DWN GAO | DATE 02/24/04
DGN'R DSS | CHK'D JRM
APP'D & CERT.
FILMED

FACILITY: SHERBURNE COUNTY GENERATING PLANT
TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
UPSTREAM BARRIER SECTIONS AND DETAILS

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NSP Minneapolis Minnesota

DRAWING NO. NH-194808 | REV ▲
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REV	DATE	DESCRIPTION	BY	DWN	CHK'D
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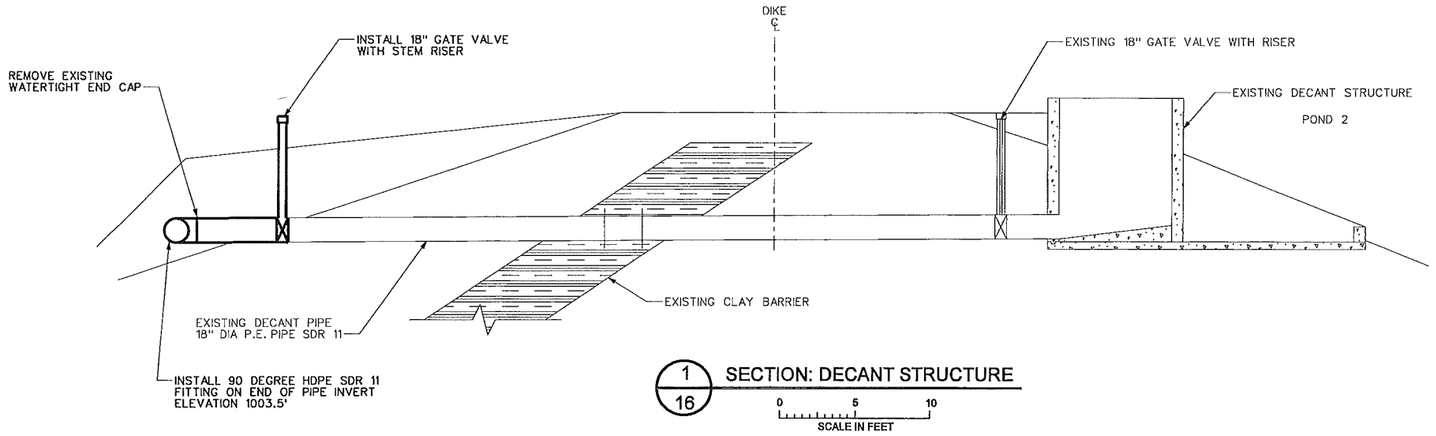
0	02-24-04	ISSUED FOR CONSTRUCTION	DSS	GAO	JRM
▲	10-08-04	RECORD DRAWINGS	DSS	IJF	JRM



1/16 SECTION: DECANT STRUCTURE

0 5 10
SCALE IN FEET

PIPE

A = 1.77 SF

V = 3/1.77 = 1.7

P = 4.71

R = 0.38

FLUME

$A = \frac{1}{2}\pi 1.5^2 = 3.53$ S.F. $\quad R = \frac{A}{P} = \frac{3.53}{4.71}$

$P = \frac{1}{2}\pi 3 = 4.71$ FT

$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$

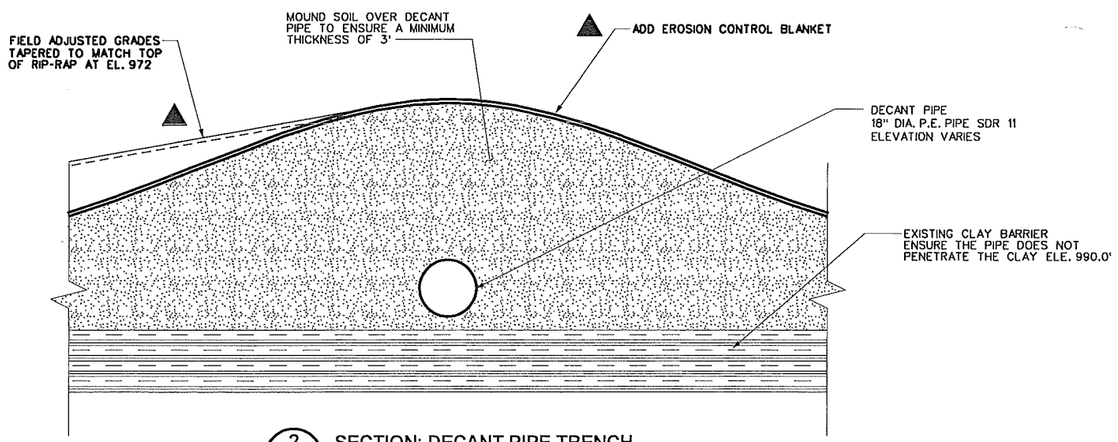
$= \frac{1.49}{0.025}(3.53)(0.75)^{2/3}(0.33)^{1/2}$

= 99 CFS $\quad V = \frac{99}{3.53}$

= 45,000 gpm

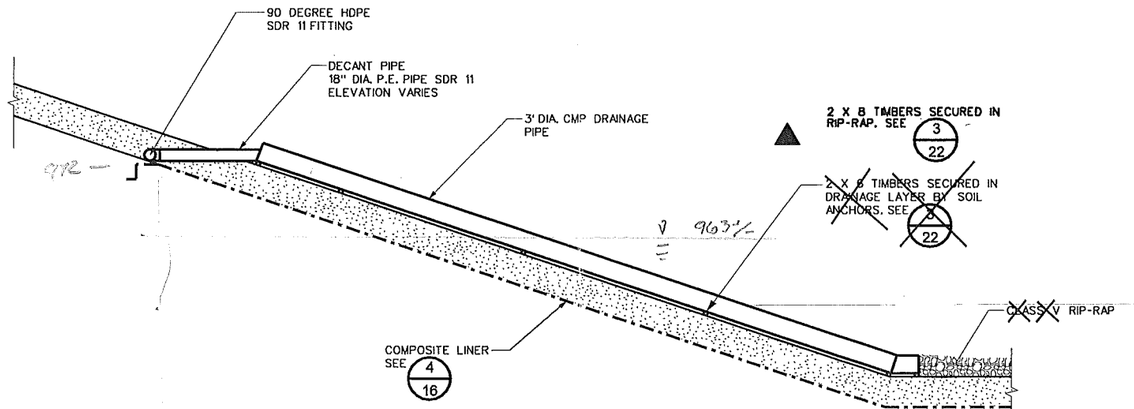
20' ST. PIPE TO WATER

6' ST PIPE



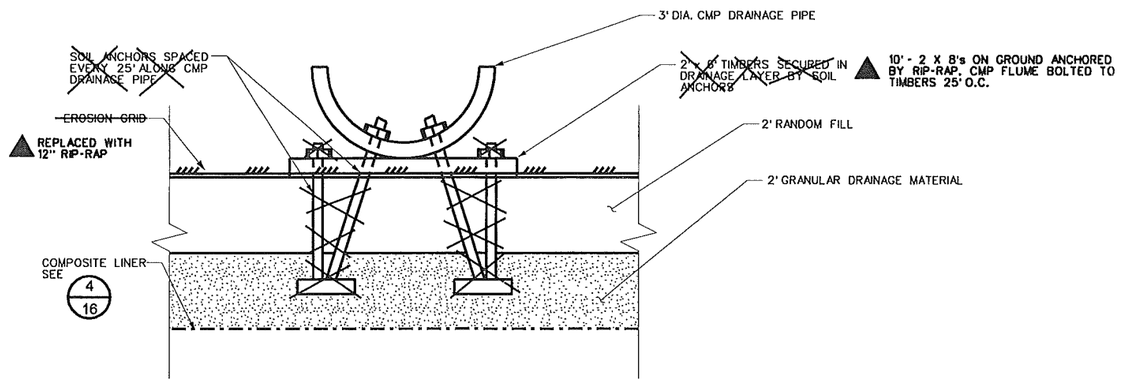
2/14 SECTION: DECANT PIPE TRENCH

0 2 4
SCALE IN FEET



4/16 SECTION: DECANT PIPE DISCHARGE STRUCTURE

0 10 20
SCALE IN FEET



3/14 SECTION: DECANT PIPE DISCHARGE STRUCTURE

0 2 4
SCALE IN FEET

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Darren S. Schwanke

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DWN GAO	DATE 02/24/04
DSNR DSS	CHK'D JRM
APP'D & CERT.	
ISSUED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE:
POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
DECANT PIPING DETAILS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

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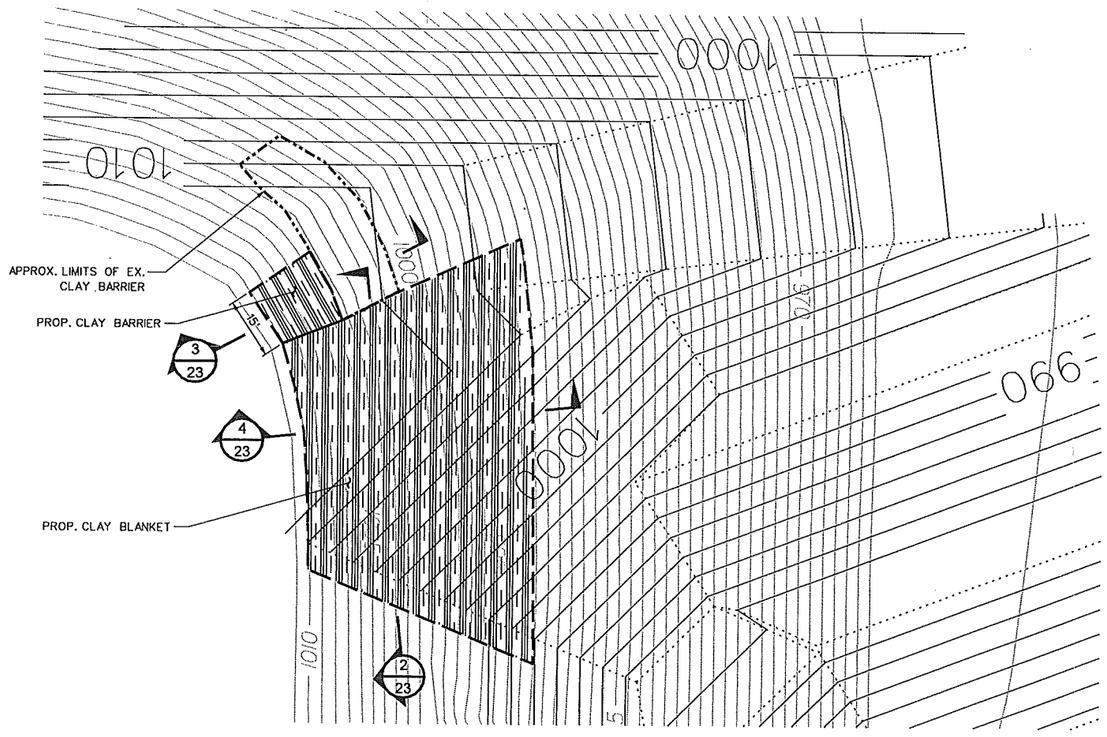
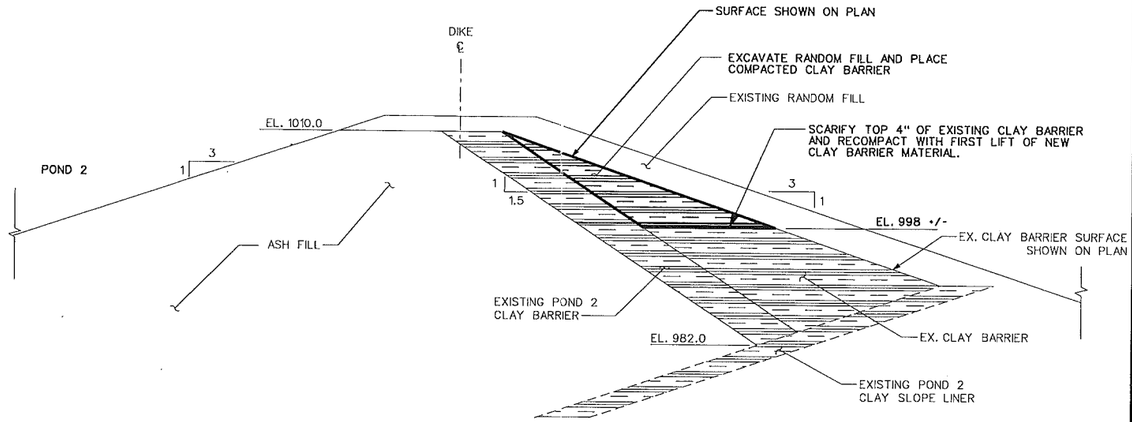


1/13 PLAN: NORTHWEST CORNER

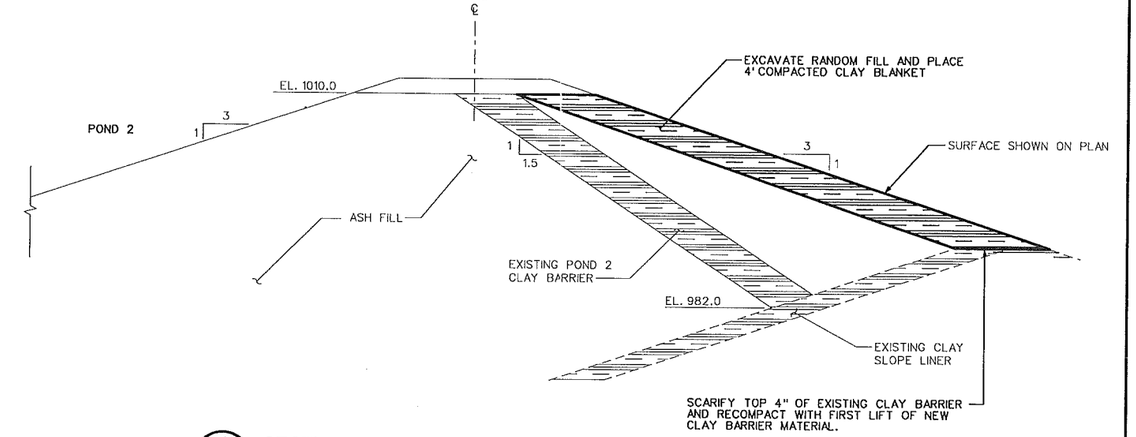
0 20 40
SCALE IN FEET

N



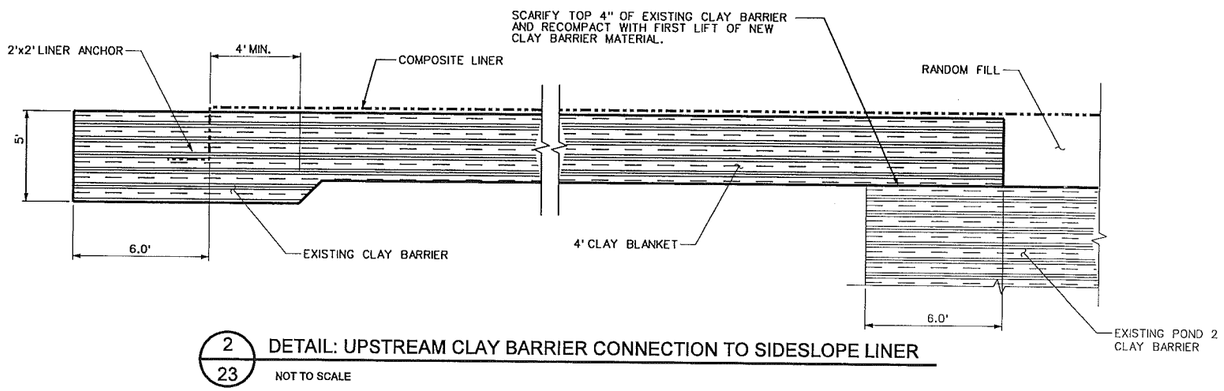
3/23 SECTION: CLAY BARRIER CONNECTION TO POND 2

0 10 20
SCALE IN FEET



4/23 SECTION: CLAY BLANKET

0 10 20
SCALE IN FEET



2/23 DETAIL: UPSTREAM CLAY BARRIER CONNECTION TO SIDESLOPE LINER

NOT TO SCALE

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Darren S. Schwoke

Date 11/30/04 Reg. No. 24730

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DWN GAO	DATE 02/24/04
DSN'R DSS	CHK'D JRM
A'PV'D & CERT.	
P. MED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
NW CORNER CONNECTION DETAILS

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

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SHT 23 OF 23 SHTS

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Construction Documentation
And
Pre-Fill Certification Report
Scrubber Solids Pond No. 3N

NPDES Permit No. 0002186

Sherburne County (Sherco) Generating Plant

Northern States Power Company

(dba Xcel Energy, Inc.)

Prepared for
Xcel Energy, Inc.



November 2004

Appendices J, K, L, and M

Prepared by

McCain and Associates, Inc.

Appendix J

Summary of Electrical Leak Location Testing

Summary of Electrical Leak Location Testing

Scrubber Solids Pond 3N Liner Construction
Sherburne County Generating Plant

Introduction and Overview

Electrical leak location testing was performed in Pond 3N after installation of the HDPE/GCL (high density polyethylene/geosynthetic clay liner) and placement of the granular drainage layer. The testing was completed to detect construction-related defects in the geomembrane as a result of placing cover soils over the liner. Testing was performed by Leak Location Services, Inc. (LLSI), and was completed in four phases, corresponding to the four quadrants of the pond base. Testing was completed in accordance with Section 02775 of the Technical Specifications and in general conformance with ASTM D7007.

In order to assess the reliability of the leak location testing, a reliability assessment program was conducted during the first phase of testing. This programmed is described in the next section.

Electrical leak location testing was accomplished by electrically isolating the test areas, energizing the cover soils in the test areas, and monitoring and recording the electrical current in the cover soils. The polyethylene liner is non-conductive, so current in the cover soils could not escape directly to ground where the liner was in tact. In areas where the liner was damaged, current could pass from the cover soils to ground, and readings from the monitoring equipment could detect the current flow.

Monitoring equipment consisted of a hand-held PVC staff with 2 probes spaced 30-inches apart. The probes were connected to data collection units, which were worn around the neck of the person probing and collecting data. The staff was carried along gridlines in the test area, and tapped on the ground to drive the probes 1 to 2-inches into the cover soils. After monitoring was completed in the test area, the data was downloaded to a portable computer on site to view the results.

After liner construction and the placement of the 2-foot layer of granular cover soils was completed in the quadrant being tested, the test area was electrically isolated by maintaining an exposed strip (approximately 2 to 4-feet) of geomembrane around the test area. In order to accurately detect and record current paths in the cover soils, moisture was added to the cover soils by spraying water from a water tanker over the test area if necessary. Prior to beginning data collection, calibration of the monitoring equipment was performed to insure proper conditions and sensitivity for detection of holes. A grid was established in the test areas by placing string lines at 10-foot intervals along one direction. The person collecting data probed along the string line in one direction, and halfway between string lines in the other direction, resulting in data collection on a 5-foot grid.

After completion of monitoring and data collection activities, holes in the test area were marked by LLSI. After the holes were uncovered and repaired, the area was tested again to verify no other holes were present in the area. As testing in the quadrants was completed, construction traffic in the tested area was restricted to only that necessary to complete the upstream barrier, random fill layer, riprap, and discharge structures.

Reliability Assessment Program

A reliability assessment program was conducted during the first phase of leak testing to assess the reliability of electrical leak location testing to detect the presence of construction-related defects. The program was conducted in accordance with the Reliability Assessment Program for Electrical Leak Location Surveying. The program included placing holes in the liner at locations undisclosed to LLSI to verify the holes could be found. The program also included specific requirements for calibration of monitoring equipment, and analysis of data collected.

A total of 11 holes were placed in the test area. Holes were configured to represent typical damage caused by construction equipment during placement of cover soils over a liner as described in the Reliability Assessment Program. The following table gives the details of each hole. Refer to the attached figure for test hole locations.

Test Hole Summary

Hole No.	Location		Soil Cover Depth (ft)	Hole Size	Through GCL?
	Northing	Easting			
1a	865218.7	2031709.2	2	1" dia.	No
1b	865069.1	2031475.0	2	1" dia.	No
1c	864991.6	2031808.5	2	1" dia.	No
1d	865189.1	2032018.1	2	1" dia.	No
2a	865295.6	2031453.4	2	1"x12" rect.	No
2b	865353.5	2031819.3	2	1"x12" rect.	Yes
2c	865170.6	2031859.6	4.5	1"x12" rect.	No
3a	865007.3	2031626.6	2	6" triangle	No
3b	865380.6	2031530.7	2	6" triangle	Yes
3c	865374.9	2031907.1	2	6" triangle	No-Flap
3d	865201.9	2031898.9	3.9	6" triangle	Yes-Flap

LLSI successfully located all 11 test holes, and also located four other installation/construction related holes. Details of the results of the reliability assessment program can be found in the Reliability Assessment Report for Electrical Leak Location Survey, dated August 6, 2004 and prepared by McCain and Associates, Inc. All holes were repaired and vacuum tested by the liner installer. After replacing cover soils over the holes, the areas were re-tested by LLSI to insure no other holes were present in the vicinity.

Leak Location Testing

There were three lateral dewatering pipes and two header dewatering pipes on the pond bottom. The pipes were embedded in aggregate, and were placed on geomembrane rub sheets. The effectiveness of electrical leak location testing of the geomembrane liner beneath these rub sheets was uncertain, therefore these areas were thoroughly inspected visually prior to placement of the rub sheets, and monitored closely during placement of the aggregate and pipes. Rub sheets were generally placed over the liner without fusing them to the liner. The rub sheets beneath the lateral pipes in the west half of the pond, however, were heat-tacked to the liner to prevent the wind from catching them. The locations of the dewatering pipes are shown on the attached Figure.

Prior to proceeding with collecting data, the monitoring equipment had to be calibrated to ensure proper test conditions for detection of holes in the geomembrane. Calibration holes (denoted as "CalH" on the attached figure) were placed through the geomembrane in each test phase. The holes were 1/4-inch in diameter, and were placed using a drill. In areas where leak testing was completed over thicker cover soils (haul roads), the calibration hole size was increased to ½-inch. All calibrations holes were patched, and the areas retested after leak testing was completed in the test area.

The initial phase of leak testing and the reliability assessment testing was completed in the northeast quadrant (Test Area 1). Testing in this area began on June 24, 2004. A 4.5-foot thick by 15-foot wide haul road was present in the northeast quadrant at the time of leak testing and was included in the leak location test area. The haul road was oriented east-west across the pond, just north of the north lateral dewatering pipe. LLSI located the 11 test holes (1A through 3D) for the reliability assessment program, and 4 additional "construction holes" (CH1 through CH4). All of these holes, along with the calibration holes for leak testing are shown on the attached figure. Refer to the following table for descriptions of the construction holes encountered.

The second phase of testing in the southeast quadrant (Test Area 2) began on July 12, 2004. One test hole (1E) was placed in this quadrant, and was located by LLSI. In addition to the test hole, one construction-related hole (CH-5) was also found in this quadrant. Leak testing in the southeast quadrant over-lapped that of the northeast quadrant by approximately 10 ft. In order to isolate the test area, a haul road had to be removed where it crossed the east and west edges of the liner. During removal of the road on the west edge, the liner was torn and repaired prior to leak testing. During the second phase of leak testing, dry and windy conditions caused the top 1 to 2-inches of cover soils to dry out. Water was added to the cover soils in areas which were accessible to the water tanker. In the areas inaccessible to the water tanker, a plow with a short tine was pulled along each test grid row to create a 2-inch deep furrow to reach cover soils which still held adequate moisture to complete leak testing. After the holes were located and repaired, the areas were retested. All of these holes, along with the calibration holes for leak testing in Test Area 2 are shown on the attached figure. Refer to the following table for a description of the construction hole encountered.

The third phase of testing in the northwest quadrant (Test Area 3) began on August 2, 2004. The testing area of the northwest quadrant was overlapped onto the first testing phase (Test Area 1) by approximately 20-feet. Rain from the night before provided adequate moisture in the cover soils. A calibration hole was placed in the northeast corner of the test area, but had to be patched after the first day of testing to clear the way for upstream embankment construction. A new calibration hole was placed further south along the east edge of the test area LLSI found eight construction holes (CH-6 through CH-13) in the northwest quadrant. CH-8 was caused by the probe of the nuclear density gauge while testing the cover soil on the lowest discharge structure pad. CH-6 and 10 were at the edge of the rub sheet where it had been heat-tacked to the liner. After the holes were located and repaired, the areas were retested. All of these holes, along with the calibration holes for leak testing in Test Area 3 are shown on the attached figure. Refer to the following table for descriptions of the construction holes encountered.

The fourth and final phase of testing in the southwest quadrant (Test Area 4) began on August 24, 2004. The quadrant was leak tested beginning from the north end of the quadrant and overlapped the northwest and southeast quadrants by approximately 10 ft. Rain from that morning provided good moisture conditions in the cover soils. LLSI located seven construction holes (CH-14 through CH-19) in the southwest quadrant, three of which were not visible to the naked eye. During excavation of CH-16, wet conditions required pulling the cover soils back approximately 30-feet to let some of the water drain away from the hole. A backhoe tore a hole in the liner during the process (CH-18). After the holes were located and repaired, the areas were retested. All of these holes, along with the calibration holes for leak testing in Test Area 4 are shown on the attached figure. Refer to the following table for descriptions of the construction holes encountered.

Construction Hole Summary			
Hole No.	Quadrant	Hole Size, Shape	Caused by What?
CH-1	NE	3/8" x ¼" L-shape	Shovel Tip?
CH-2	NE	Small Bump	No visible hole, manufacturer's defect?
CH-3	NE	3" slit	Knife cut
CH-4	NE	Scratches	No visible leaking (scratches did not appear to penetrate liner)
CH-5	SE	1/8" dia. circle	Possibly from tip of GPS receiver rod used by grade staker
CH-6	NW	<1/8"x1/8"	Separation of rub sheet leistered onto liner
CH-7	NW	5" slit	Knife cut
CH-8	NW	¾" dia circle	Witnessed by Braun density testing hole rod
CH-9	NW	Scratch	No visible leaking (scratch did not appear to penetrate liner). May be knife cut.
CH-10	NW	3/8" mean dia	Separation of rub sheet leistered onto liner
CH-11	NW	¾"x 1/16" cut	Wider than knife cut, could be gouge from other sharp object
CH-12	NW	2" slit with before and after scratch	Knife cut or likely something sharp dragged across the liner.

CH-13	NW	½" gouge	Shovel tip? Appeared to be heavy traffic area by other scratches present in area.
CH-14	SW	¼" x ¼" square	Puncture by foreign object?
CH-15	SW	Scratches	No visible hole
CH-16	SW	2-1/2" slit	Knife cut. Other heavy scratches in immediate area, were also patched
CH-17	SW	Near 2-textured seam	Could be faulty seam not caught by air test, no visible hole
CH-18	SW	2 ft +/- rip	Small backhoe excavating CH-16
CH-19	SW	Scratches	Heavily scratched area under previous haul road, no visible leak
CH-20	SW	1/8" circle	GPS rod? Smaller similar indentation within 1" radius, both patched

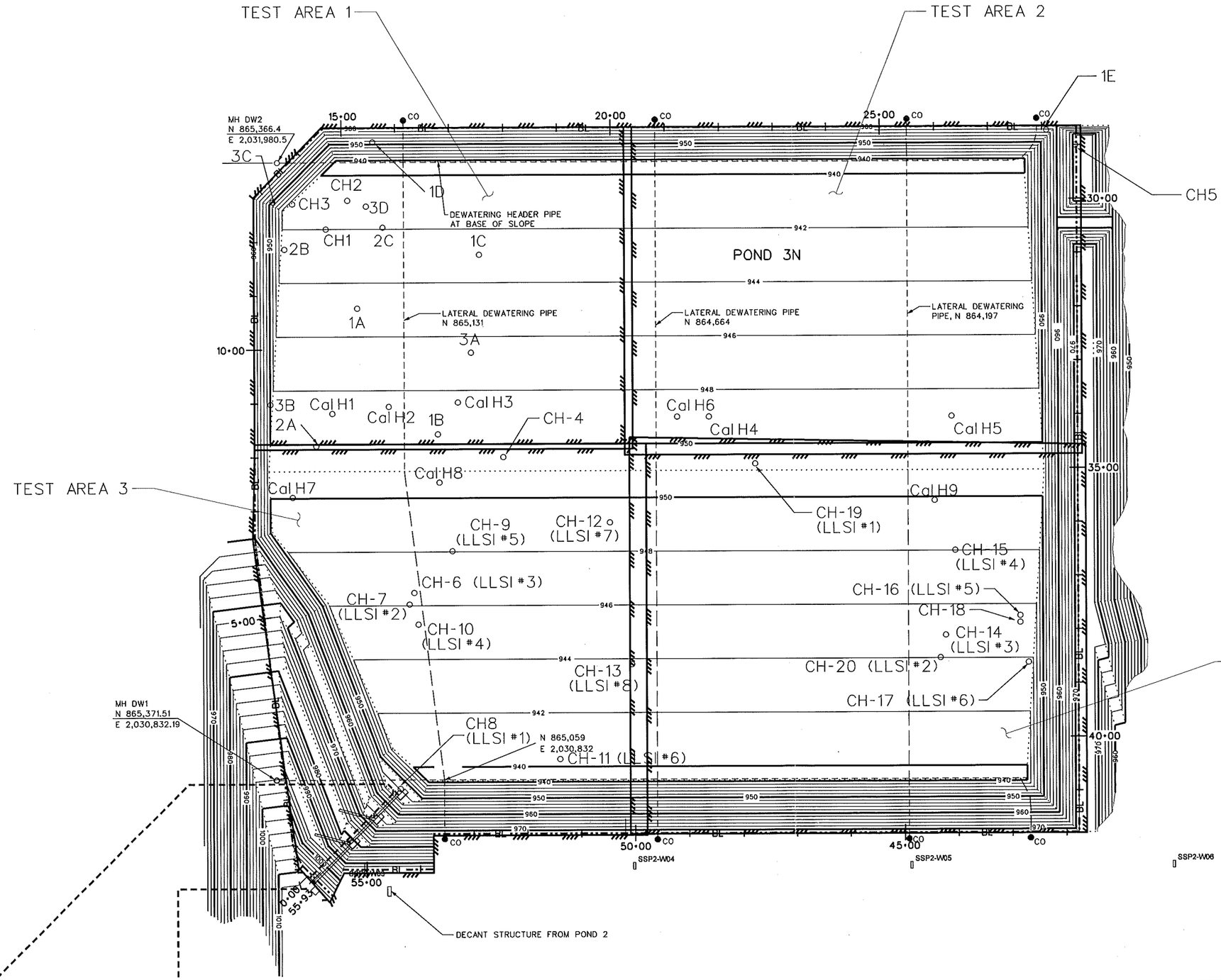
After each phase of testing was completed, LLSI submitted interim test reports summarizing the results of the data collected during that test phase. LLSI used the same naming convention as described above for holes found in the Test Areas 1 and 2. During testing in Test Areas 3 and 4, LLSI used a different naming convention, simply numbering the holes sequentially. Both hole designations in Test Areas 3 and 4 are shown on the attached figure.

As part of Pond 3N construction, two geomembrane-lined concrete manholes were constructed in the north embankment. After the manholes were completed, they were filled with water to perform an exfiltration test. The test showed that the manholes were not completely watertight, as the water level dropped significantly during the initial exfiltration test. In response to this, LLSI also performed leak testing of the geomembrane liner in the manholes, and found numerous leaks in each manhole. The results of the leak testing performed in the manholes are summarized in a separate report from LLSI.

Conclusion

The Pond 3N geomembrane liner was fully tested using the electrical leak location testing method described above. A reliability assessment program demonstrated the test method to be successful by locating 100 percent of the test holes placed in the liner system. Several small construction/installation-related defects were found during leak testing; however there was no major damage to the liner system caused by heavy equipment.

REVISIONS					
REV	DATE	DESCRIPTION	BY	DWN	CHK'D



LEGEND:

CH-12	CONSTRUCTION HOLE
2C	TEST HOLE
Cal H1	CALIBRATION HOLE
(LLSI #3)	LLSI HOLE DESIGNATION SYSTEM
	TEST AREA DELINEATION

0 100 200
SCALE IN FEET

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date _____ Reg. No. _____

McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331
ph 952-470-1611
fx 952-470-0728

DWN	DATE
DSN'R	CHK'D
APP'D & CERT.	
FILMED	

FACILITY: SHERBURNE COUNTY GENERATING PLANT

TITLE: POND 3 NORTH
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
LEAK TESTING PLAN

NORTHERN STATES POWER COMPANY
NSP Minneapolis Minnesota

DRAWING NO. NH-194808 REV

SHT OF SHTS 0

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Reliability Assessment Program for Electrical Leak Location Surveying

Reliability Assessment Program for Electrical Leak Location Surveying

Scrubber Solids Pond No. 3

Sherburne County Generating Plant

Northern State Power Company, d.b.a Xcel Energy

April 28, 2004

Purpose

The purpose of the reliability assessment program for electrical leak location surveying is to evaluate the ability of the testing method to reliably detect the presence of construction-related defects in a soil-covered geomembrane. The following parameters will be evaluated:

- The effect of testing conditions on detection reliability
- The effect of defect size, shape, and location on detection reliability
- The adequacy of the leak detection sensitivity test specified in ASTM D 7007 in establishing detection reliability
- The effectiveness of construction practices in preventing construction-related damage to the geomembrane
- The effectiveness of CQA procedures in observing construction damage as it occurs

Methodology

Holes will be placed in the liner system, either before or after placement of cover soils. A variety of hole sizes and configurations will be placed, ranging from a 1-inch circular hole to simulate puncture of the liner by a foreign object in the cover soil, to larger rectangular and triangular holes to simulate damage from dozer tracks and blades. Some holes will penetrate the geomembrane only, leaving the GCL intact, and some holes will penetrate both the geomembrane and GCL.

The purpose of this project is to determine detection reliability for construction damage rather than installation defects. Therefore, small holes and knife cuts will not be placed. Such defects are not likely to affect the function and performance of the GCL, thereby preserving the design intent of the composite liner (that the GCL serve as a backup to the geomembrane where the geomembrane is damaged).

The testing area will be approximately 8 acres in size. 10 holes will be placed and covered so the location is unknown to the testing contractor. Hole placement will be distributed across the testing area with emphasis on likely damage areas and the edges of the testing grid. A preliminary schedule of holes sizes/configurations is provided in the table below. Conceptual locations are shown on the attached figure.

Designation	# Placed	Description	Explanation
Type 1	4	1"-diameter circle, geom. only removed	Simulates puncture by foreign object in cover soil
Type 2A	1	1"x12" rectangle, geom. only removed	Simulates dozer track damage
Type 2B	1	1"x12" rectangle, geom. & GCL both removed	Simulates dozer track damage
Type 3A	1	6"-hypotenuse right triangle, geom. only removed	Simulates dozer blade damage
Type 3B	1	6"-hypotenuse right triangle, geom. & GCL removed	Simulates dozer blade damage

Type 3C	1	6"-hypotenuse right triangle, geom. only left as flap	Simulates dozer blade damage
Type 3D	1	6"-hypotenuse right triangle, geom. & GCL both left as flap	Simulates dozer blade damage

Procedure

1. Prepare and inspect testing area. This includes completing normal installation and testing of geomembrane, placement of cover soils, and electrically-isolating the testing area.
2. Place, cover, and mark the location of an "actual leak" (term used in ASTM D 7007) to be used for leak detection sensitivity testing. The following modifications to ASTM D 7007, Annex A4 will be made for sensitivity testing: Water will not be poured over the test hole. This modification is intended to produce testing conditions for the test hole that match overall conditions of the testing area. Moisture is required for completion of an electrical circuit through the test hole. Water will be applied to the entire testing area using water trucks with spray bars or cannons. Thus the same amount of moisture will be applied to the sensitivity test hole as to the remainder of the testing area.
3. Place, survey the location of, and cover additional "blind" test holes.
4. Perform leak detection sensitivity test in accordance with Annex A to ASTM D 7007. This test will establish the testing grid spacing required to obtain an R value (ratio of leak signal strength plus background noise to background noise) of at least 3.0.
5. Lay out grid lines and conduct leak location survey.
6. Excavate leak locations identified by the leak location survey. Collect soil samples for moisture content testing at the surface, mid-depth, and bottom of the excavation.
7. Re-survey the areas around the excavated leak locations to verify that additional leaks are not present, the signal from which may have been masked by the detected leak.
8. Repair and re-cover the located leaks.
9. If the leak location survey fails to detect placed holes, make adjustments to the testing conditions and re-survey. Such adjustments may include applying more water and decreasing the spacing of the survey grid. If the second survey fails to detect the holes, an assessment of the reasons for failure will be made. The assessment will include excavating the holes, collecting soil samples for moisture content analysis, observing the condition of the holes relative to the status of a complete electrical circuit, and discussion of potential reasons for detection failure.
10. If holes resulting from construction activities are detected, an assessment will be made regarding the construction practices which caused the damage to occur and CQA procedures which failed to detect the damage as cover soils were being placed.

Documentation

The following documentation will be produced for the leak location survey:

1. Photographs and surveyed locations of all holes placed.
2. Description of water application procedures, rates, and frequency
3. Summary of weather conditions during liner installation, cover soil placement, and electrical leak location surveying
4. Plots of leak detection sensitivity testing demonstrating R value of 3.0 or greater
5. Tabulation of holes, including size/shape, location, conditions, soil moisture, etc.)
    a. Holes found during leak location surveying
    b. Holes not found during leak location surveying
    c. Holes caused by construction equipment

6. Plots of leak signal strength for holes found
7. Results of assessment for failure to detect holes if such failure occurs
8. Results of assessment of construction practices and CQA procedures if construction damage is found
9. Assessment of overall reliability of leak location surveying for detecting holes caused by placement of cover soils

Technical Specifications (Section 02775)
for Electrical Leak Location Surveying

SECTION 02775
ELECTRICAL LEAK LOCATION SURVEYING OF SOIL-COVERED GEOMEMBRANE LINER SHERCO SCRUBBER SOLIDS POND 3

GENERAL

1.01 SECTION INCLUDES

A. Performing leak detection sensitivity testing using "actual leaks" (see 3.02A of this Specification) placed by Owner.

B. Performing phased leak location surveying to detect Owner placed holes, and installation/construction related holes for the entire project.

C. Reporting results of leak location surveying.

1.02 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications will be included under the lump sum Contract Price bid.

1.03 REFERENCES

A. American Society for Testing and Materials, current edition, hereafter referred to as ASTM.

B. ASTM D7007: Standard Practice for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials (most current edition).

1.04 SUBMITTALS

A. Definitions:
   1. Submit for Documentation
      a. Submittal is for the purpose of formal verification that the subject of the submittal conforms to the requirements of the Specifications, for formal documentation of the Work, or both.
      b. No action is required by Owner. Owner will notify Contractor if deficiencies are identified, however solely the Contractor is responsible for ensuring that the subject of the submittal conforms to the requirement of the Specifications.
   2. Submit for Review
      a. Submittal is for the purpose of providing opportunity to Owner for review and comment on the subject of the submittal.
      b. Owner will respond to the submittal either with a list of comments or an indication that it has no comments.
      c. If Owner's comments indicate a deficiency with respect to the requirement of the Specifications, Contractor shall amend the submittal and resubmit. Owner will again respond to the resubmittal.
      d. If Owner's comments are in regards to an issue, that based upon the Contract is at Contractor's discretion, Contractor shall furnish additional information, provide justification, and otherwise cooperate in addressing and resolving Owner's comments.

B. Submit for documentation Contractor's statement of warranty to perform the work to the best of their ability in accordance with the standard of professional practice.

C. Submit for documentation Contractor's statement of factors that influence leak detection sensitivity and accuracy and which may be adjusted or corrected in the field to improve the accuracy and sensitivity of leak detection.

D. Submit for review Contractor's leak location surveying plan, including equipment, setup requirements, survey grid spacing, data management method, QA/QC plan, crew size, and other pertinent information.

E. Submit for review a detailed schedule for leak location surveying work for each of the four testing areas as described in Article 1.05 of this Specification. The schedule shall include setup, leak detection sensitivity testing, leak detection surveying, data analysis, and reporting.

F. Submit for review an example of Contractor's proposed format for reporting results of the leak location survey.

1.05 SEQUENCING AND SCHEDULING

A. A plan for sequencing and scheduling of leak location surveying will be provided to Contractor by Owner. The plan will remain subject to change for the duration of the project to accommodate weather, construction progress, and sequencing requirements.

B. Leak location surveying shall be performed in a series of four or more phases. The first phase will be approximately 8 acres in size. The remaining three survey areas will range from approximately 12 to 16 acres in size. The phase areas are shown on the attached drawing. The number and size of phases will be subject to change based upon weather, construction progress, and sequencing requirements.

1.06 JOB CONDITIONS

A. It shall be solely the Contractor's responsibility to review available tests and reports, conduct additional tests, and otherwise determine to its own satisfaction the location and nature of all surface and subsurface features and the soil and water conditions that may be encountered.

B. It shall be solely the Contractor's responsibility to review project construction plans and specifications, sequencing and scheduling plans, and other construction-related information, and determine to its own satisfaction Contractor's ability to perform the required work within the context of the overall construction project.

C. Owner's information on site conditions may be reviewed at Owner's offices as scheduled with Owner.

1.07 WORK BY OWNER

A. Owner will prepare each phase for leak location surveying by placing soil cover over the geomembrane, isolating the cover soil from ground, and applying water and maintaining the moisture content of the cover soil.

B. Owner will place "actual leaks" (as defined in ASTM 7007, Annex A) in the liner within the surveying area for use by Contractor in performing leak detection sensitivity testing as described in Article 3.02 of this Specification.

C. Owner will place additional holes in the liner within the surveying area for the purposes described in Article 3.03 of this Specification.

D. Owner will furnish 110-volt power source for use during leak testing.

E. Owner will furnish laborers to install string lines for testing grid, and to remove cover soils from leaks.

F. Owner will maintain moisture condition of cover soils prior to and during leak testing.

PRODUCTS

NOT APPLICABLE

EXECUTION

3.01 ACCEPTANCE OF SITE AND SURVEY CONDITIONS

A. Prior to performing sensitivity testing or leak location surveying, Contractor shall notify Owner of site conditions or surveying conditions which are within Owner's ability to control (such as electrical isolation of cover soil or moisture content of cover soil) and which would inhibit Contractor's ability to locate leaks. Such conditions shall be typical of those under which leak location surveying is generally performed.

B. If, after correction of site and surveying conditions by Owner as described in Paragraph 3.01A, Contractor is unable to obtain successful results for sensitivity testing or locating Owner-placed holes (as described in Articles 3.02 and 3.03, respectively), then Contractor shall discuss with Owner additional modification to site and surveying conditions which may produce successful results. Owner will make such additional modifications if they are within reason and is able to do so.

3.02 LEAK DETECTION SENSITIVITY TESTING

A. Leak detection sensitivity testing shall be performed by Contractor using "actual leaks" placed by Owner. Sensitivity testing shall be performed within the active test area in conformance with the requirements of ASTM D7007, Annex A4, except that no water will be poured over a partially-buried leak.

B. The leak detection distance shall be computed by Contractor to produce an "R" value (as defined by ASTM D7007, Annex A4) greater than 3.0. Contractor shall make adjustments to its surveying equipment and methods as required.

C. Leak detection sensitivity testing shall be conducted, at a minimum, at the beginning and end of each day of leak surveying for each set of equipment. If leak detection sensitivity testing reveals an "R" value of 3.0 or less, the area surveyed with that set of equipment in the period since the previous successful leak detection sensitivity test shall be resurveyed at Contractor's expense.

D. Inability by Contractor to successfully complete leak detection sensitivity testing shall be cause for cancellation of the contract for surveying services. Upon cancellation, Contractor will be judged to be in default of the Contract and no payments shall be owed to Contractor.

3.03 OWNER-PLACED HOLES

A. Additional holes, other than those used for leak detection sensitivity testing, may be placed by Owner in the surveying area in order to simulate damage which may occur as a result of placing cover soils over the geomembrane. Such holes will be a minimum size of 1 inch in diameter and the locations will be unmarked. Contractor shall be required to detect these holes as part of routine surveying. Failure to locate Owner-placed holes will invalidate the surveying work performed by Contractor on that day. Owner will reveal the hole locations to Contractor if Contractor is unable to locate them, and provide Contractor the opportunity to determine the cause of failure to locate the holes, make necessary adjustments to the surveying equipment and methods, and re-survey. Adjustments and resurveys shall be solely at Contractor's expense.

B. Inability by Contractor to detect Owner-placed holes during daily survey work, after attempting remedy as described in Article 3.01 and Paragraph 3.03A shall be cause for cancellation of the contract for surveying services. Owner will be liable only for the cost of mobilization and area successfully surveyed through the time of cancellation.

3.04 LEAK LOCATION SURVEYING

A. Contractor shall perform the leak location survey procedure in conformance with the surveying plan submitted above and in conformance with ASTM D7007.

B. Leak location surveying shall be performed with grid spacing, measurement electrode spacing (for dipole measurements), and distance from the current source electrode not greater than the respective spacing and distance determined from the sensitivity tests.

C. Contractor shall mark detected leak locations with lath, flagging, or similar marking, and shall notify Owner for removal of cover soil from the area.

D. Resurveying shall be performed in the areas near leak locations to verify that repairs were adequate and that an additional leak is not present which may have been masked by the detected leak.

E. Periodic leak detection sensitivity testing and re-surveying, if necessary, shall be completed in conformance with ASTM D7007 and as described in Paragraph 3.02C.

3.05 REPORTING

A. Contractor shall field-report to Owner summary results of surveying on a daily basis. Daily reports shall include:
   1. The results of beginning- and end-of-day leak detection sensitivity tests
   2. A sketch of the area surveyed that day, showing grid lines and surveying limits
   3. A summary of leaks detected and repair/resurvey status

B. Interim written reports with supporting data shall be submitted to Owner within one week of completion of leak location surveying within each phase area.

C. Interim reports shall contain the following items:
   1. A discussion of the results of leak location sensitivity tests and actions taken in response to the tests.
   2. A map of the phase area showing the limits of the leak location survey, the layout of the surveying grid, the location of the current source electrode, and other pertinent layout information.
   3. A complete description of the leaks found, including location, size, configuration, and photographs. The report shall clearly distinguish between Owner-placed holes and installation/construction-related holes. Owner will furnish a tabulation of Owner-placed holes for Contractor's use in preparing the report.
   4. A discussion of Contractor's success or failure to consistently detect Owner-placed holes.

D. A final report shall be submitted within two weeks of completion of the final phase of surveying. The final report shall compile the information from the interim reports and in addition shall contain a description of the leak location methods and procedures, the survey methodology, the liner components and configuration, and cover and subgrade soil types and conditions.

E. The final report shall include as an appendix electronic data files containing plots of leak signals from sensitivity testing, Owner-placed holes, and construction-related holes along with maps, grids, and other information necessary to locate each data set within the project limits.

END OF SECTION 02775

Reliability Assessment Report for
Electrical Leak Location Surveying

Reliability Assessment Report for Electrical Leak Location Survey

Scrubber Solids Pond 3N Liner Construction
Sherburne County Generating Plant

Prepared for Northern States Power Company
d/b/a Xcel Energy



August 6, 2004

Prepared by

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Reliability Assessment Report for Electrical Leak Location Survey

Scrubber Solids Pond 3N Liner Construction
Sherburne County Generating Plant

August 6, 2004

Executive Summary

A Reliability Assessment Program was conducted during construction of an HDPE/GCL (high-density polyethylene/geosynthetic clay liner) liner in Scrubber Solids Pond 3N at Xcel Energy's Sherburne County Generating Plant to assess the reliability of electrical leak location surveying in detecting the presence of construction-related defects in a soil-covered geomembrane liner. Leak location surveying is being performed on the entire 50-acre pond liner, however the reliability assessment program was conducted only in a 9.6-acre area in the northeast corner of the pond. Leak location surveying was performed by Leak Location Services, Inc.

The reliability assessment program was conducted without deviation from program requirements, except that an eleventh test hole was added to the ten holes included in the original program. The leak location survey successfully located all eleven holes placed in the liner as part the reliability assessment program, as well as four additional holes unintentionally caused during liner installation and cover soil placement.

Construction practices and construction quality assurance work performed during the project resulted in no damage being caused to the liner by heavy construction equipment. Minor damage caused by hand tools used during liner installation and cover soil placement was detected. The minor damage penetrated only the geomembrane portion of the composite liner. The GCL was not damaged.

The results of the program demonstrate the reliability of leak location surveying to predict, after placement of the drainage layer, that the composite HDPE/GCL liner system remains equivalent to a composite HDPE/CCL (compacted clay liner), and that the leak location survey method and procedures are a proven accurate and sensitive testing method capable of verifying the integrity of the HDPE/GCL liner system.

Based upon these results, Xcel Energy requests that the MPCA Commissioner approve the electrical leak location method and procedures, and thus confirm the conditional approval granted in MPCA Permit SW-293 for construction of an HDPE/GCL liner for Cell 2C of the Sherco Unit 3 AQCS Solids Landfill.

Reliability Assessment Report for Electrical Leak Location Survey

Scrubber Solids Pond 3N Liner Construction
Sherburne County Generating Plant

August 6, 2004

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Reliability Assessment Report for Electrical Leak Location Survey

Scrubber Solids Pond 3N Liner Construction Sherburne County Generating Plant

August 6, 2004

Introduction and Purpose

This report presents an assessment of the reliability of electrical leak location surveying in detecting the presence of construction-related defects in a soil-covered geomembrane liner. In accordance with the requirements of Sections 1.1.14 and 1.1.15 of MPCA Permit SW-293, a reliability assessment program was performed during liner construction for Pond 3N at Xcel Energy's Sherburne County Generating Plant to demonstrate the reliability of leak location surveying to predict, after placement of the drainage layer, that the composite HDPE/GCL (high-density polyethylene/geosynthetic clay liner) liner system remains equivalent to a composite HDPE/CCL (compacted clay liner); and that the leak location survey method and procedures are a proven accurate and sensitive testing method capable of verifying the integrity of the HDPE/GCL liner system.

Based upon the results of the reliability assessment program as presented herein, Xcel Energy requests that the MPCA Commissioner approve the electrical leak location method and procedures, and thus confirm the conditional approval granted in MPCA Permit SW-293 for construction of an HDPE/GCL liner for Cell 2C of the Sherco Unit 3 AQCS Solids Landfill.

Leak location surveying was performed by Leak Location Services, Inc. (LLSI) in conformance with the requirements of Section 02775 of the technical specifications (included as Appendix A). Work by LLSI was performed under the observation of McCain and Associates staff. Placement of holes in the liner for the reliability assessment program was performed/observed by staff of McCain, Xcel Energy, Utility Engineering, and MPCA. Holes were placed prior to the arrival of LLSI, and neither the locations nor number of holes were not revealed to LLSI.

Assessment of the reliability of the leak location survey method and procedures was performed in conformance with the Reliability Assessment Program for Electrical Leak Location Surveying (included as Appendix B). The program included specific requirements for placement of holes in the liner, calibration of the leak location surveying equipment, and analysis of survey results.

A report from LLSI, included as Appendix C, discusses the principles of the electrical survey method, describes the calibration and survey procedures, and presents the results of the survey.

The following sections present discussion and documentation of the reliability assessment program.

Summary of Methodology and Procedures

A summary of the methodology and procedures performed for assessment of the reliability of electrical leak location surveying is presented below. See Appendices A and B for program details.

Preparation for Survey

The HDPE/GCL liner system and 2-foot thick sand drainage layer was installed in a 9.6-acre area in the northeast corner of the Pond 3N construction area. This area was designated for conducting the reliability assessment program. Eleven holes were placed in the installed liner within this area prior to the arrival of LLSI. The Reliability Assessment Program required placement of ten holes; the eleventh hole was added to evaluate the sensitivity of the leak location survey in an area with 4- to 5-foot thick cover soil.

The holes included 1-inch-diameter circular, 1-inch by 12-inch rectangular, and 6-inch-hypotenuse right triangular holes. Hole placement included complete removal of HDPE liner only, complete removal of both HDPE and GCL, and partial detachment of liner, leaving a "flap." Holes were placed by hand-excavating the drainage layer, placing holes using a utility knife, replacing sand drainage material, and GPS-surveying the location of the holes for future relocation in the event they were not detected by the leak location survey.

Hole placement activities were completed prior to the arrival of LLSI, and neither the locations nor number of holes was revealed to LLSI. LLSI was thus required to conduct a normal survey and could not concentrate survey efforts in any particular locations. Photographic and video documentation was made of hole placement. Photos of hole placement activities are included as Appendix D.

Performance of Survey

The calibration procedure required by the specification to ensure adequate sensitivity of the surveying equipment was completed at the beginning and ending of each surveying period. A ¼-inch diameter calibration hole was placed in the liner by LLSI and the calibration procedure was performed in general conformance with ASTM D7007 as defined in specification Section 02775 in Appendix A, and as described in the LLSI report in Appendix C. After satisfying the calibration requirements, a survey grid was established by LLSI and the leak location survey was performed across the 9.6-acre test area. Placement of the calibration hole, layout of grid lines, and use of the testing apparatus are shown in photographs in Appendix D.

A haul road with a 4- to 5-foot thick sand drainage layer was present within the testing area. LLSI placed a ¼-inch calibration hole beneath this thickened area and performed the calibration procedure to determine the effect of the thicker cover soils. The calibration hole was detected but did not produce the required 3:1 signal-to-noise ratio. In response, the calibration hole diameter was increased to ½ inch, and this hole produced the required results.

Since the ½-inch calibration hole does not conform to the requirements of the specification, LLSI did not include the results of this calibration in their report. A test hole (the eleventh hole) was placed by McCain beneath the haul road to assess the sensitivity of leak location surveying beneath the thickened cover soils, and was successfully located by LLSI during performance of leak location surveying.

Survey Results

The leak location survey performed by LLSI successfully located all eleven test holes and also located four other installation/construction-related holes. The installation/construction-related holes included three small puncture-type holes and one knife cut. Descriptions of the holes and plots of leak signal strength are included in the LLSI report in Appendix C. Further discussion of these holes is provided in following sections.

Discussion of Results

The electrical leak location surveying method and procedures successfully located all test holes placed as part of the reliability assessment program, thus demonstrating that the methods and procedures are a proven accurate and sensitive testing method capable of verifying the integrity of the HDPE/GCL liner system. Discussion of observations of the reliability and limitations of the testing method and performance of the HDPE/GCL liner system is provided below.

Effect of Site Preparation and Weather

Soil moisture is a critical component of the sensitivity of leak location surveying. Rainfall occurred at the site following placement of the sand drainage layer and prior to performance of leak location surveying, resulting in ample soil moisture. Additional moisture was provided by spraying water from a tank truck onto the cover soil surface.

Drainage layer samples were collected from each hole location and evaluated for moisture content. Samples were collected at a point 6 inches below the surface, at mid-depth (1-foot deep), and approximately 2 inches above the liner. Samples of subgrade soils were taken beneath the liner system after hole placement at three locations (holes 2B, 3B, and 3D). Soil moisture contents ranged from 2.0 to 10.9 percent. A tabulation of soil moisture content results is provided in Table 1.

Sunny and windy conditions during performance of the leak location survey resulted in some surface-drying of the drainage layer, but did not have an adverse affect on the sensitivity of the surveying as evidenced by the successful test results. The detection electrode penetrates the surface by at least 1 inch, and sufficient soil moisture was present at that depth.

Effect of Drainage Layer Thickness on Detection Sensitivity

Calibration of the testing equipment in the designed 2-foot-thick sand drainage layer yielded a signal-to-noise ratio of at least 63:1 at a 2.5-foot horizontal distance from the calibration hole (see Appendix C). This distance corresponds to the maximum actual detection distance that would be expected during surveying because LLSI performed the survey on a 5-foot grid. The minimum acceptable signal-to-noise ratio is 3:1, therefore actual sensitivity exceeded minimum requirements.

Calibration of the testing equipment in the 4- to 5-foot thick drainage layer in the haul road area yielded significantly different results. The minimum signal-to-noise ratio of 3:1 could not be achieved. However, the required calibration ratio was achieved when the calibration hole diameter was increased to ½ inch. This result is significant because it demonstrates that a liner defect of concern (larger than 1-inch diameter as defined by the reliability assessment program) is detectable beneath a thicker-than-usual cover soil layer.

Effect of Hole Size and Shape

All holes placed as part of the reliability assessment program were detected by the leak location survey, therefore no conclusions can be drawn as to the effect of hole size or shape. Of note, however, is that holes were equally detectable whether the GCL was left intact or removed along with the geomembrane. This result demonstrates that GCL conducts electrical current and that the electrical leak location survey method is effective for GCL-composite liners.

Installation/Construction Defects

Four holes caused by installation/construction activities were detected by the leak location survey. Three of these holes (CH1, CH2, and CH4) were small (1/4" to ½") puncture-type slits. It is believed that these holes were caused by shovels, a survey rod, or other hand tools rather than by construction equipment, but were likely created during placement of drainage sand rather than during liner installation. Shovels are used by construction laborers to cast sand ahead of dozers to trap wrinkles during sand spreading operations. Hole CH-3 is a neat cut approximately three inches long that was likely caused by a utility knife during geomembrane installation.

Of particular note is that none of the installation/construction defects were caused by heavy construction equipment and that all of these defects penetrated only the

geomembrane, not the GCL. These types of defects, although not desirable, would not cause significant leakage through the liner both because they are small and because the soil barrier component of the composite liner (GCL in this case) was not compromised.

The magnitude of the installation/construction defects, in terms of their effect on liner performance, was below the threshold established for the reliability assessment program. The fact that these defects were detected by the leak location survey further validates the accuracy and reliability of the leak location survey methods and procedures in verifying the integrity of the HDPE/GCL liner system.

Observation of GCL Self-Healing Characteristic

When holes were uncovered after having been located by the leak location survey, it was observed that holes where the GCL had also been removed had partially or fully sealed as a result of bentonite from adjacent edges of the GCL swelling into the hole. One 1-inch by 12-inch hole had completely sealed, indicating that the GCL is capable of self-healing such a defect. Photographs in Appendix D illustrate this characteristic.

Assessment of Construction Practices and Construction Quality Assurance

Construction practices were conducted in such a manner that no detectable damage to the liner was caused by heavy construction equipment. The four small installation/construction-related defects that were found indicate that minor damage can be caused by hand tools used during liner installation and cover soil placement. To prevent such damage, this potential must be communicated to and understood by liner installers and construction crews, and construction quality assurance practices must include monitoring the use of hand tools.

Construction practices included instruction to the equipment operators regarding the sensitivity of the liner to construction damage; placement of the sand drainage layer in a single two-foot lift; adherence to minimum thickness requirements for haul roads and push lanes (4-foot min.); presence of spotters working ahead of each piece of construction equipment; and awareness of and commitment by the construction contractor to providing a high-quality project.

Construction quality assurance (CQA) work included full-time on-site observation of construction practices, regular communication with the construction contractor regarding desired construction practices, and adherence to and documentation of written CQA procedures.

It is believed that placement of a two-foot-thick drainage layer (as opposed to a more typical one-foot layer) provided a higher degree of confidence that the project could be completed without significant damage to the liner resulting from construction practices. While it is believed that placement of a one-foot thick drainage layer increases the

potential for construction-practices-related liner damage, the results of this assessment program also indicate that such damage can be detected and repaired.

Assessment of Overall Reliability of Leak Location Surveying

Based upon the results of the reliability assessment program, it is determined that leak location surveying is an accurate and sensitive testing method capable of verifying the integrity of the HDPE/GCL liner system. The survey detected all eleven holes placed for the reliability assessment program as well as 4 other installation/construction-related defects.

Conclusion

The reliability assessment program was conducted with no deviations from prescribed methods and procedures (except for placement of the additional test hole as previously described). The leak location survey located 100 percent of the holes placed as part of the program. These results demonstrate the reliability of leak location surveying to predict, after placement of the drainage layer, that the composite HDPE/GCL liner system remains equivalent to a composite HDPE/CCL liner; and that the leak location survey method and procedures are a proven accurate and sensitive testing method capable of verifying the integrity of the HDPE/GCL liner system.

Based upon the results of the reliability assessment program as presented herein, Xcel Energy requests that the MPCA Commissioner approve the electrical leak location method and procedures, and thus confirm the conditional approval granted in MPCA Permit SW-293 for construction of an HDPE/GCL liner for Cell 2C of the Sherco Unit 3 AQCS Solids Landfill.

Tables

Table 1

Mettler Toledo, HG53 Holgen Moisture Analyzer
Located in Unit 3 AQCS Control Room Entrance
Temperature Setting, 160 deg C
Pond 3N Granular Drainage Sand Samples
Sampled 6-18-04, 1000 to 1300
Tested 6-18-04, 1500 to 1800
Tested 6-26-04, 1730 to 1930

Hidden Hole ID	Date Sampled	Sample Location	Test 1 Solid %	Test 2 Solids %	Test 3 Solids %	Average Solids %	Average Moisture %
1A	June 18, 2004	2" above liner	89.27	89.84	89.84	89.65	10.35
1A	June 18, 2004	6" from top	96.67	94.90	94.92	95.50	4.50
1B	June 18, 2004	2" above liner	95.74	96.54	95.25	95.84	4.16
1B	June 18, 2004	6" from top	96.84	97.25		97.05	2.96
1C	June 18, 2004	2" above liner	94.75	94.71		94.73	5.27
1C	June 18, 2004	6" from top	95.59	97.98	96.29	96.62	3.38
2B	June 18, 2004	6" from top	90.57	92.75	90.38	91.23	8.77
2B	June 18, 2004	below liner	91.59	91.40		91.50	8.51
3B	June 18, 2004	2" above liner	93.65	93.57		93.61	6.39
3B	June 18, 2004	below liner	94.46	94.88		94.67	5.33
3C	June 18, 2004	12" above liner	95.04	94.77		94.91	5.10
3C	June 18, 2004	2" above liner	95.77	95.49		95.63	4.37
3D	June 18, 2004	2" above liner	95.48	95.23		95.36	4.65
3D	June 18, 2004	6" from top	96.98	96.49	96.20	96.56	3.44
3D	June 18, 2004	below liner	98.08	97.97		98.03	1.97
1A	June 24, 2004	2 - 6 " above liner	91.64	90.86		91.25	8.75
1B	June 25, 2004	2 - 6 " above liner	91.66	91.54		91.60	8.40
1D	June 24, 2004	2 - 6 " above liner	92.65	93.29		92.97	7.03
2B	June 24, 2004	2 - 6 " above liner	88.59	89.71		89.15	10.85
2C	June 24, 2004	2 - 6 " above liner	94.84	94.89		94.87	5.13
3B	June 24, 2004	2 - 6 " above liner	88.72	89.81		89.27	10.74
3C	June 24, 2004	2 - 6 " above liner	93.44	92.99		93.22	6.79
3D	June 24, 2004	2 - 6 " above liner	92.45	92.02		92.24	7.77
1/4" Calibration Hole	June 23, 2004	2 - 6 " above liner	94.51	94.02		94.27	5.74
CH1	June 24, 2004	2 - 6 " above liner	87.64	89.36		88.50	11.50
CH2	June 24, 2004	2 - 6 " above liner	89.79	90.60		90.20	9.81
CH3	June 24, 2004	2 - 6 " above liner	89.84	88.48		89.16	10.84

Appendix A

Specification Section 02775
Electrical Leak Location Surveying of Soil-Covered Geomembrane Liner

SECTION 02775
ELECTRICAL LEAK LOCATION SURVEYING OF
SOIL-COVERED GEOMEMBRANE LINER
SHERCO SCRUBBER SOLIDS POND 3

GENERAL

1.01 SECTION INCLUDES

A. Performing leak detection sensitivity testing using "actual leaks" (see 3.02A of this Specification) placed by Owner.

B. Performing phased leak location surveying to detect Owner placed holes, and installation/construction related holes for the entire project.

C. Reporting results of leak location surveying.

1.02 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications will be included under the lump sum Contract Price bid.

1.03 REFERENCES

A. American Society for Testing and Materials, current edition, hereafter referred to as ASTM.

B. ASTM D7007: Standard Practice for Electrical Methods for Locating Leaks in Geomembranes Covered with Water or Earth Materials (most current edition).

1.04 SUBMITTALS

A. Definitions:
   1. Submit for Documentation
      a. Submittal is for the purpose of formal verification that the subject of the submittal conforms to the requirements of the Specifications, for formal documentation of the Work, or both.
      b. No action is required by Owner. Owner will notify Contractor if deficiencies are identified, however solely the Contractor is responsible for ensuring that the subject of the submittal conforms to the requirement of the Specifications.
   2. Submit for Review
      a. Submittal is for the purpose of providing opportunity to Owner for review and comment on the subject of the submittal.
      b. Owner will respond to the submittal either with a list of comments or an indication that it has no comments.
      c. If Owner's comments indicate a deficiency with respect to the requirement of the Specifications, Contractor shall amend the submittal and resubmit. Owner will again respond to the resubmittal.
      d. If Owner's comments are in regards to an issue, that based upon the Contract is at Contractor's discretion, Contractor shall furnish additional information, provide justification, and otherwise cooperate in addressing and resolving Owner's comments.

B. Submit for documentation Contractor's statement of warranty to perform the work to the best of their ability in accordance with the standard of professional practice.

C. Submit for documentation Contractor's statement of factors that influence leak detection sensitivity and accuracy and which may be adjusted or corrected in the field to improve the accuracy and sensitivity of leak detection.

D. Submit for review Contractor's leak location surveying plan, including equipment, setup requirements, survey grid spacing, data management method, QA/QC plan, crew size, and other pertinent information.

E. Submit for review a detailed schedule for leak location surveying work for each of the four testing areas as described in Article 1.05 of this Specification. The schedule shall include setup, leak detection sensitivity testing, leak detection surveying, data analysis, and reporting.

F. Submit for review an example of Contractor's proposed format for reporting results of the leak location survey.

1.05 SEQUENCING AND SCHEDULING

A. A plan for sequencing and scheduling of leak location surveying will be provided to Contractor by Owner. The plan will remain subject to change for the duration of the project to accommodate weather, construction progress, and sequencing requirements.

B. Leak location surveying shall be performed in a series of four or more phases. The first phase will be approximately 8 acres in size. The remaining three survey areas will range from approximately 12 to 16 acres in size. The phase areas are shown on the attached drawing. The number and size of phases will be subject to change based upon weather, construction progress, and sequencing requirements.

1.06 JOB CONDITIONS

A. It shall be solely the Contractor's responsibility to review available tests and reports, conduct additional tests, and otherwise determine to its own satisfaction the location and nature of all surface and subsurface features and the soil and water conditions that may be encountered.

B. It shall be solely the Contractor's responsibility to review project construction plans and specifications, sequencing and scheduling plans, and other construction-related information, and determine to its own satisfaction Contractor's ability to perform the required work within the context of the overall construction project.

C. Owner's information on site conditions may be reviewed at Owner's offices as scheduled with Owner.

1.07 WORK BY OWNER

A. Owner will prepare each phase for leak location surveying by placing soil cover over the geomembrane, isolating the cover soil from ground, and applying water and maintaining the moisture content of the cover soil.

B. Owner will place "actual leaks" (as defined in ASTM 7007, Annex A) in the liner within the surveying area for use by Contractor in performing leak detection sensitivity testing as described in Article 3.02 of this Specification.

C. Owner will place additional holes in the liner within the surveying area for the purposes described in Article 3.03 of this Specification.

D. Owner will furnish 110-volt power source for use during leak testing.

E. Owner will furnish laborers to install string lines for testing grid, and to remove cover soils from leaks.

F. Owner will maintain moisture condition of cover soils prior to and during leak testing.

PRODUCTS

NOT APPLICABLE

EXECUTION

3.01 ACCEPTANCE OF SITE AND SURVEY CONDITIONS

A. Prior to performing sensitivity testing or leak location surveying, Contractor shall notify Owner of site conditions or surveying conditions which are within Owner's ability to control (such as electrical isolation of cover soil or moisture content of cover soil) and which would inhibit Contractor's ability to locate leaks. Such conditions shall be typical of those under which leak location surveying is generally performed.

B. If, after correction of site and surveying conditions by Owner as described in Paragraph 3.01A, Contractor is unable to obtain successful results for sensitivity testing or locating Owner-placed holes (as described in Articles 3.02 and 3.03, respectively), then Contractor shall discuss with Owner additional modification to site and surveying conditions which may produce successful results. Owner will make such additional modifications if they are within reason and is able to do so.

3.02 LEAK DETECTION SENSITIVITY TESTING

A. Leak detection sensitivity testing shall be performed by Contractor using "actual leaks" placed by Owner. Sensitivity testing shall be performed within the active test area in conformance with the requirements of ASTM D7007, Annex A4, except that no water will be poured over a partially-buried leak.

B. The leak detection distance shall be computed by Contractor to produce an "R" value (as defined by ASTM D7007, Annex A4) greater than 3.0. Contractor shall make adjustments to its surveying equipment and methods as required.

C. Leak detection sensitivity testing shall be conducted, at a minimum, at the beginning and end of each day of leak surveying for each set of equipment. If leak detection sensitivity testing reveals an "R" value of 3.0 or less, the area surveyed with that set of equipment in the period since the previous successful leak detection sensitivity test shall be resurveyed at Contractor's expense.

D. Inability by Contractor to successfully complete leak detection sensitivity testing shall be cause for cancellation of the contract for surveying services. Upon cancellation, Contractor will be judged to be in default of the Contract and no payments shall be owed to Contractor.

3.03 OWNER-PLACED HOLES

A. Additional holes, other than those used for leak detection sensitivity testing, may be placed by Owner in the surveying area in order to simulate damage which may occur as a result of placing cover soils over the geomembrane. Such holes will be a minimum size of 1 inch in diameter and the locations will be unmarked. Contractor shall be required to detect these holes as part of routine surveying. Failure to locate Owner-placed holes will invalidate the surveying work performed by Contractor on that day. Owner will reveal the hole locations to Contractor if Contractor is unable to locate them, and provide Contractor the opportunity to determine the cause of failure to locate the holes, make necessary adjustments to the surveying equipment and methods, and re-survey. Adjustments and resurveys shall be solely at Contractor's expense.

B. Inability by Contractor to detect Owner-placed holes during daily survey work, after attempting remedy as described in Article 3.01 and Paragraph 3.03A shall be cause for cancellation of the contract for surveying services. Owner will be liable only for the cost of mobilization and area successfully surveyed through the time of cancellation.

3.04 LEAK LOCATION SURVEYING

A. Contractor shall perform the leak location survey procedure in conformance with the surveying plan submitted above and in conformance with ASTM D7007.

B. Leak location surveying shall be performed with grid spacing, measurement electrode spacing (for dipole measurements), and distance from the current source electrode not greater than the respective spacing and distance determined from the sensitivity tests.

C. Contractor shall mark detected leak locations with lath, flagging, or similar marking, and shall notify Owner for removal of cover soil from the area.

D. Resurveying shall be performed in the areas near leak locations to verify that repairs were adequate and that an additional leak is not present which may have been masked by the detected leak.

E. Periodic leak detection sensitivity testing and re-surveying, if necessary, shall be completed in conformance with ASTM D7007 and as described in Paragraph 3.02C.

3.05 REPORTING

A. Contractor shall field-report to Owner summary results of surveying on a daily basis. Daily reports shall include:
   1. The results of beginning- and end-of-day leak detection sensitivity tests
   2. A sketch of the area surveyed that day, showing grid lines and surveying limits
   3. A summary of leaks detected and repair/resurvey status

B. Interim written reports with supporting data shall be submitted to Owner within one week of completion of leak location surveying within each phase area.

C. Interim reports shall contain the following items:
   1. A discussion of the results of leak location sensitivity tests and actions taken in response to the tests.
   2. A map of the phase area showing the limits of the leak location survey, the layout of the surveying grid, the location of the current source electrode, and other pertinent layout information.
   3. A complete description of the leaks found, including location, size, configuration, and photographs. The report shall clearly distinguish between Owner-placed holes and installation/construction-related holes. Owner will furnish a tabulation of Owner-placed holes for Contractor's use in preparing the report.
   4. A discussion of Contractor's success or failure to consistently detect Owner-placed holes.

D. A final report shall be submitted within two weeks of completion of the final phase of surveying. The final report shall compile the information from the interim reports and in addition shall contain a description of the leak location methods and procedures, the survey methodology, the liner components and configuration, and cover and subgrade soil types and conditions.

E. The final report shall include as an appendix electronic data files containing plots of leak signals from sensitivity testing, Owner-placed holes, and construction-related holes along with maps, grids, and other information necessary to locate each data set within the project limits.

END OF SECTION 02775

Appendix B

Reliability Assessment Program for Electrical Leak Location Surveying

Reliability Assessment Program for Electrical Leak Location Surveying

Scrubber Solids Pond No. 3

Sherburne County Generating Plant

Northern State Power Company, d.b.a Xcel Energy

April 28, 2004

Purpose

The purpose of the reliability assessment program for electrical leak location surveying is to evaluate the ability of the testing method to reliably detect the presence of construction-related defects in a soil-covered geomembrane. The following parameters will be evaluated:

- The effect of testing conditions on detection reliability
- The effect of defect size, shape, and location on detection reliability
- The adequacy of the leak detection sensitivity test specified in ASTM D 7007 in establishing detection reliability
- The effectiveness of construction practices in preventing construction-related damage to the geomembrane
- The effectiveness of CQA procedures in observing construction damage as it occurs

Methodology

Holes will be placed in the liner system, either before or after placement of cover soils. A variety of hole sizes and configurations will be placed, ranging from a 1-inch circular hole to simulate puncture of the liner by a foreign object in the cover soil, to larger rectangular and triangular holes to simulate damage from dozer tracks and blades. Some holes will penetrate the geomembrane only, leaving the GCL intact, and some holes will penetrate both the geomembrane and GCL.

The purpose of this project is to determine detection reliability for construction damage rather than installation defects. Therefore, small holes and knife cuts will not be placed. Such defects are not likely to affect the function and performance of the GCL, thereby preserving the design intent of the composite liner (that the GCL serve as a backup to the geomembrane where the geomembrane is damaged).

The testing area will be approximately 8 acres in size. 10 holes will be placed and covered so the location is unknown to the testing contractor. Hole placement will be distributed across the testing area with emphasis on likely damage areas and the edges of the testing grid. A preliminary schedule of holes sizes/configurations is provided in the table below. Conceptual locations are shown on the attached figure.

Designation	# Placed	Description	Explanation
Type 1	4	1"-diameter circle, geom. only removed	Simulates puncture by foreign object in cover soil
Type 2A	1	1"x12" rectangle, geom. only removed	Simulates dozer track damage
Type 2B	1	1"x12" rectangle, geom. & GCL both removed	Simulates dozer track damage
Type 3A	1	6"-hypotenuse right triangle, geom. only removed	Simulates dozer blade damage
Type 3B	1	6"-hypotenuse right triangle, geom. & GCL removed	Simulates dozer blade damage

Type 3C	1	6"-hypotenuse right triangle, geom. only left as flap	Simulates dozer blade damage
Type 3D	1	6"-hypotenuse right triangle, geom. & GCL both left as flap	Simulates dozer blade damage

Procedure

1. Prepare and inspect testing area. This includes completing normal installation and testing of geomembrane, placement of cover soils, and electrically-isolating the testing area.
2. Place, cover, and mark the location of an "actual leak" (term used in ASTM D 7007) to be used for leak detection sensitivity testing. The following modifications to ASTM D 7007, Annex A4 will be made for sensitivity testing: Water will not be poured over the test hole. This modification is intended to produce testing conditions for the test hole that match overall conditions of the testing area. Moisture is required for completion of an electrical circuit through the test hole. Water will be applied to the entire testing area using water trucks with spray bars or cannons. Thus the same amount of moisture will be applied to the sensitivity test hole as to the remainder of the testing area.
3. Place, survey the location of, and cover additional "blind" test holes.
4. Perform leak detection sensitivity test in accordance with Annex A to ASTM D 7007. This test will establish the testing grid spacing required to obtain an R value (ratio of leak signal strength plus background noise to background noise) of at least 3.0.
5. Lay out grid lines and conduct leak location survey.
6. Excavate leak locations identified by the leak location survey. Collect soil samples for moisture content testing at the surface, mid-depth, and bottom of the excavation.
7. Re-survey the areas around the excavated leak locations to verify that additional leaks are not present, the signal from which may have been masked by the detected leak.
8. Repair and re-cover the located leaks.
9. If the leak location survey fails to detect placed holes, make adjustments to the testing conditions and re-survey. Such adjustments may include applying more water and decreasing the spacing of the survey grid. If the second survey fails to detect the holes, an assessment of the reasons for failure will be made. The assessment will include excavating the holes, collecting soil samples for moisture content analysis, observing the condition of the holes relative to the status of a complete electrical circuit, and discussion of potential reasons for detection failure.
10. If holes resulting from construction activities are detected, an assessment will be made regarding the construction practices which caused the damage to occur and CQA procedures which failed to detect the damage as cover soils were being placed.

Documentation

The following documentation will be produced for the leak location survey:

1. Photographs and surveyed locations of all holes placed.
2. Description of water application procedures, rates, and frequency
3. Summary of weather conditions during liner installation, cover soil placement, and electrical leak location surveying
4. Plots of leak detection sensitivity testing demonstrating R value of 3.0 or greater
5. Tabulation of holes, including size/shape, location, conditions, soil moisture, etc.)
    a. Holes found during leak location surveying
    b. Holes not found during leak location surveying
    c. Holes caused by construction equipment

6. Plots of leak signal strength for holes found
7. Results of assessment for failure to detect holes if such failure occurs
8. Results of assessment of construction practices and CQA procedures if construction damage is found
9. Assessment of overall reliability of leak location surveying for detecting holes caused by placement of cover soils

Appendix C

LLSI Interim Report for
Geomembrane Leak Location Survey
Sherco Scrubber Solids Pond 3

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

July 21, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Interim Report for "Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3 Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531

Dear Mr. Bluhm:

On June 23 through June 28, 2004, Herman Flores, Edgar Barraza, Daren Laine and Lance Simmons of Leak Location Services, Inc. conducted a leak location survey of the first section of the newly constructed forty-eight acre Scrubber Solids Pond 3 located at the Xcel Energy Sherco Site near Becker, Minnesota. The pond is being lined from the top down with 24-inches of sand, a single 60-mil HDPE geomembrane, a geosynthetic clay liner (gcl), and sand subgrade. The initial survey was conducted in the northeast corner of pond 3 and had an area of approximately 10 acres. This report gives the results of the survey.

I. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high voltage across the liner and measure the resulting potential gradients on or in the conducting material covering the liner. If there are holes in the geomembrane, the electrical current flowing through the holes will cause measurable anomalies in the electrical potential. The location of these anomalies indicate the position of the hole.

II. LEAK LOCATION PROCEDURES

A high voltage isolated DC power supply was used to impress a voltage across the geomembrane liner by connecting the power supply to a pair of electrodes placed on opposite sides of the geomembrane. One electrode was placed in the sand drainage layer located on top of the primary liner and the second electrode was placed in the sand sub-grade. Therefore, the geomembrane liner provided an electrical barrier between the electrodes except where there were

holes in the geomembrane liner. Electrical current flowing through the holes in the geomembrane liner produced localized anomalous areas of high current density near the holes.

The survey of the cell was conducted by making potential gradient measurements on the moist sand with measurement electrodes spaced approximately 2.5 feet apart. These measurements were made approximately every 3 feet along numbered survey lines that were spaced approximately 5 feet apart. A portable digital data logger was used to collect the data. The data was then down-loaded into a portable computer for display, plotting, and analysis.

III. LEAK DETECTION SENSITIVITY/CALIBRATION TESTS

For the Leak Detection Sensitivity/Calibration Test, the sand drainage material was temporarily removed from a small area of the test section to expose the bare geomembrane. This provided access to the geomembrane for placement of the calibration test hole. A 0.25 inch-diameter hole was drilled through the geomembrane using a cordless drill and drill bit. Care was used not to drill through the underlying gcl. The drilled hole was then covered and the area back-filled with two-feet of sand drainage material.

A grid of parallel string lines spaced 2.5 apart was laid out on the sand drainage material above the calibration test hole with a zero line placed directly over the hole. The lines had a length of 100 feet with the mid-point located over the center of the test hole. Figure 1 shows a layout drawing of the sensitivity/calibration test hole setup.

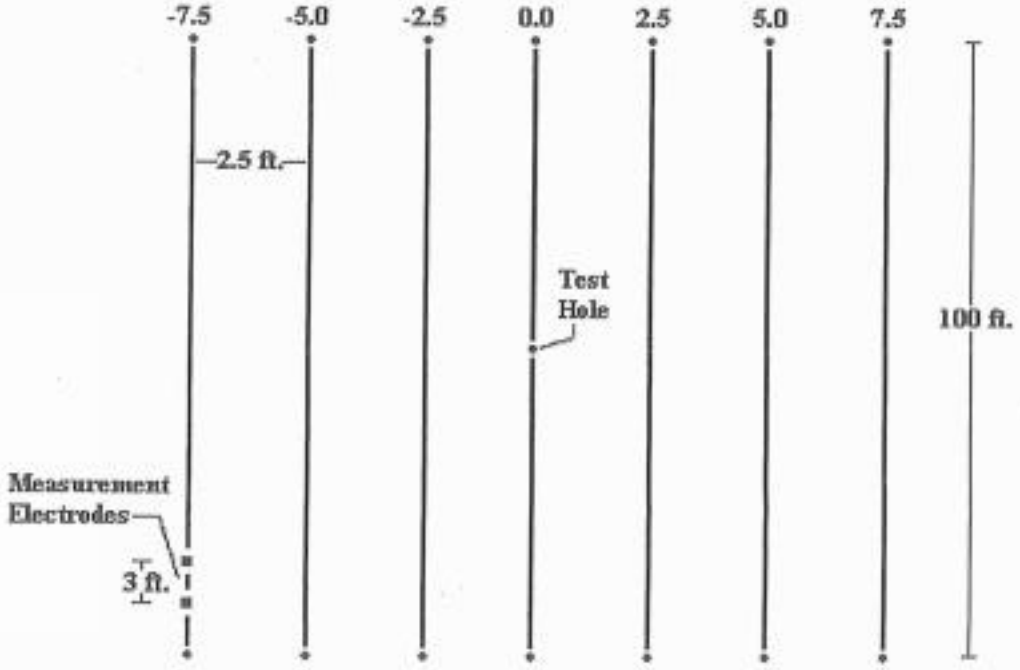

Figure 1. Leak Detection Sensitivity Test String Line Setup

A sensitivity/calibration test was performed with each set of data collection equipment at the beginning and end of each day. This information was documented and recorded on an LLSI sensitivity/calibration work sheet for future reference. Figure 2 shows a typical plot of a sensitivity/calibration test for the Sherco site with the sensitivity work sheet presented in Table1. All leak detection sensitivity tests passed with a minimum signal to noise ratio of greater than 3:1 from a distance of 7.5 feet. A sensitivity/calibration plot for CalH3 is presented in the Appendix.

Therefore, pursuant to ASTM D-7007, the defined leak detection survey distance was 7.5 feet with a survey line spacing of 15 feet. However, as an added safety factor and to allow for any changes that may occur in the sensitivity/calibration tests between the beginning and end of each day the survey data was conducted using a survey line spacing of 5 feet.

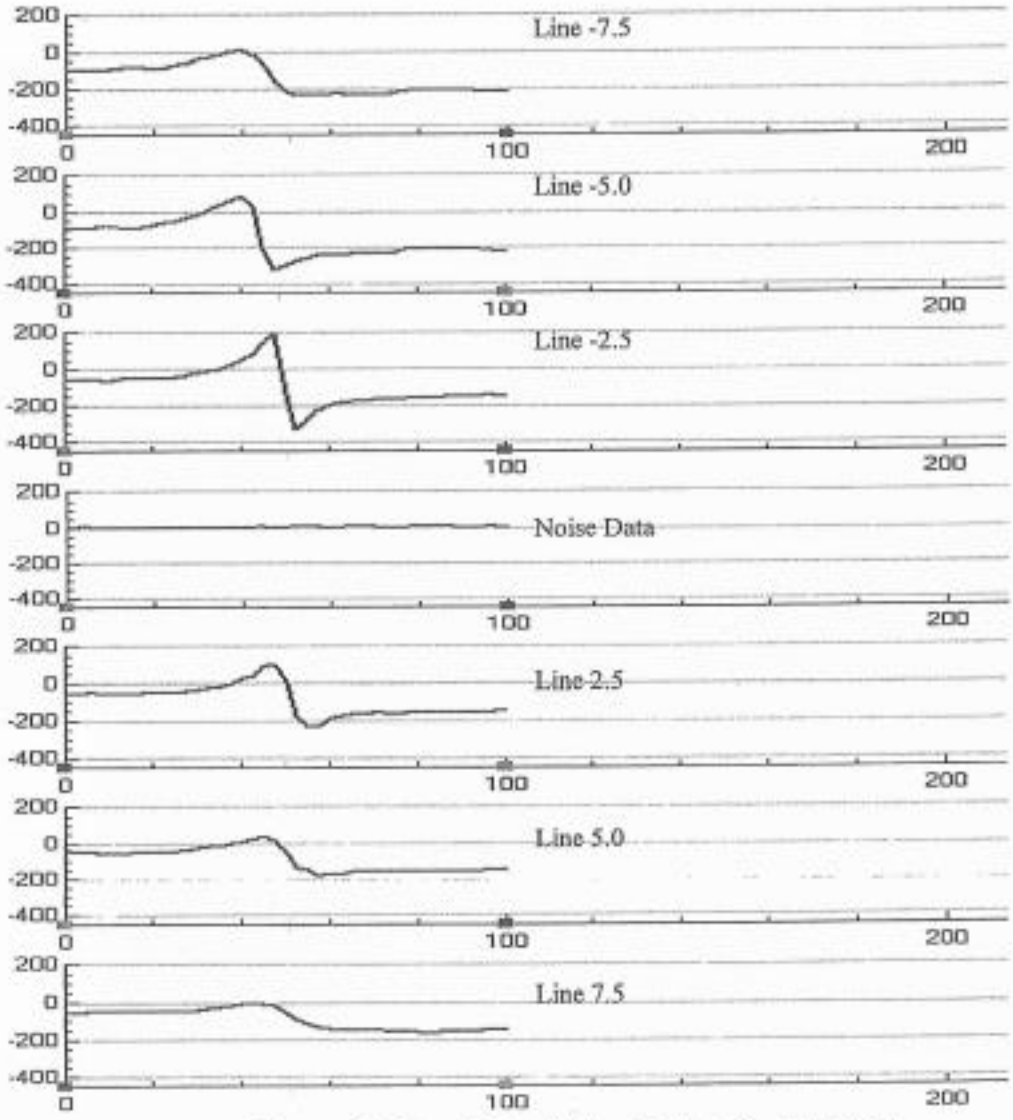

Figure 2. Plot of Sensitivity/Calibration Test Data

TABLE 2. TYPICAL SENSITIVITY/CALIBRATION DATA WORK SHEET

Line Number / Position (ft.)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN (S+N)	Signal/ Noise	S/N Ratio* (R)	Pass or Fail
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-5.0	88	-324	412	412/4	103:1	Pass
-2.5	194	-328	522	522/4	130.5:1	Pass
0.0	4	0	4			
2.5	102	-236	338	338/4	84.5:1	Pass
5.0	36	-182	218	218/4	54.5:1	Pass
7.5	-4	-164	160	160/4	40:1	Pass

* Passing is a signal to noise ratio of 3:1.

IV. SURVEY RESULTS

A total of eighteen holes were located in Test Area 1 of the Scrubber Solids Pond 3 primary geomembrane liner. Figure 3 shows the approximate position of each of the located leaks.

Eleven of the holes were identified as verification test leaks (1A, 1B, 1C, 1D, 2A, 2B, 2C, 3A, 3B, 3C, 3D) and were placed at various locations in the primary geomembrane by Xcel Energy. The purpose of verification test holes was to demonstrate the sensitivity and reliability of the leak location survey method to detect and locate leaks of different sizes and shapes under two-feet of cover material. The eleven verification test holes are listed in Table 2. Plots of leak signals are presented in the attached appendix.

Three 0.25 inch-diameter drill holes were placed in the primary geomembrane for use as sensitivity/calibration test holes. These holes are labeled as CalH1, CalH2, CalH3 and are listed in Table 3. Calibration hole number two (CalH2) was located under the haul road that had four feet of sand drainage material covering the geomembrane liner. Initially CalH2 was a 0.25 inch-diameter drill hole that was used to demonstrate the leak detection sensitivity under the thicker drainage material. The 0.25 inch-diameter hole was detectable in the data but did not pass the 3:1 signal to noise ratio as defined in the ASTM standard. Therefore, the hole was enlarged to a 0.5 inch-diameter drill hole and the sensitivity/calibration test repeated. The 0.5 inch-diameter drill hole passed the ASTM standard. However, because the smaller leak did not pass the ASTM leak detection acceptance criteria the area covered by the haul road will be re-tested at a later date once the additional drainage material is removed.

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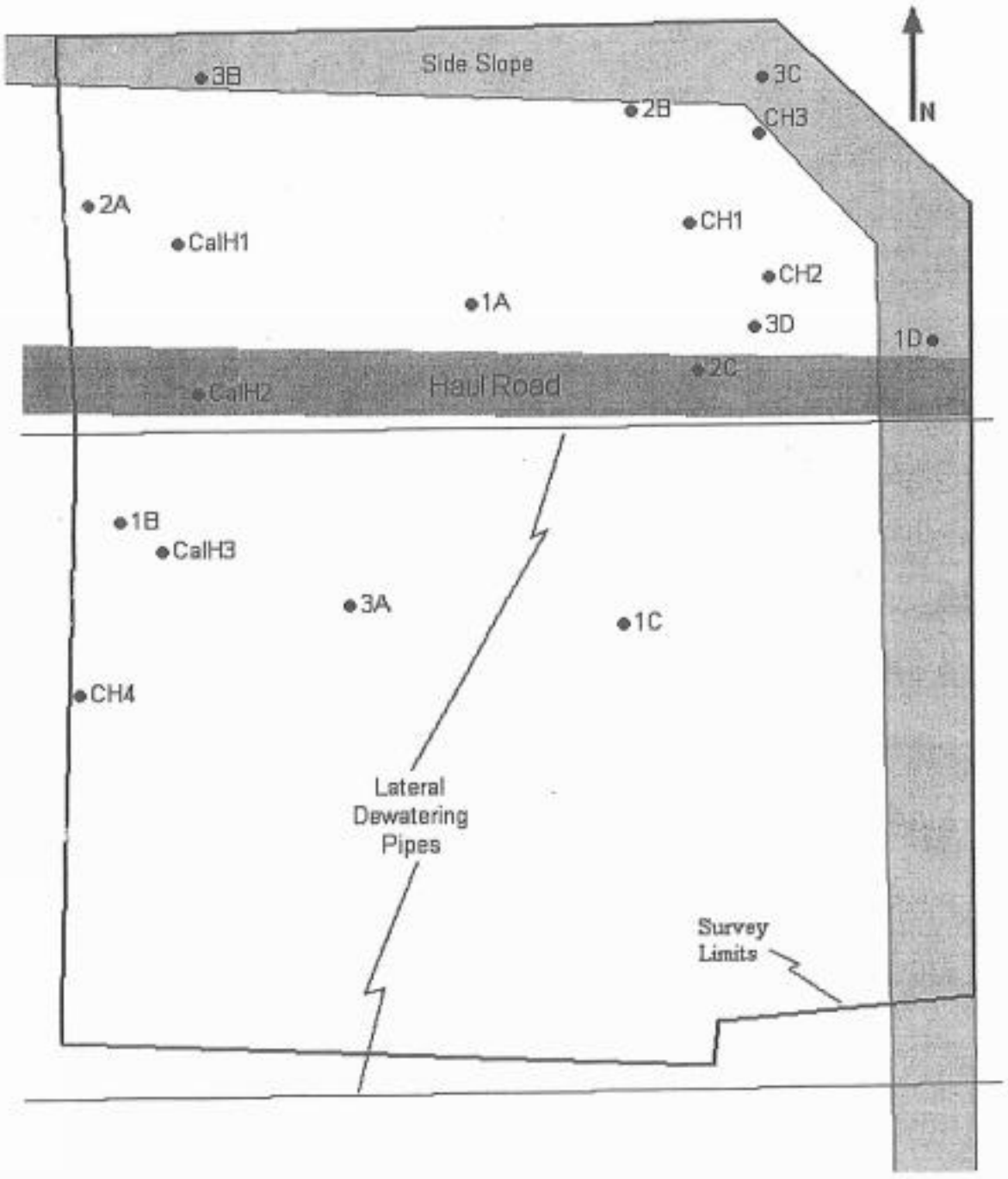

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If there are any questions regarding the electrical survey or this interim report, please contact us at (210) 408-1241. We appreciate the opportunity to have been of service to Xcel Energy on this important survey project.

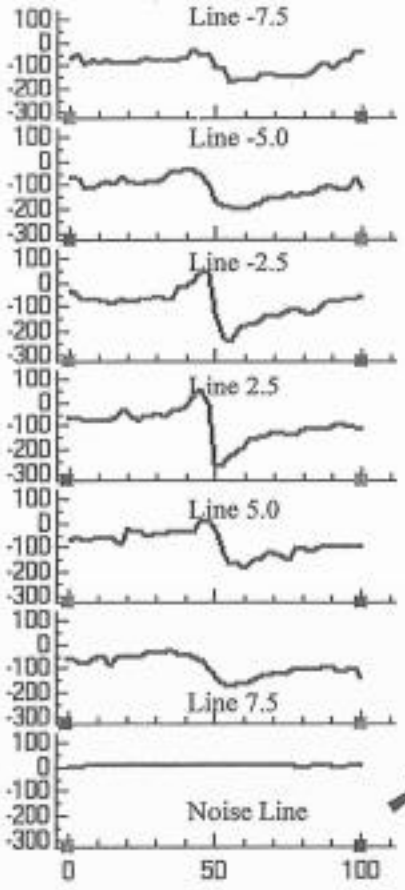
Very truly yours,

Robert M. Stephens III
Project Manager

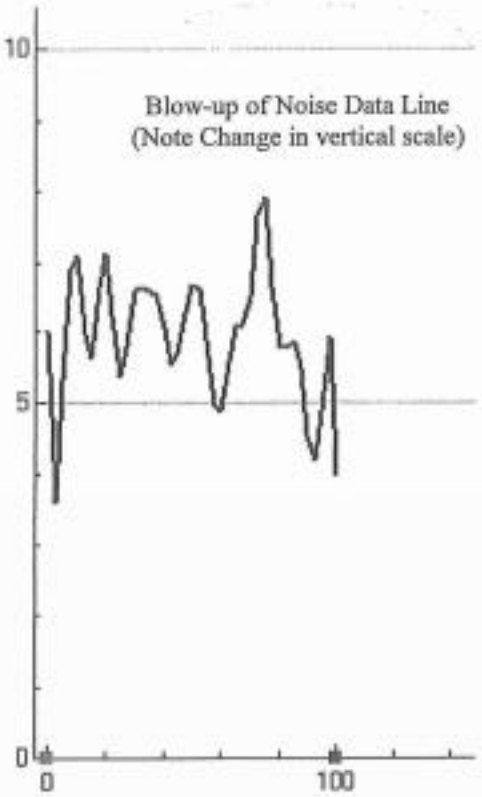
Approved by:

Daren L. Laine
President

Appendix



Data Plots for CalH3

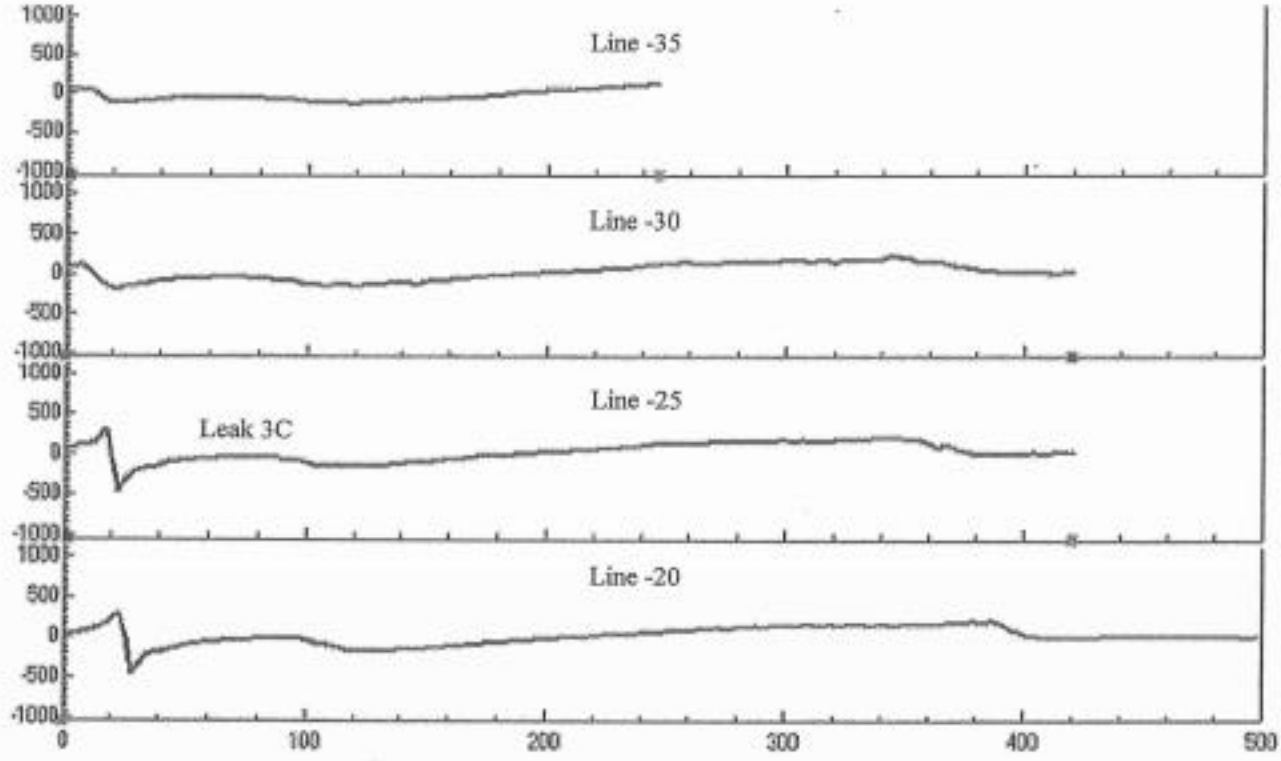


Expanded View of Noise Data for CalH3

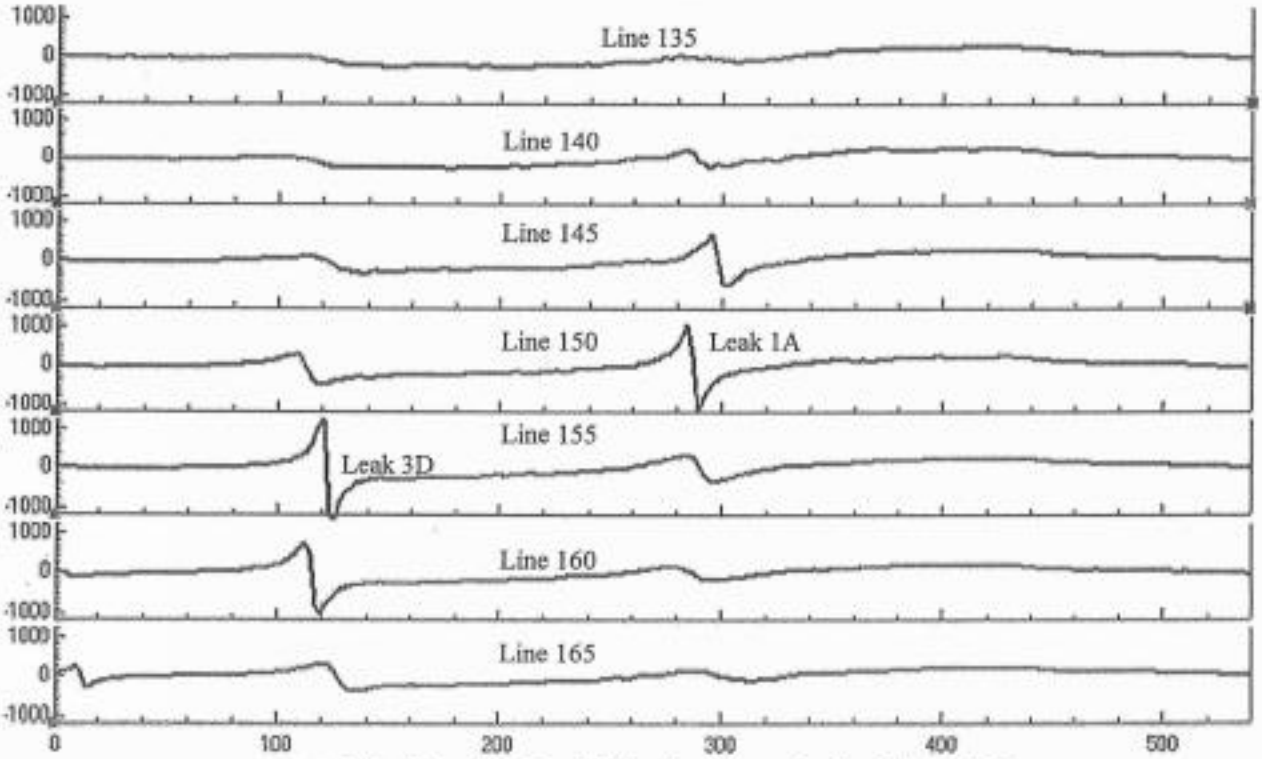
Line Number / Position (ft.)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN (S+N)	Signal/ Noise	S/N Ratio* (R)	Pass or Fail
-7.5	-24	-172	148	148/4.5	32:1	Pass
-5.0	-26	-198	172	172/4.5	38:1	Pass
-2.5	42	-242	284	284/4.5	63:1	Pass
0.0	8	3.5	4.5			
2.5	60	-268	328	328/4.5	72:1	Pass
5.0	12	-184	196	196/4.5	43:1	Pass
7.5	-24	-172	148	148/4.5	32:1	Pass

* Passing is a signal to noise ratio of 3:1.

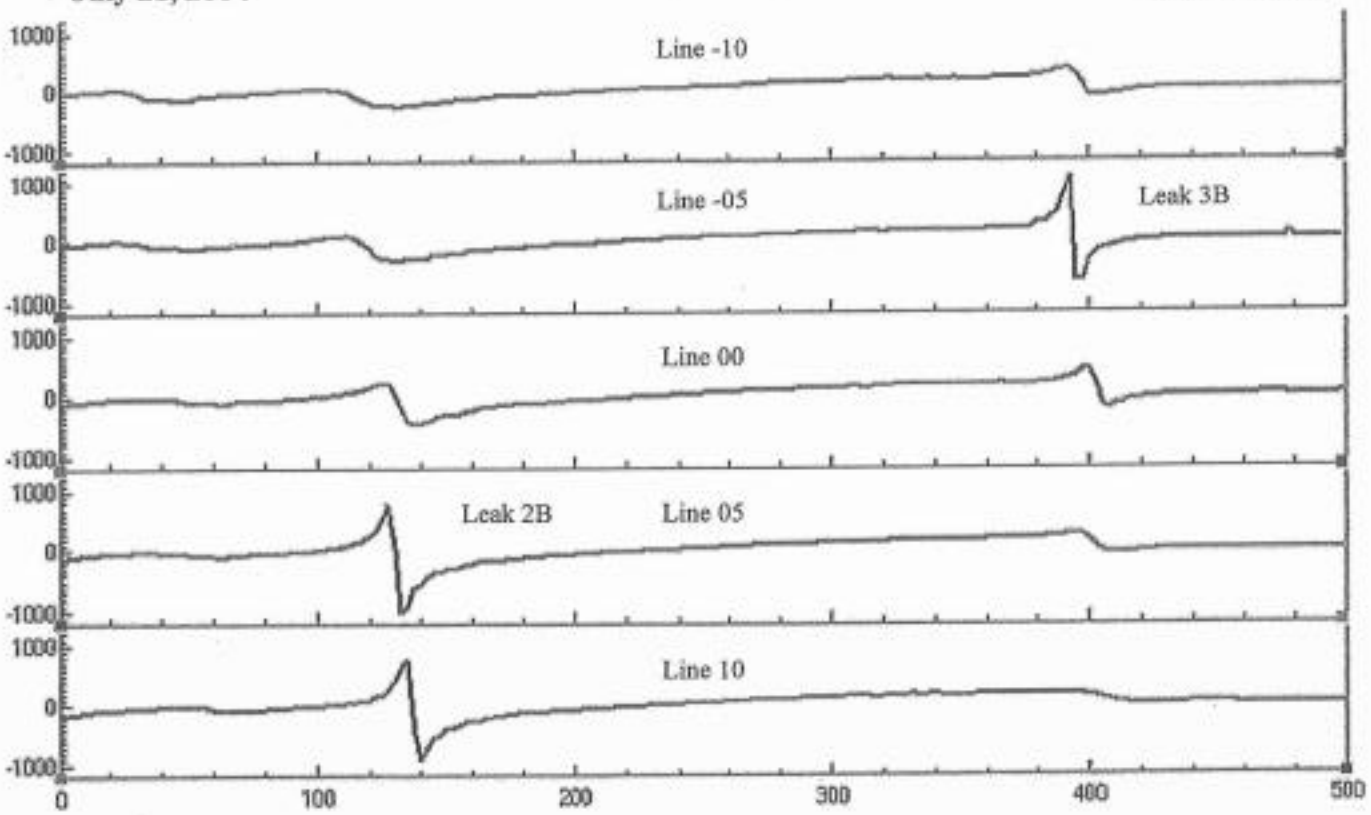
Sensitivity/Calibration Plots and Work Sheet for a 0.25 Inch-Diameter Test Leak (CalH3)



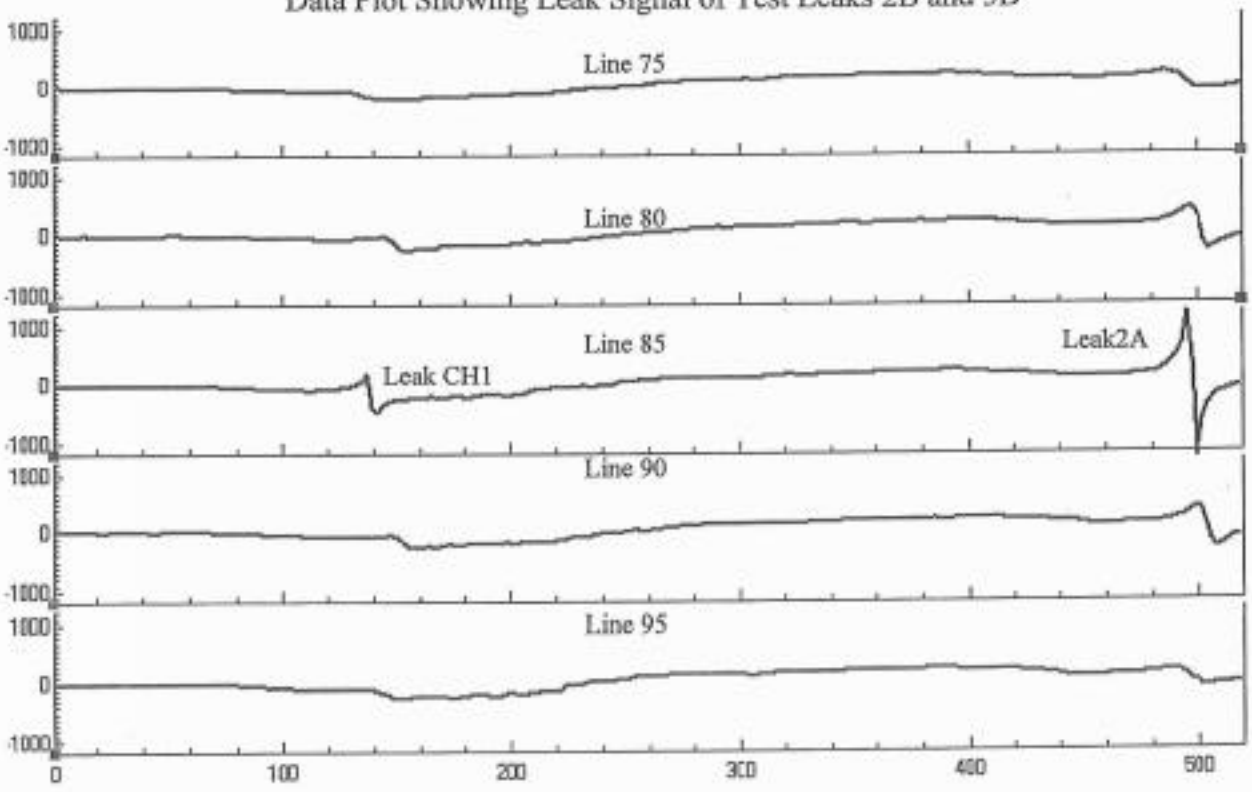
Data Plot Showing Leak Signal of Test Leak 3C



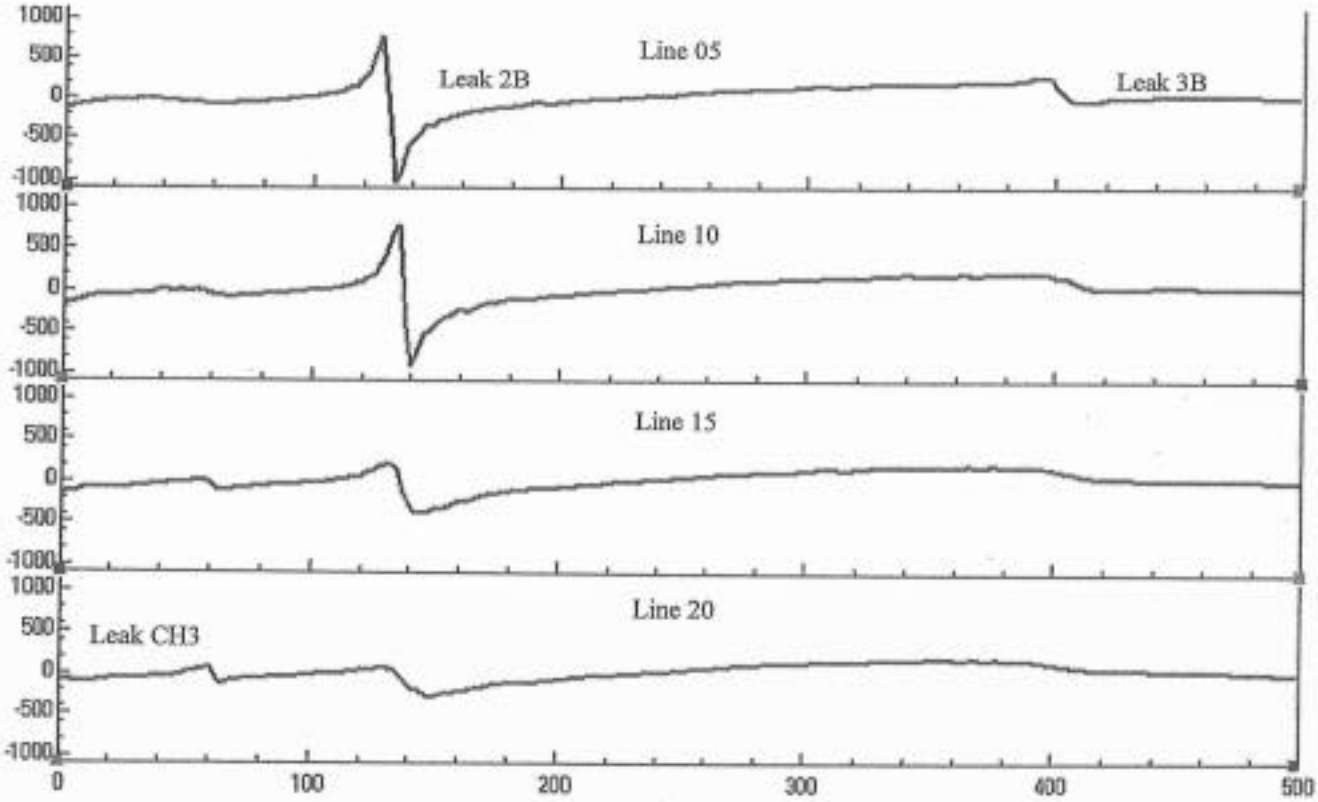
Data Plot Showing Leak Signal of Test Leaks 1A and 3D



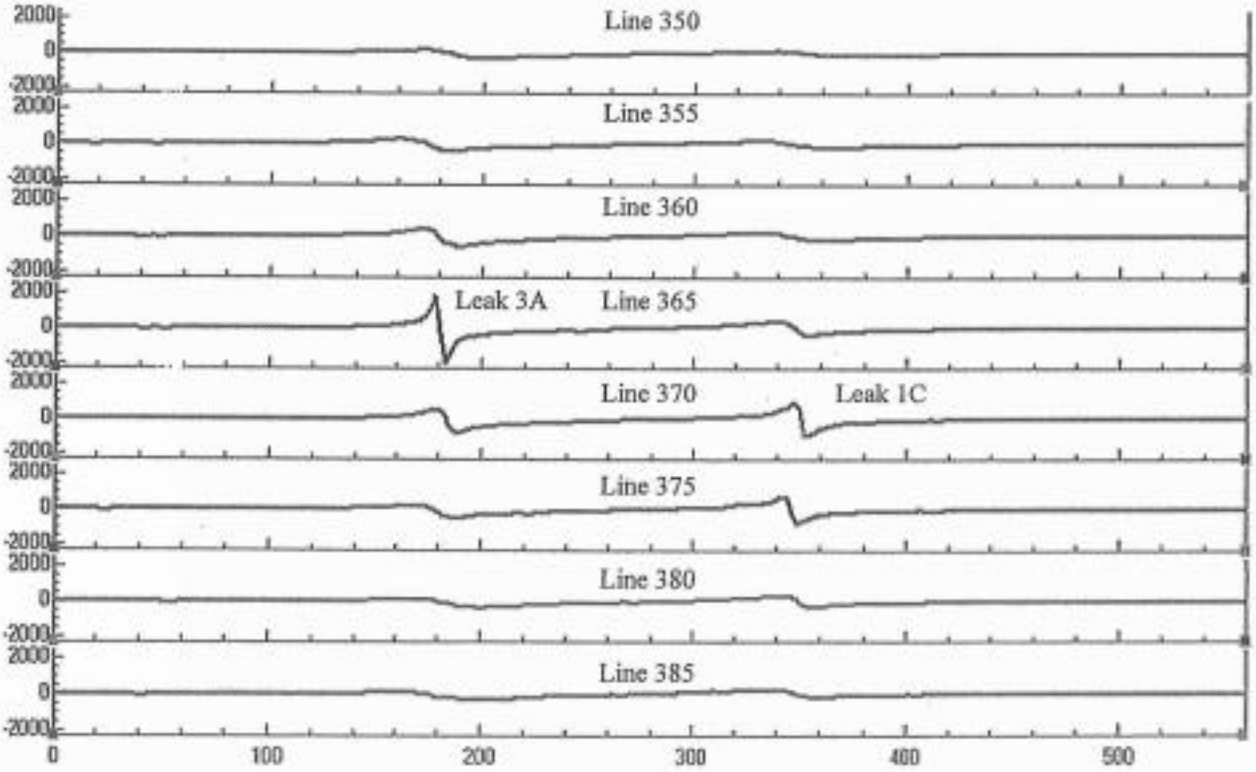
Data Plot Showing Leak Signal of Test Leaks 2B and 3B



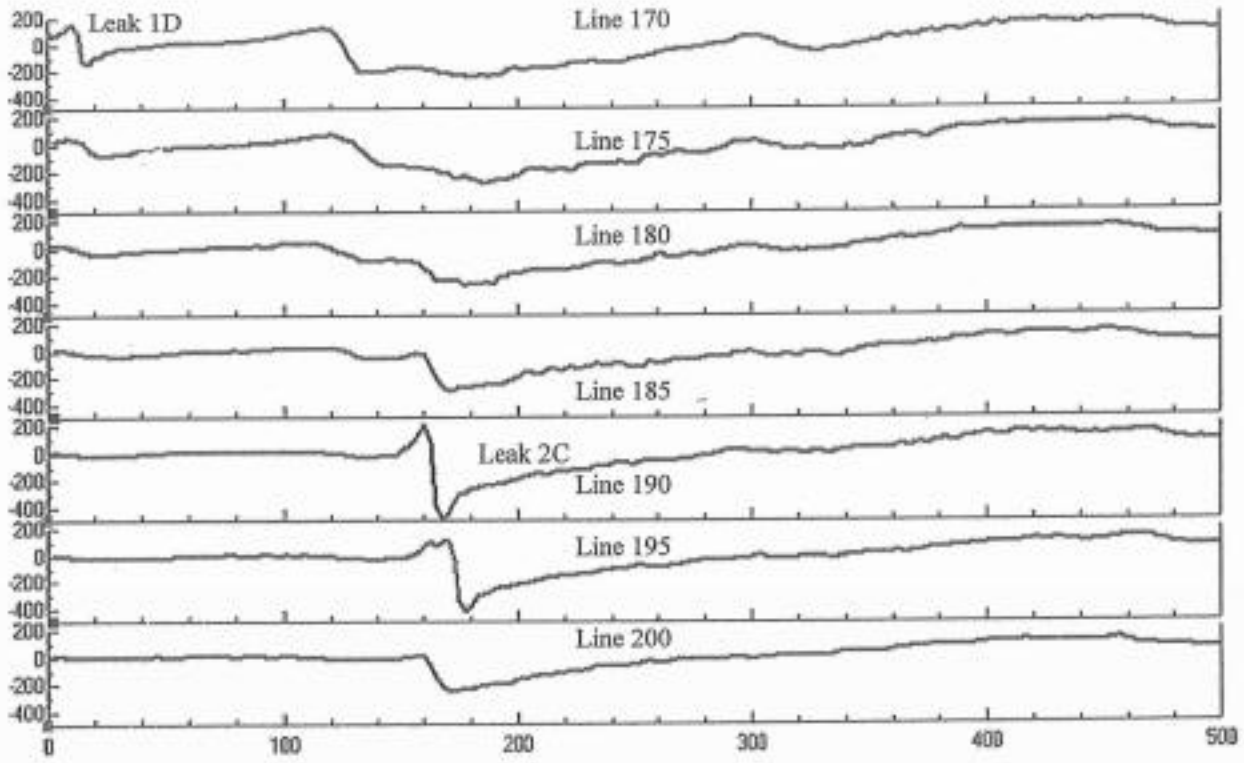
Plots of Data Showing Signals for Leaks 2A and CH1



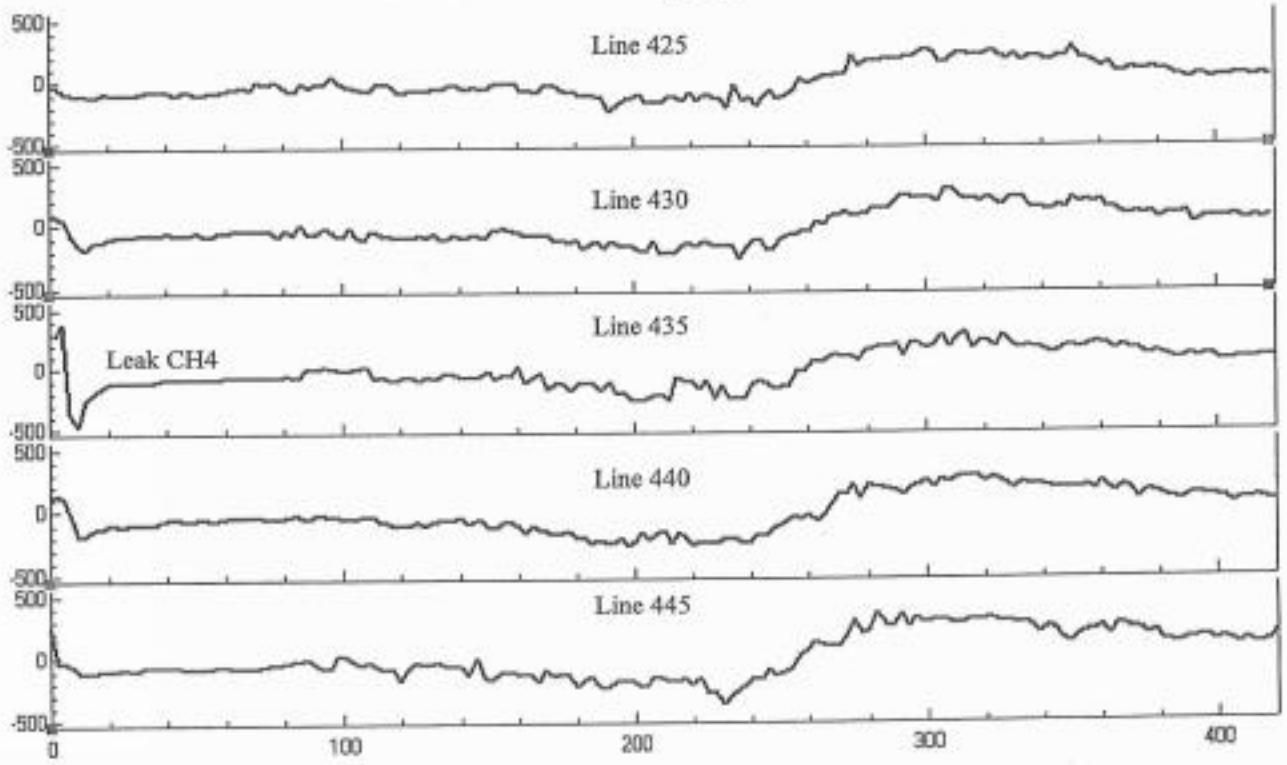
Plots of Data Showing Signals for Leaks 2B, 3B and CH3



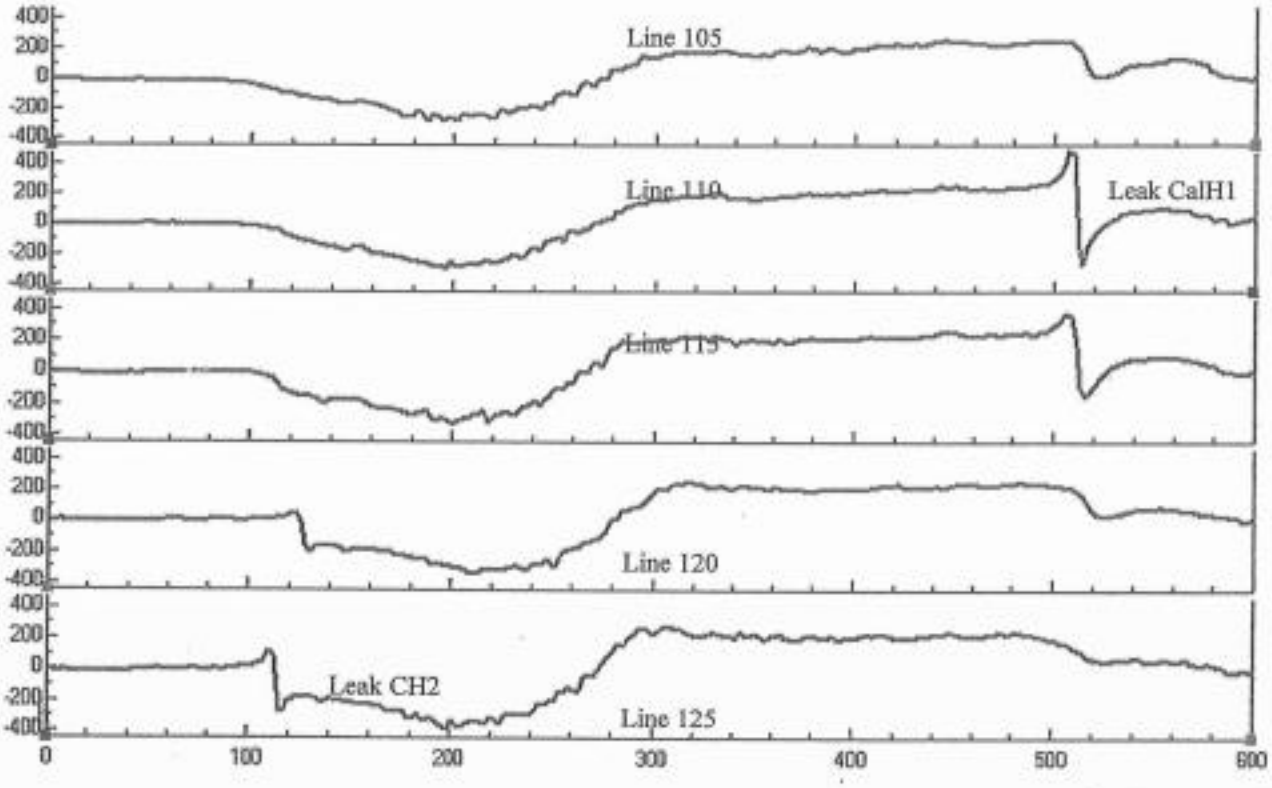
Plots of Data Showing Signals for Leaks 3A and 1C



Plots of Data Showing Signals for Leaks 1D and 2C



Plots of Data Showing Signal for Leak CH4



Plots of Data Showing Signals for Leaks CalH1 and CH2

Appendix D

Photographic Documentation



Photo 1: Digging through drainage sand to place reliability-testing hole in liner system.



Photo 2: Placement of reliability-test hole in liner system.



Photo 3: Lathe marking test hole after drainage sand is placed back over hole. Location was surveyed and lathe was removed prior to leak location testing.



Photo 4: Isolating liner system to be tested by exposing edges of geomembrane.



Photo 5: Test hole 1A a 1-inch diameter circle, geomembrane only removed.



Photo 6: Test hole 1B a 1-inch diameter circle, GCL and geomembrane both removed.



Photo 7: Test hole 1C, 1-inch diameter circle, geomembrane only removed.



Photo 8: Test hole 1D, 1-inch diameter hole, geomembrane and GCL both removed.

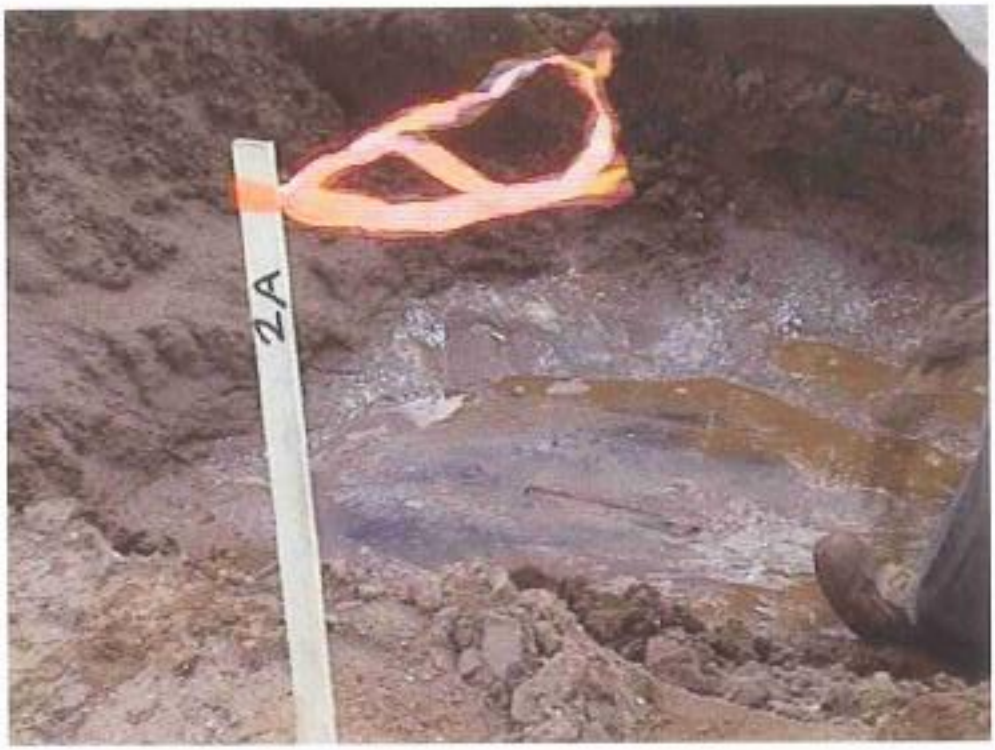


Photo 9: Test hole 2A a 1 x 12-inch rectangle, geomembrane only removed.



Photo 10: Test hole 2B, 1 x 12-inch rectangle, GCL and geomembrane both removed.



Photo 11: Test hole 2C, 1 x 12-inch rectangle, geomembrane only removed.



Photo 12: Test hole 3A a 6-inch hypotenuse right triangle, geomembrane only removed.

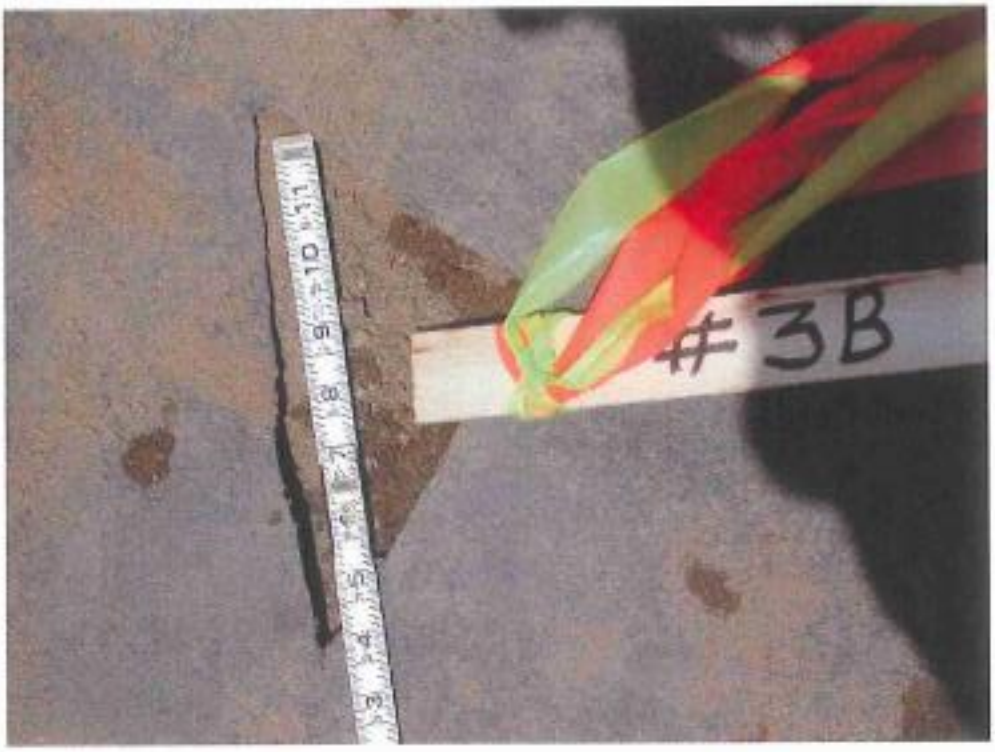


Photo 13: Test hole 3B, 6-inch hypotenuse right triangle, GCL and geomembrane both removed.



Photo 14: Test hole 3C, 6-inch hypotenuse right triangle, geomembrane only left as flap.

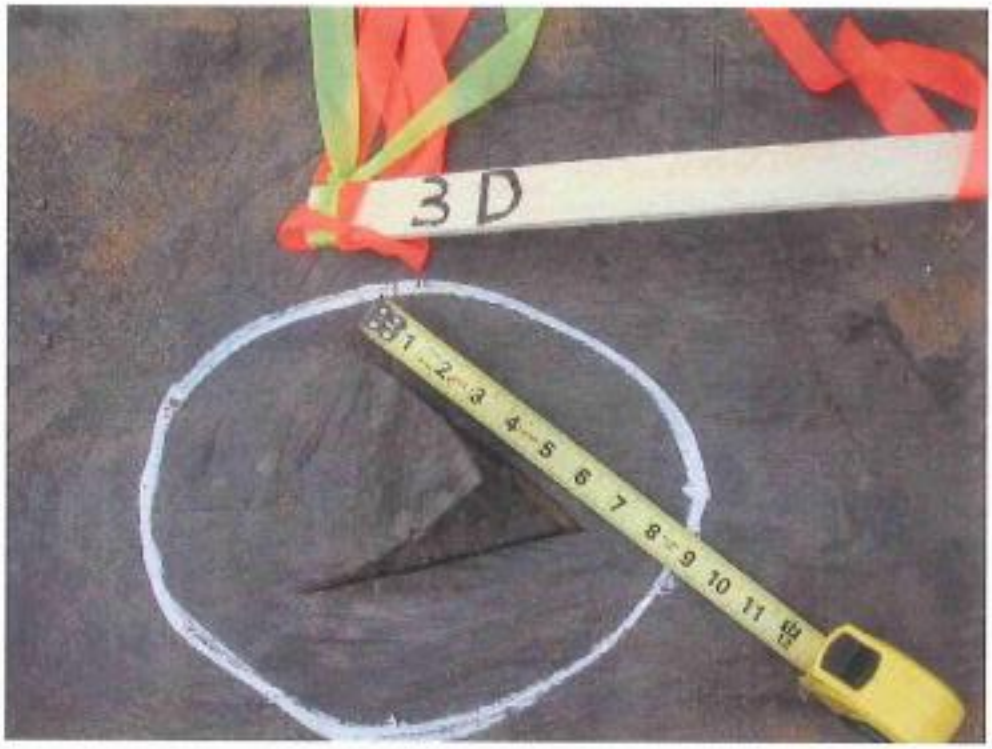


Photo 15: Test hole 3D, 6-inch hypotenuse right triangle, geomembrane and GCL both left as flap.



Photo 16: Construction hole CH1 found during leak location testing.



Photo 17: Construction hole CH2 found during leak location testing.



Photo 18: Construction hole CH3 found during leak location testing.



Photo 19: Construction hole CH4 found during leak location testing.



Photo 20: Grid lines spaced at 10 feet. Surveying performed along each line and at mid-point between lines for 5-foot survey grid.



Photo 21: Drill used to install calibration holes in geomembrane.

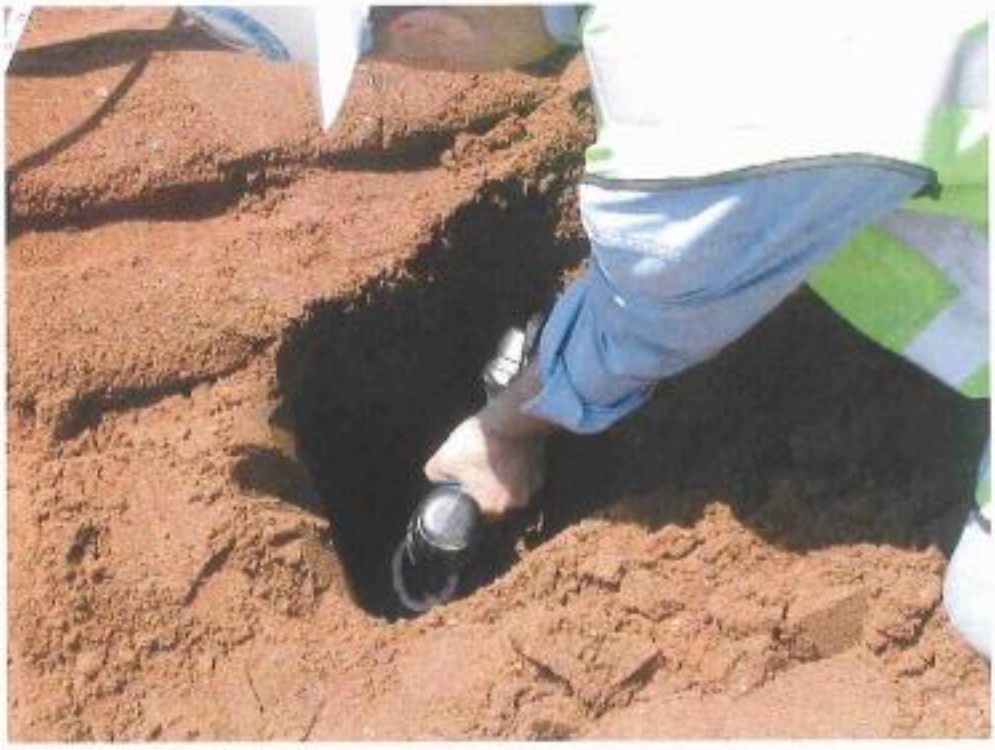


Photo 22: Drilling of calibration holes, typical of CAL H1 and CAL H2.



Photo 23: Instrument used to perform leak location survey.



Photo 24: Completing the leak location survey.



Photo 25: Picture of test hole 2B found during leak location testing. Note how GCL has filled hole after geomembrane and GCL was removed.



Photo 26: Picture of test hole 1A after repairs were made to liner system.

Interim Reports for Geomembrane Leak Location Surveying
And
Report for Leak Location Survey of Two Geomembrane Lined Manholes

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

July 21, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Interim Report for "Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3 Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531

Dear Mr. Bluhm:

On June 23 through June 28, 2004, Herman Flores, Edgar Barraza, Daren Laine and Lance Simmons of Leak Location Services, Inc. conducted a leak location survey of the first section of the newly constructed forty-eight acre Scrubber Solids Pond 3 located at the Xcel Energy Sherco Site near Becker, Minnesota. The pond is being lined from the top down with 24-inches of sand, a single 60-mil HDPE geomembrane, a geosynthetic clay liner (gcl), and sand subgrade. The initial survey was conducted in the northeast corner of pond 3 and had an area of approximately 10 acres. This report gives the results of the survey.

I. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high voltage across the liner and measure the resulting potential gradients on or in the conducting material covering the liner. If there are holes in the geomembrane, the electrical current flowing through the holes will cause measurable anomalies in the electrical potential. The location of these anomalies indicate the position of the hole.

II. LEAK LOCATION PROCEDURES

A high voltage isolated DC power supply was used to impress a voltage across the geomembrane liner by connecting the power supply to a pair of electrodes placed on opposite sides of the geomembrane. One electrode was placed in the sand drainage layer located on top of the primary liner and the second electrode was placed in the sand sub-grade. Therefore, the geomembrane liner provided an electrical barrier between the electrodes except where there were

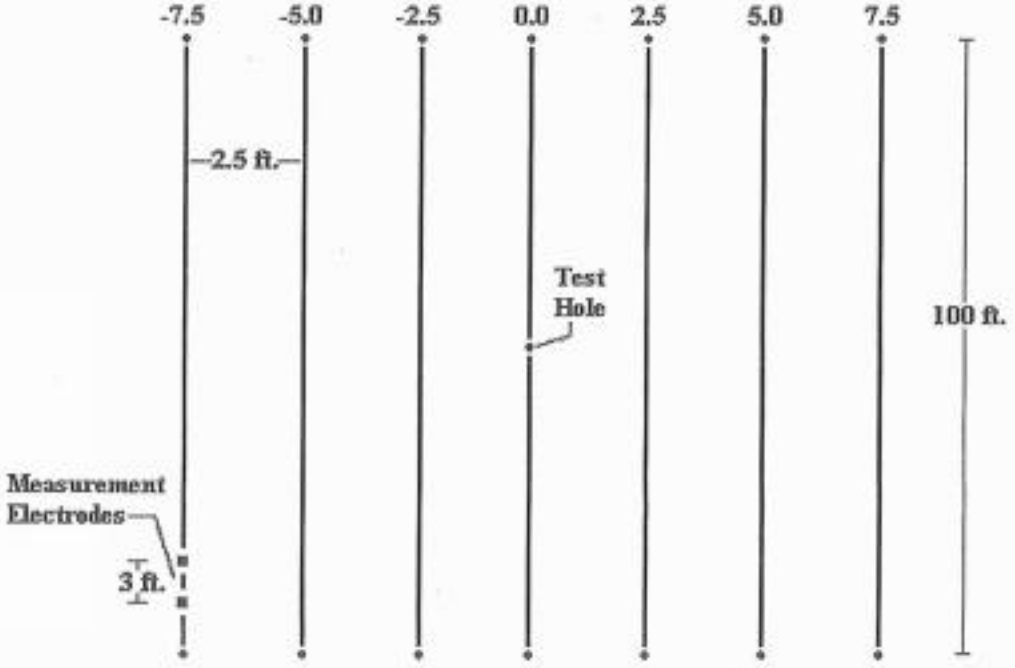
holes in the geomembrane liner. Electrical current flowing through the holes in the geomembrane liner produced localized anomalous areas of high current density near the holes.

The survey of the cell was conducted by making potential gradient measurements on the moist sand with measurement electrodes spaced approximately 2.5 feet apart. These measurements were made approximately every 3 feet along numbered survey lines that were spaced approximately 5 feet apart. A portable digital data logger was used to collect the data. The data was then down-loaded into a portable computer for display, plotting, and analysis.

III. LEAK DETECTION SENSITIVITY/CALIBRATION TESTS

For the Leak Detection Sensitivity/Calibration Test, the sand drainage material was temporarily removed from a small area of the test section to expose the bare geomembrane. This provided access to the geomembrane for placement of the calibration test hole. A 0.25 inch-diameter hole was drilled through the geomembrane using a cordless drill and drill bit. Care was used not to drill through the underlying gcl. The drilled hole was then covered and the area back-filled with two-feet of sand drainage material.

A grid of parallel string lines spaced 2.5 apart was laid out on the sand drainage material above the calibration test hole with a zero line placed directly over the hole. The lines had a length of 100 feet with the mid-point located over the center of the test hole. Figure 1 shows a layout drawing of the sensitivity/calibration test hole setup.



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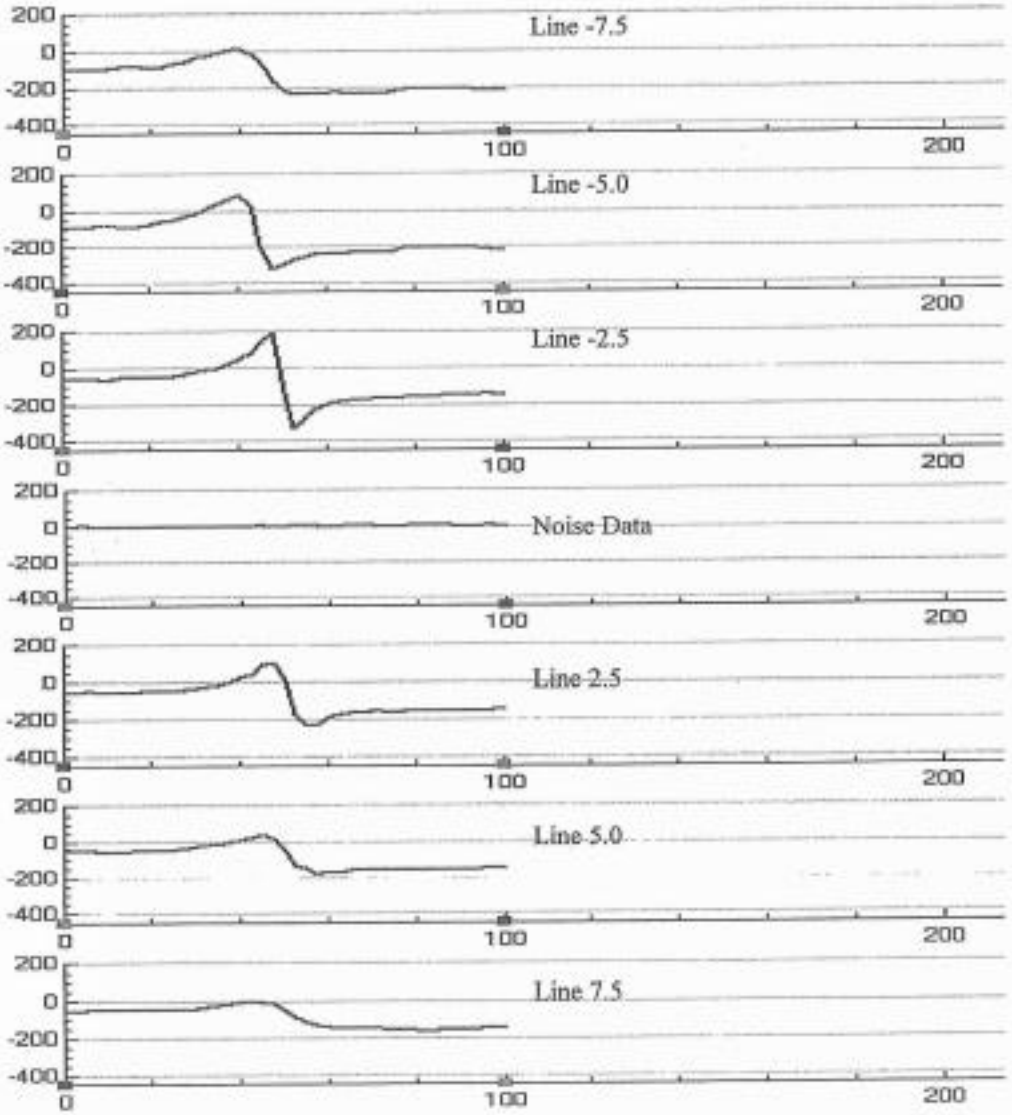

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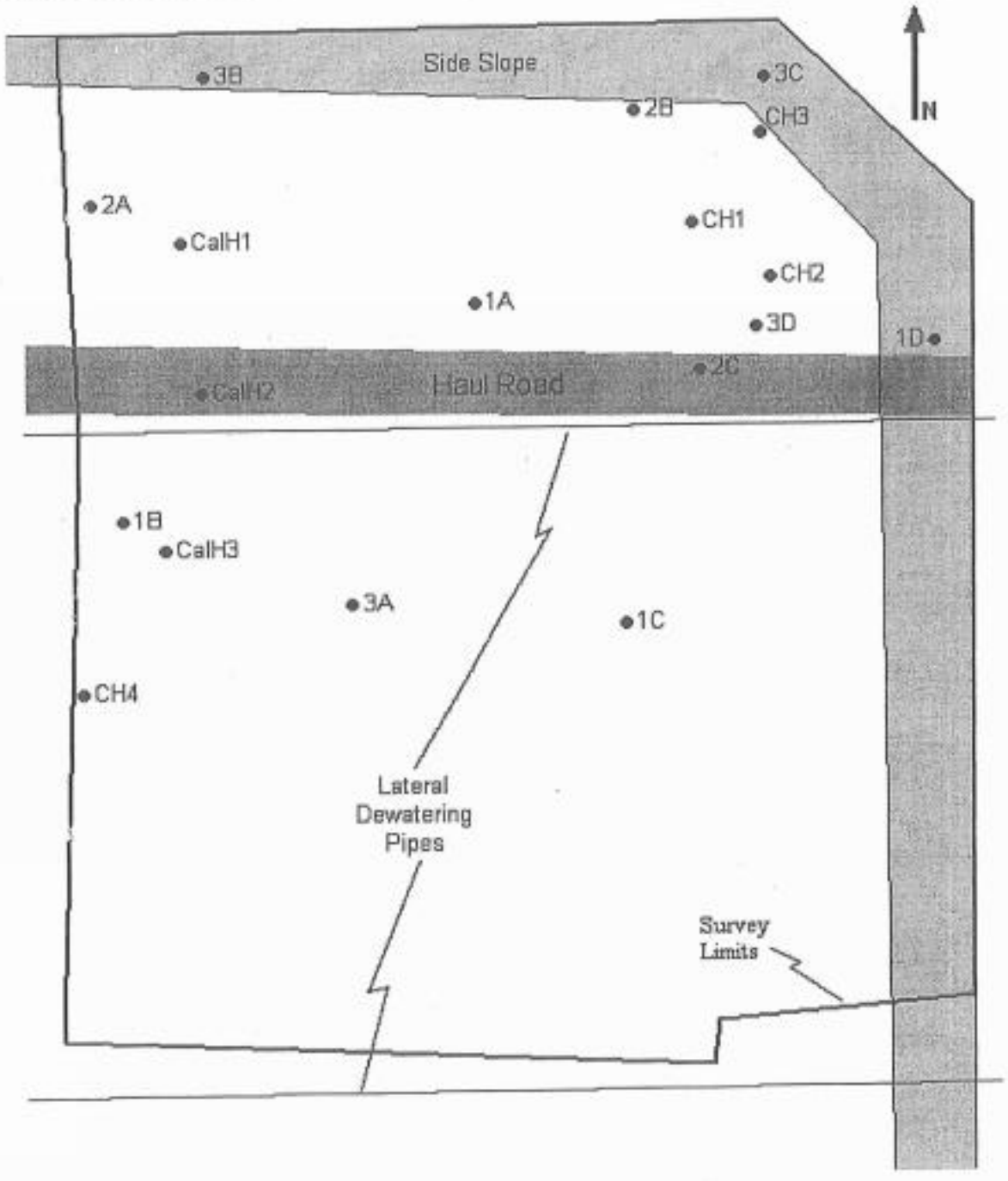

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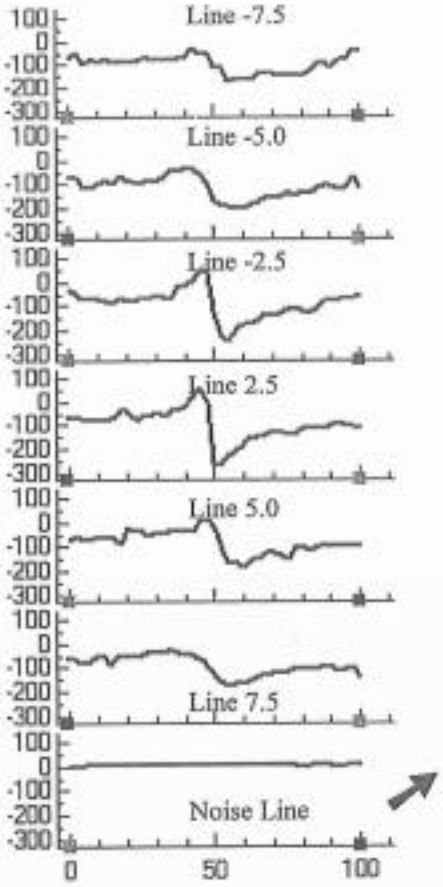
Very truly yours,

Robert M. Stephens III
Project Manager

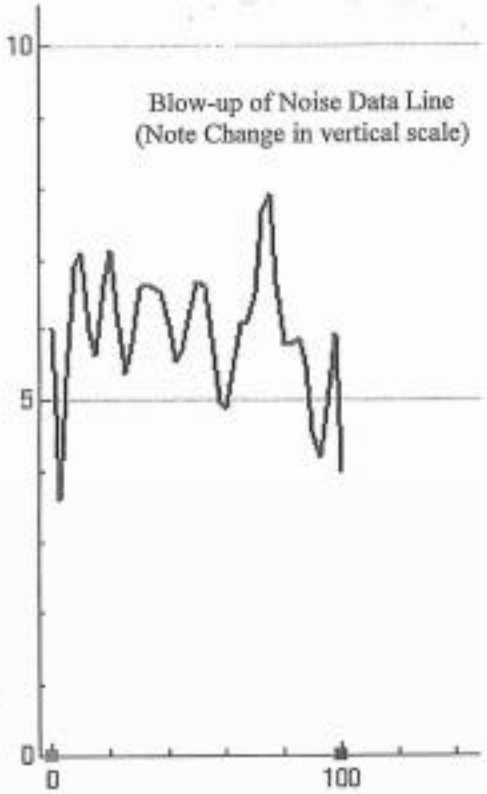
Approved by:

Daren L. Laine
President

Appendix



Data Plots for CalH3

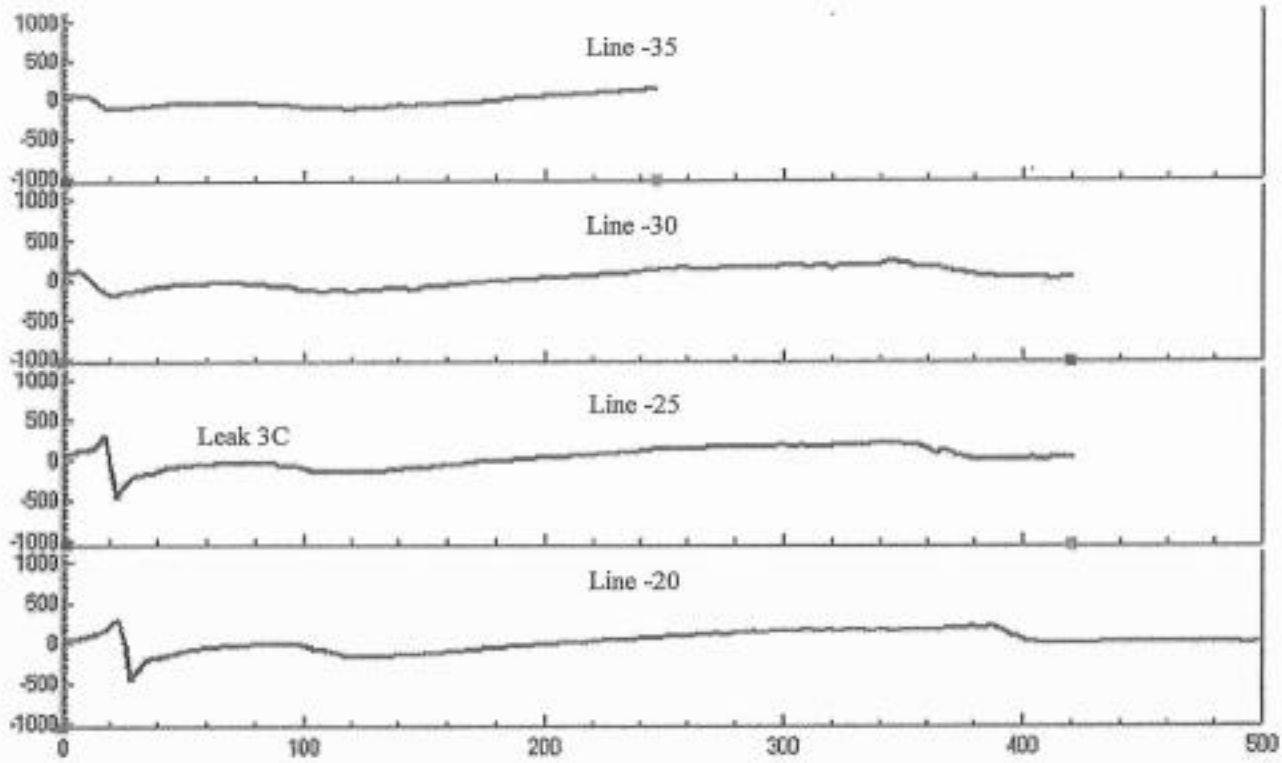


Expanded View of Noise Data for CalH3

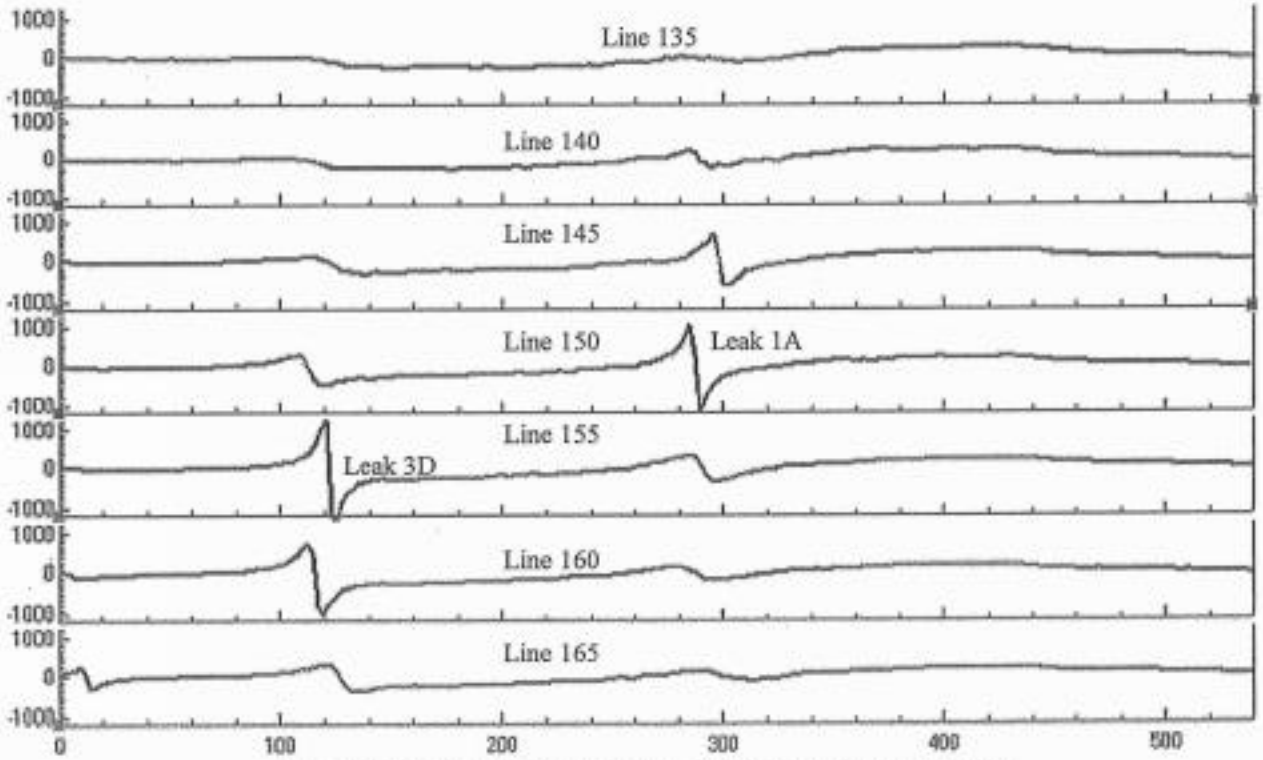
Line Number / Position (ft.)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN (S+N)	Signal/ Noise	S/N Ratio* (R)	Pass or Fail
-7.5	-24	-172	148	148/4.5	32:1	Pass
-5.0	-26	-198	172	172/4.5	38:1	Pass
-2.5	42	-242	284	284/4.5	63:1	Pass
0.0	8	3.5	4.5			
2.5	60	-268	328	328/4.5	72:1	Pass
5.0	12	-184	196	196/4.5	43:1	Pass
7.5	-24	-172	148	148/4.5	32:1	Pass

* Passing is a signal to noise ratio of 3:1.

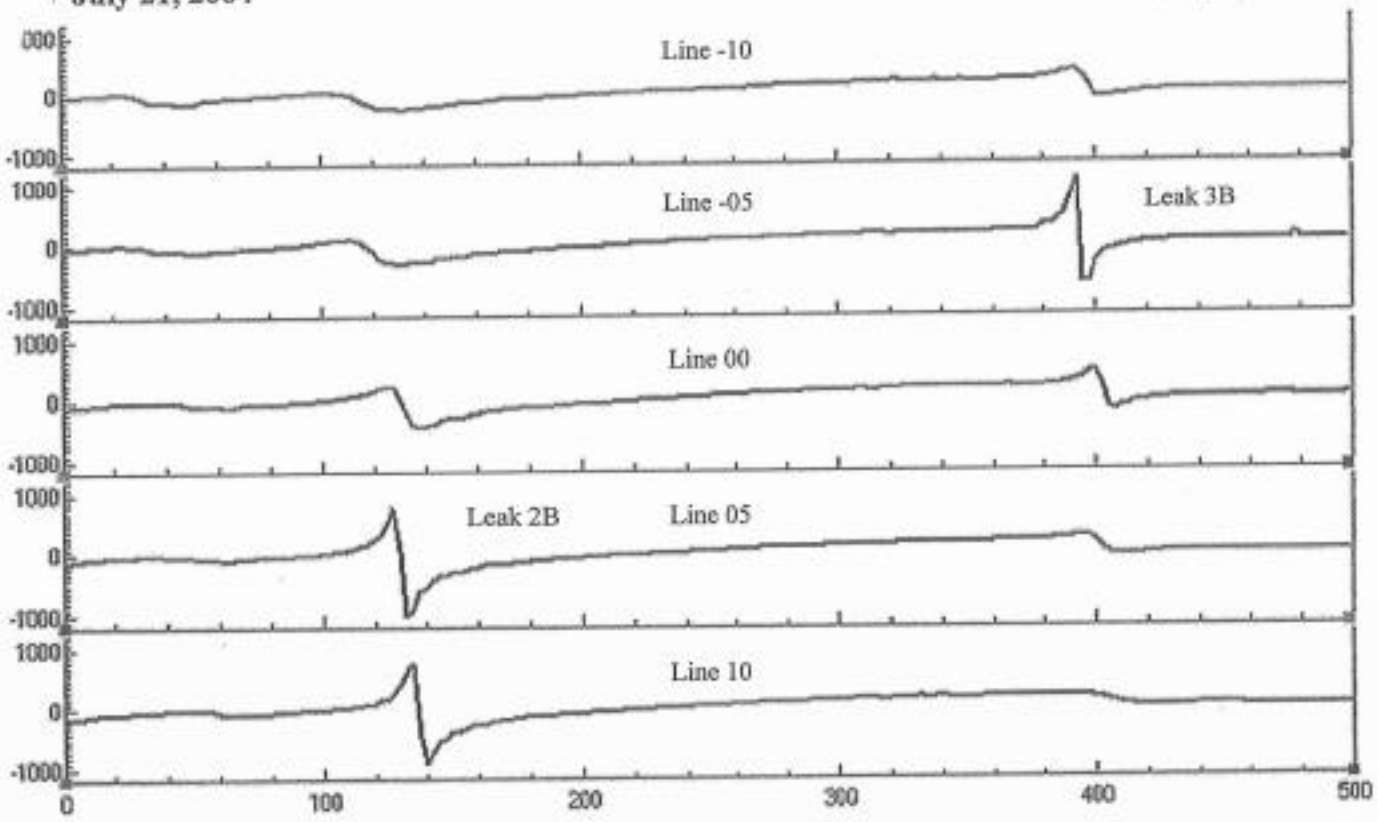
Sensitivity/Calibration Plots and Work Sheet for a 0.25 Inch-Diameter Test Leak (CalH3)



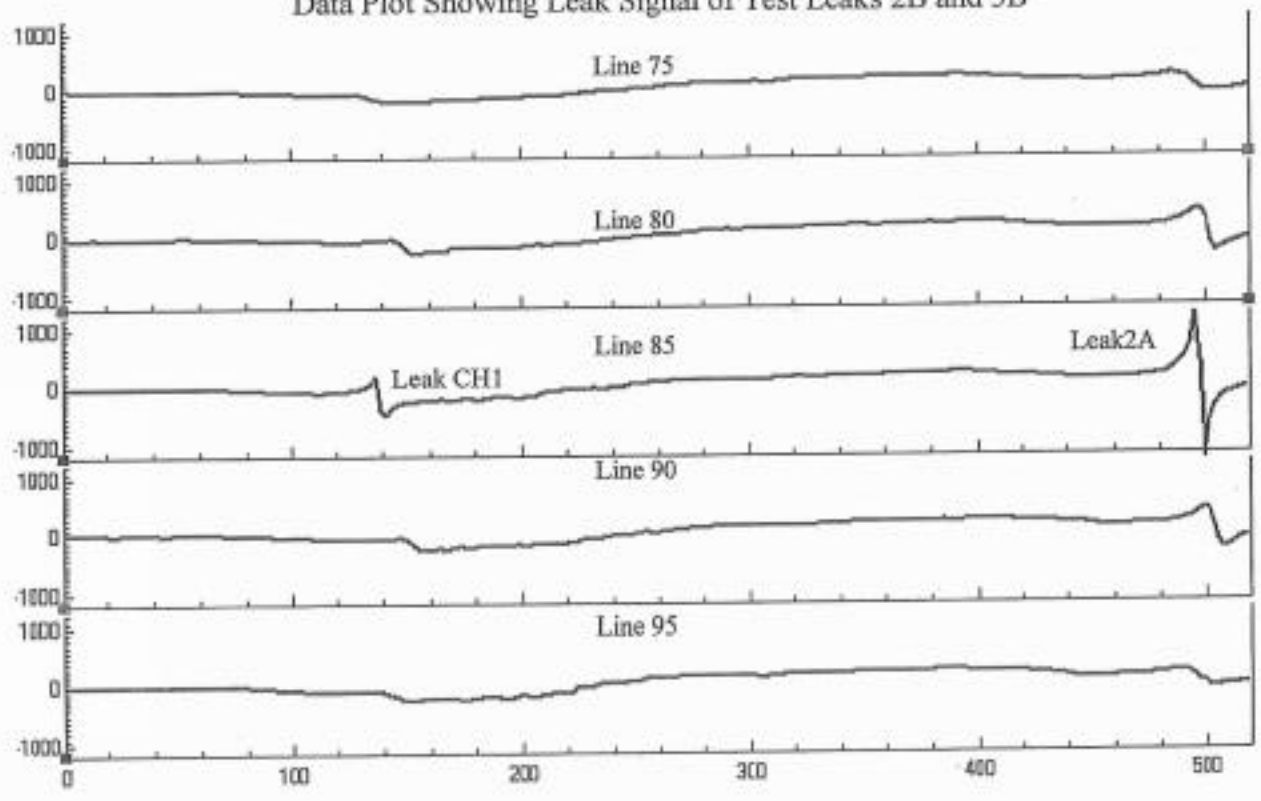
Data Plot Showing Leak Signal of Test Leak 3C



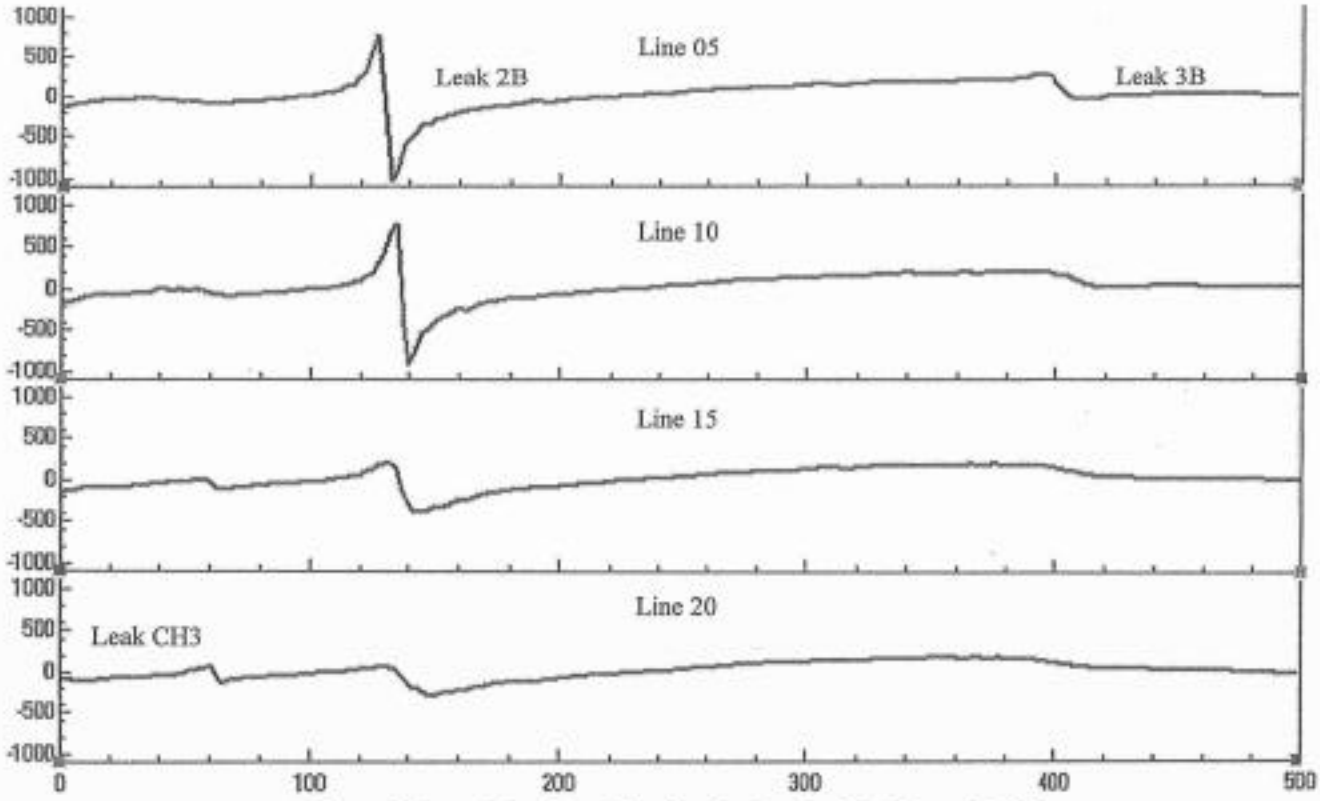
Data Plot Showing Leak Signal of Test Leaks 1A and 3D



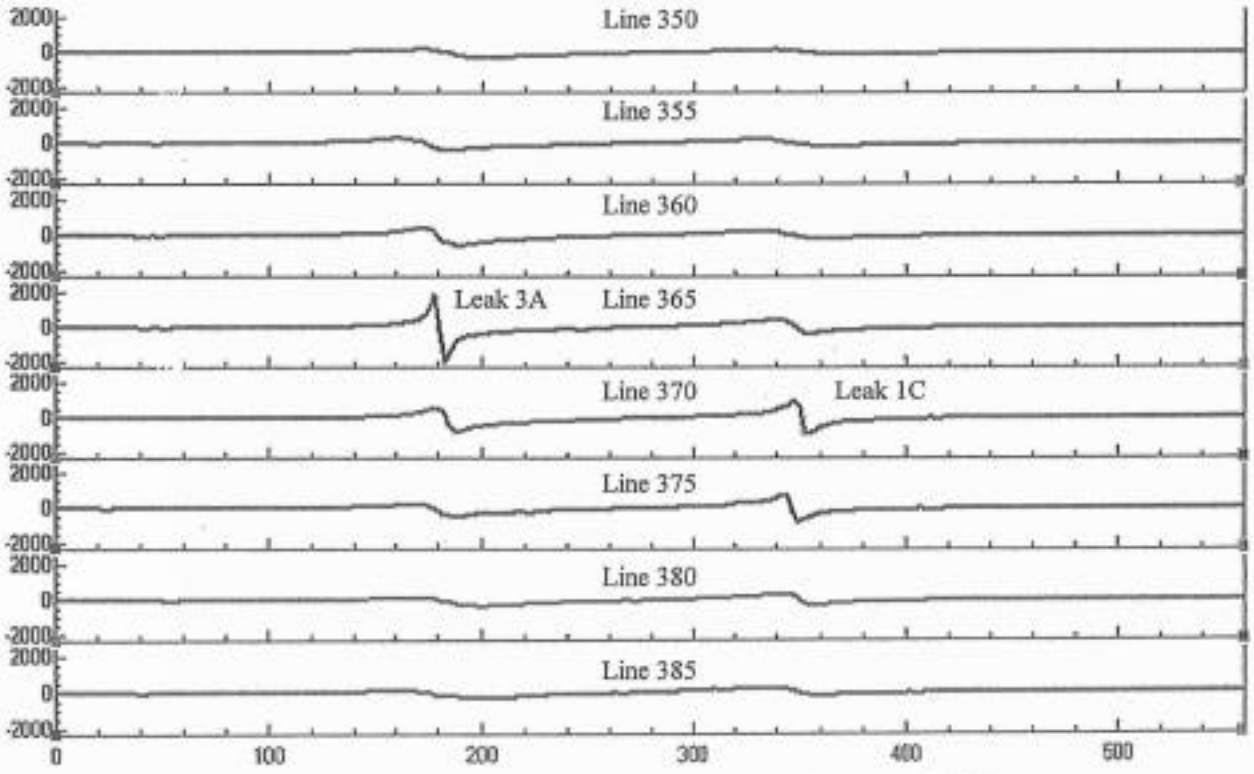
Data Plot Showing Leak Signal of Test Leaks 2B and 3B



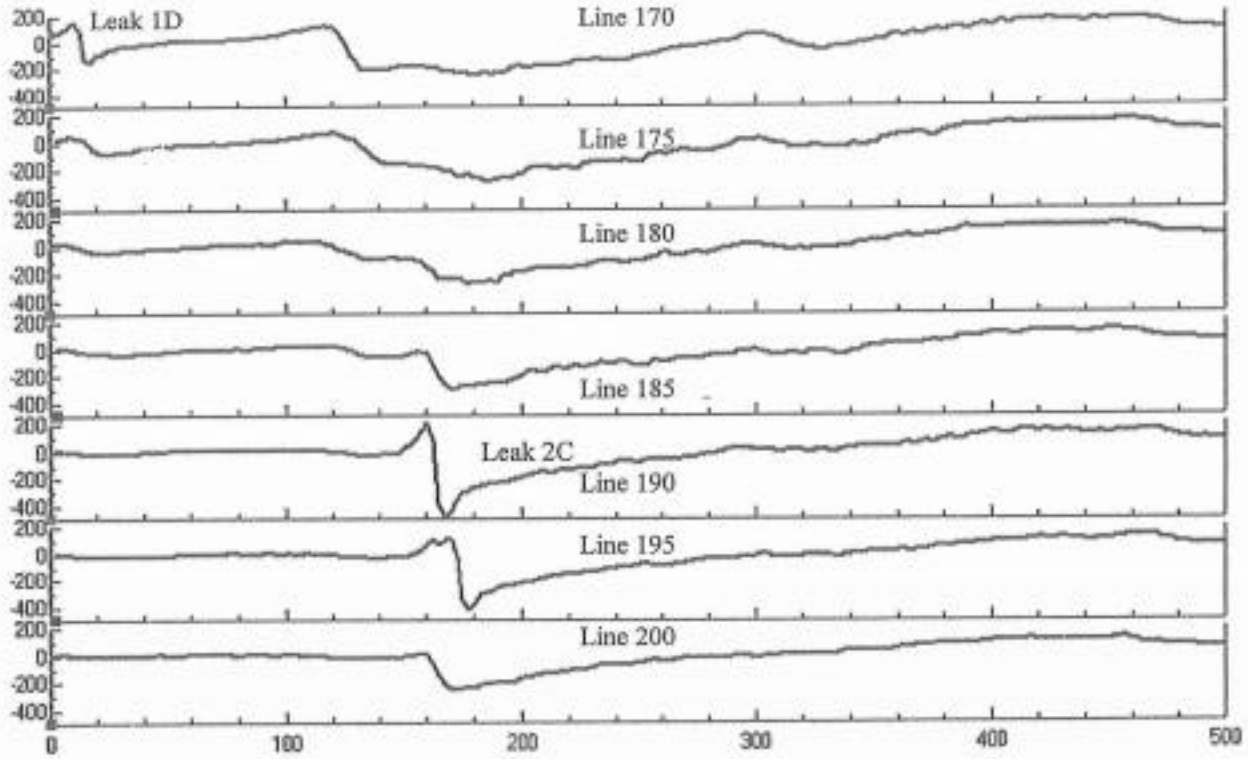
Plots of Data Showing Signals for Leaks 2A and CH1



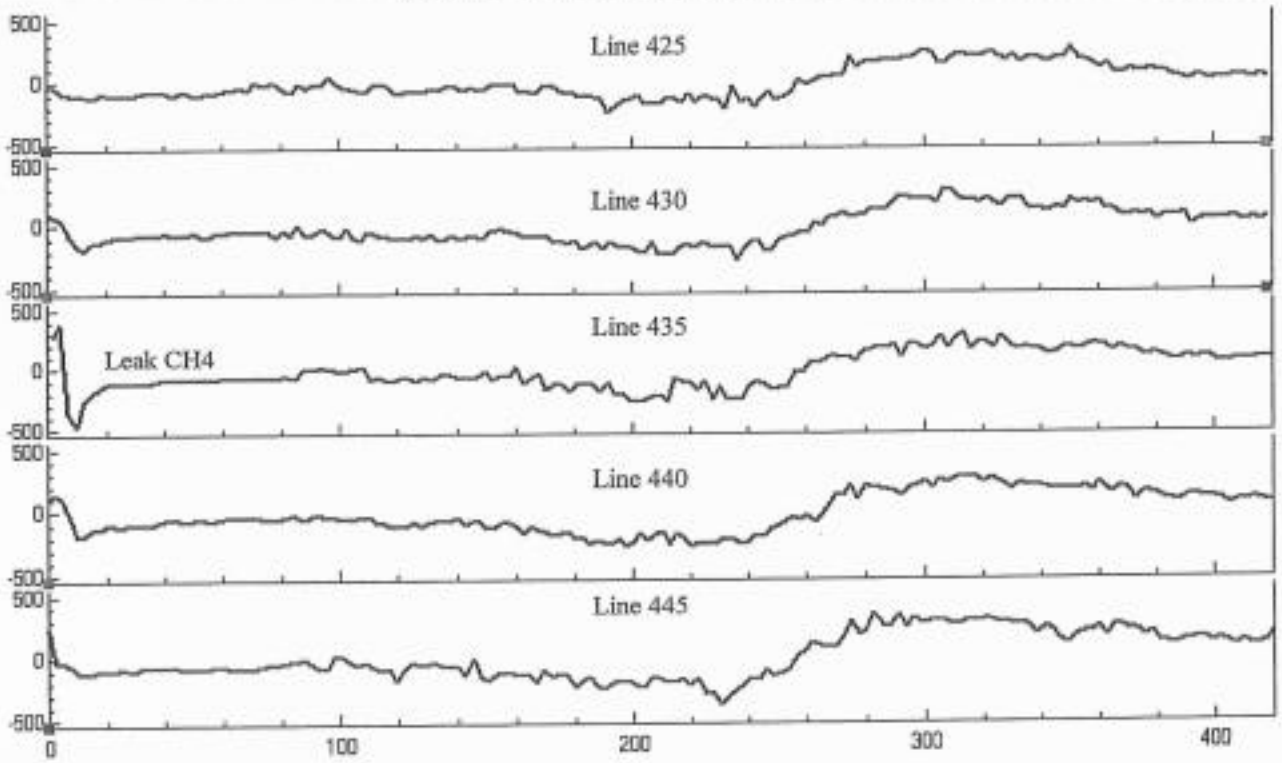
Plots of Data Showing Signals for Leaks 2B, 3B and CH3



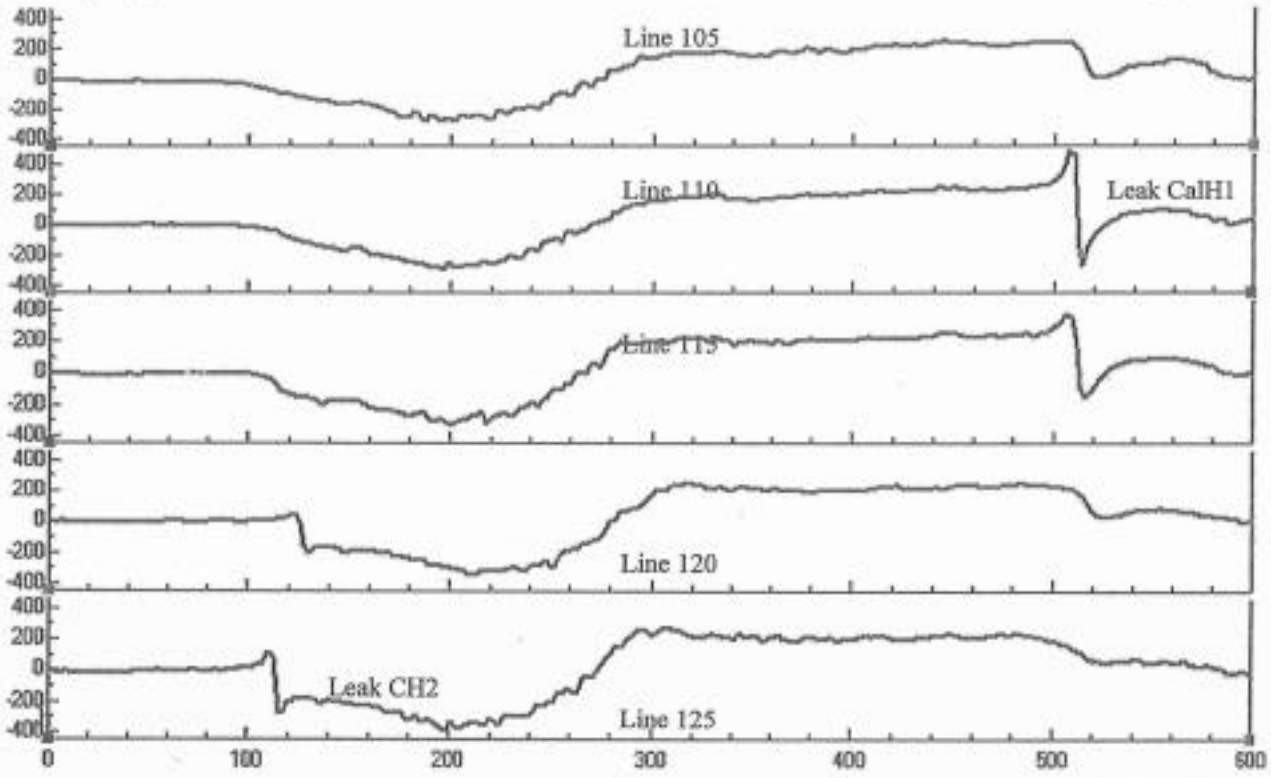
Plots of Data Showing Signals for Leaks 3A and 1C



Plots of Data Showing Signals for Leaks 1D and 2C



Plots of Data Showing Signal for Leak CH4



Plots of Data Showing Signals for Leaks CalH1 and CH2

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

July 28, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Interim Report 2 for "Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3 Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531

Dear Mr. Bluhm:

On July 12 through July 15, 2004, Lance Simmons and Thane Hefley of Leak Location Services, Inc. conducted a leak location survey of the second section of the newly constructed forty-eight acre Scrubber Solids Pond 3 located at the Xcel Energy Sherco Site near Becker, Minnesota. The pond is being lined from the top down with 24-inches of sand, a single 60-mil HDPE geomembrane, a geosynthetic clay liner (GCL), and sand subgrade. The second survey was conducted in the southeast corner of pond 3 and had an area of approximately 12 acres. This report gives the results of the survey.

I. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high voltage across the liner and measure the resulting potential gradients on or in the conducting material covering the liner. If there are holes in the geomembrane, the electrical current flowing through the holes will cause measurable anomalies in the electrical potential. The location of these anomalies indicate the position of the hole.

II. LEAK LOCATION PROCEDURES

A high voltage isolated DC power supply was used to impress a voltage across the geomembrane liner by connecting the power supply to a pair of electrodes placed on opposite sides of the geomembrane. One electrode was placed in the sand drainage layer located on top of the primary liner and the second electrode was placed in the sand sub-grade. Therefore, the geomembrane liner provided an electrical barrier between the electrodes except where there were holes in the geomembrane liner. Electrical current flowing through the holes in the geomembrane liner produced localized anomalous areas of high current density near the holes.

TABLE 2. TYPICAL SENSITIVITY/CALIBRATION DATA WORK SHEET

Line Number / Position (ft)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN	Signal/ Noise	S/N Ratio*	Pass or Fail
-7.5	90	-44	134	134/14	9.57:1	Pass
-5.0	124	-38	162	162/14	11.57:1	Pass
-2.5	160	-110	270	270/14	19.29:1	Pass
0.0	4	-10	14			
2.5	136	-72	208	208/14	14.86:1	Pass
5.0	110	-52	162	162/14	11.57:1	Pass
7.5	92	-22	114	114/14	8.14:1	Pass

* A passing signal to noise ratio is 3:1

Therefore, pursuant to ASTM D-7007, the defined leak detection survey distance was 7.5 feet with a survey line spacing of 15 feet. However, as an added safety factor and to allow for any changes that may occur in the sensitivity/calibration tests between the start and the end of each day the survey was conducted with a survey line spacing of 5 feet.

IV. SURVEY RESULTS

A total of five holes were located in Test Area 2 of Scrubber Solids Pond 3. Figure 3 shows an approximate position of each of the located leaks.

One of the holes was identified as a verification test leak (1E) and was placed in the southeast corner of Test Area 2 by personnel from Xcel Energy. The purpose of the verification test hole was to demonstrate the sensitivity and reliability of the leak location survey method to detect and locate leaks of different sizes and shapes under two-feet of cover material. The verification test hole is listed in Table 2. The appendix shows a plot of the leak signal.

Three sensitivity/calibration test holes were placed in the primary geomembrane. These holes are labeled as CalH4, CalH5, CalH6 and are listed in Table 3. Calibration hole number six (CalH6) was located under the haul road that had four feet of sand drainage material covering the geomembrane liner. This was a 0.5-inch diameter drill hole. A plot of the leak signal for CalH6 is presented in the attached appendix.

The remaining hole was labeled as construction damage (CH5). This was a 0.18 inch-diameter hole in the primary geomembrane that was located by LLSI. The existence of this

A sensitivity/calibration test was performed by each set of data collection equipment at the beginning and end of each day. This information was documented and recorded on an LLSIsensitivity/calibration work sheet for future reference. Figure 2 shows a typical plot of sensitivity/calibration test with the sensitivity work sheet presented in Table1. All leak detection sensitivity tests passed with a minimum signal to noise ratio of greater than 3:1 from a distance of 7.5 feet.

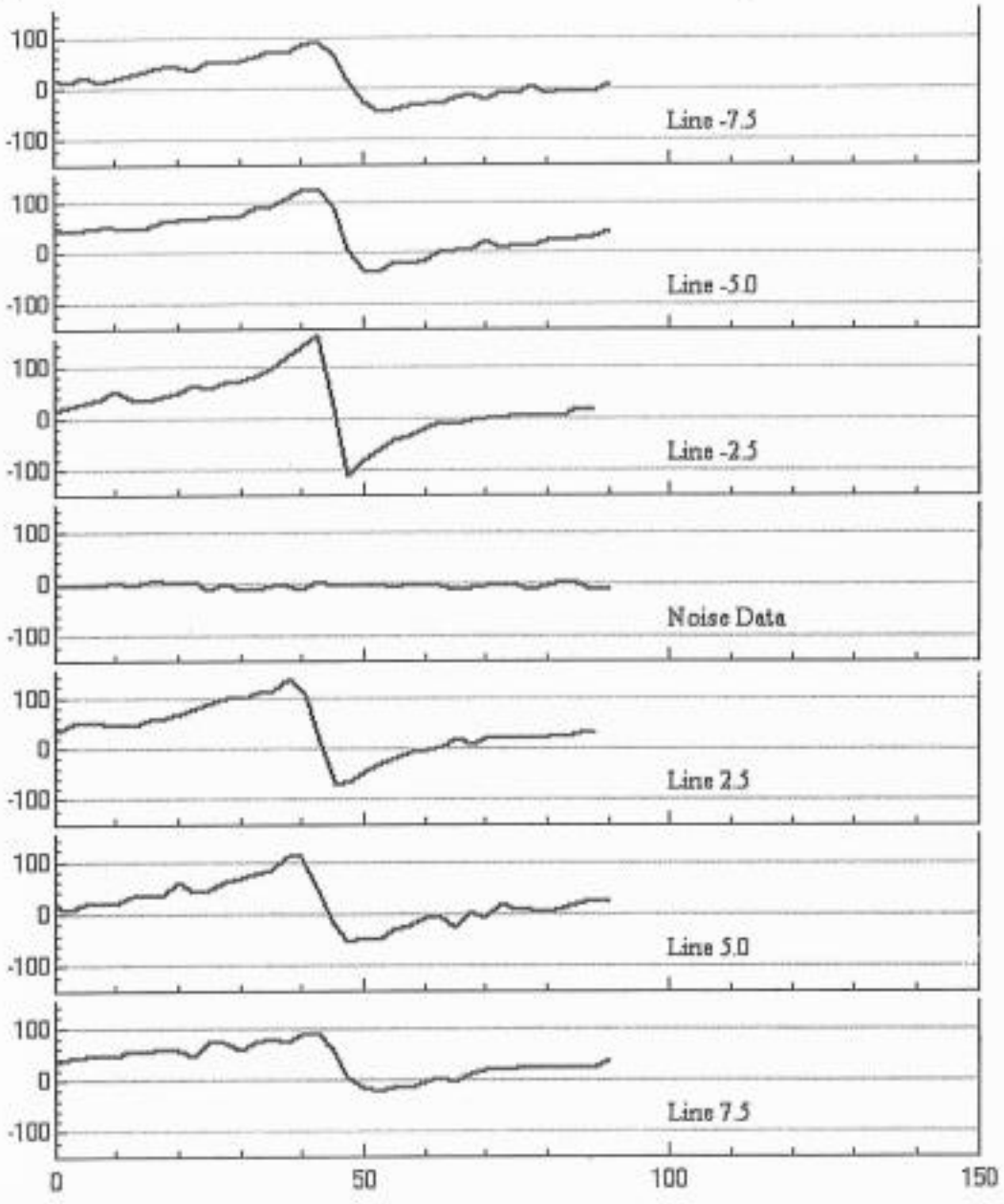


Figure 2. Plot of Sensitivity/Calibration Data

The survey of the cell was conducted by making potential gradient measurements on the moist sand with measurement electrodes spaced approximately 2.5 feet apart. These measurements were made approximately every 3 feet along numbered survey lines that were spaced approximately 5 feet apart. A portable digital data logger was used to collect the data. The data was then down-loaded into a portable computer for display, plotting, and analysis.

III. LEAK DETECTION SENSITIVITY/CALIBRATION TESTS

For the Leak Detection Sensitivity/Calibration Test, the sand drainage material was temporarily removed from a small area of the test section to expose the bare geomembrane. This provided access to the geomembrane for placement of the calibration test hole. Two 0.25-inch diameter holes and one 0.5-inch diameter hole were drilled through the geomembrane using a cordless drill and drill bit. Care was used not to drill through the underlying gcl. The drilled holes were then covered and the area back-filled with sand drainage material.

The two 0.25 inch-diameter test holes were placed in separate areas of the landfill cell that were covered with the two-feet of sand drainage material. However, the 0.50 inch-diameter test hole was placed under the temporary haul road where the drainage sand had a thickness of up to forty-eight inches. The larger test leak was utilized to evaluate the leak detection sensitivity for locating leaks under the thicker drainage material.

A grid of parallel string lines spaced 2.5 apart was laid out on the sand drainage material above the calibration test holes with a zero line placed directly over the hole. The lines had a length of 100 feet with the mid-point located over the center of the test hole. Figure 1 shows the layout of the test hole setup.

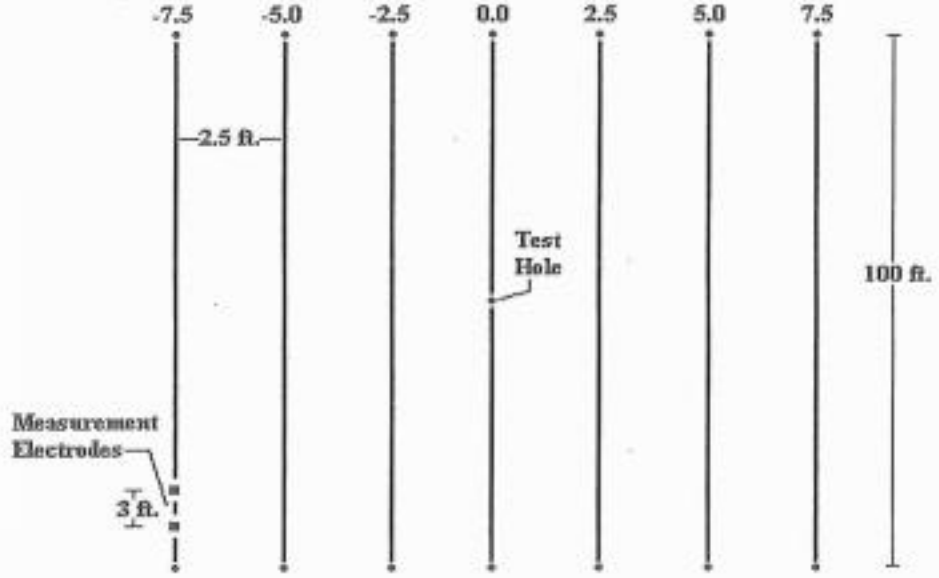


Figure 1. Leak Detection Sensitivity Test String Line Setup

construction damage was previously unknown to the client. The location and description of the hole is listed in Table 4 with a plot of the leak signal presented in the appendix.

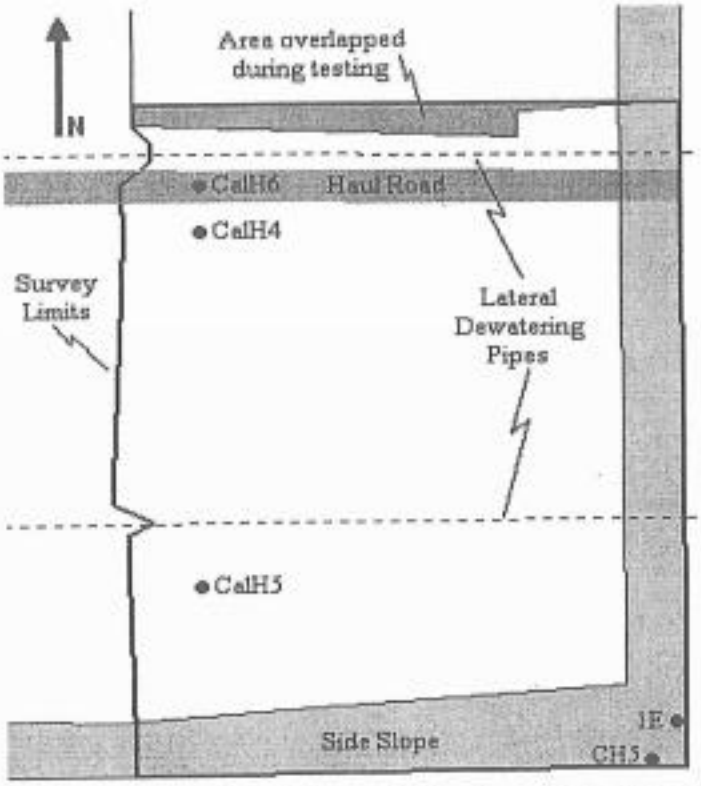


Figure 3. Approximate Locations of Holes Located in Survey Area 2

TABLE 2. APPROXIMATE LOCATION OF XCEL ENERGY VERIFICATION TEST HOLE

Hole #	Line #	Position (ft)	Verification Test Hole Description
1E	2 E.S.	207	1" diameter leak under pipe

TABLE 3. APPROXIMATE LOCATIONS AND DESCRIPTIONS OF SENSITIVITY/CALIBRATION TEST HOLES

Hole #	Line #	Position (ft)	Sensitivity/Calibration Test Hole Description
CalH4	840	82.5	0.25" diameter - Two feet of drainage cover
CalH5	1305	72.5	0.25" diameter - Two feet of drainage cover

CalH6	785	97.5	0.5" diameter - Four feet of drainage cover (Under haul road next to drainage pipe)

TABLE 4. APPROXIMATE LOCATIONS AND DESCRIPTIONS OF LOCATED LEAKS

Hole #	Line #	Position (ft)	Leak Description
CH5	1535	540	3/16" diameter puncture

If there are any questions regarding the electrical survey or this interim report, please contact us at (210) 408-1241. We appreciate the opportunity to have been of service to Xcel Energy on this important survey project.

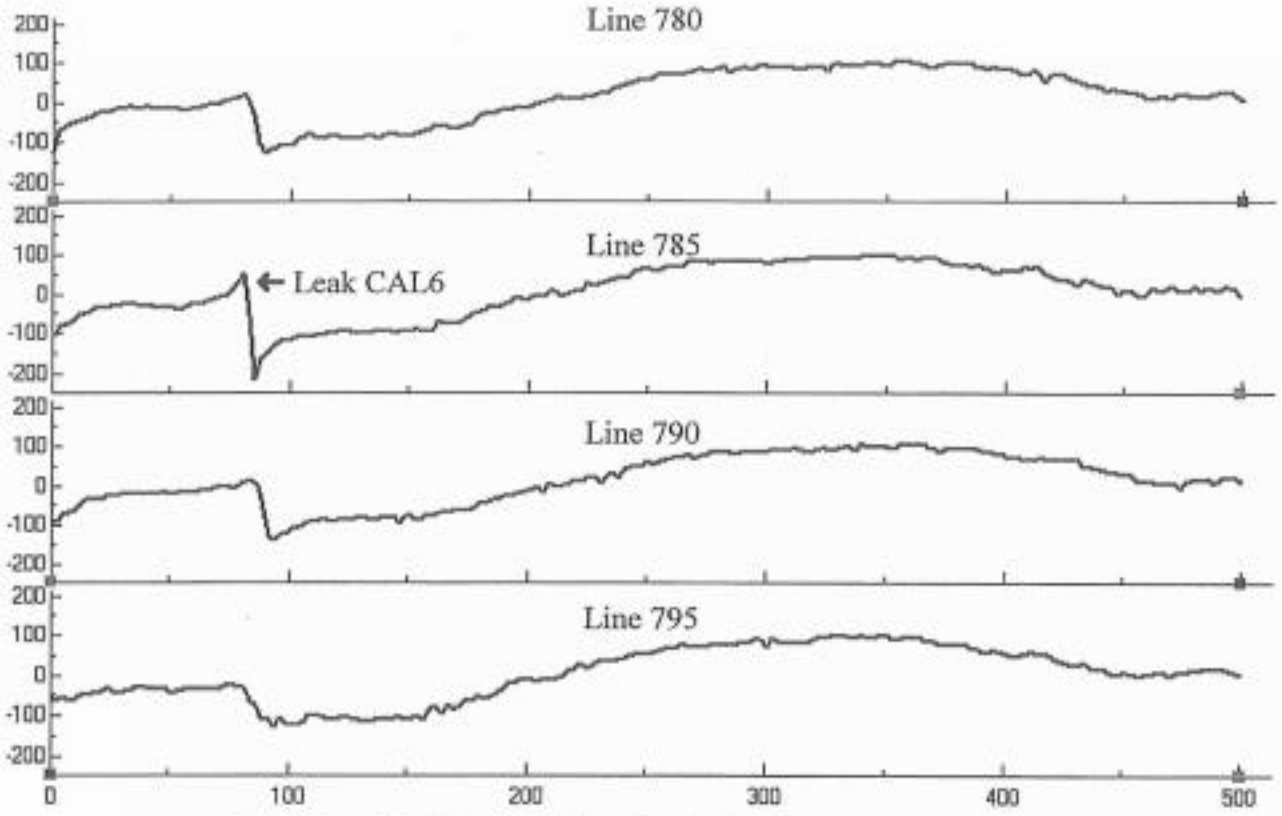
Very truly yours,

Robert M. Stephens III
Project Manager

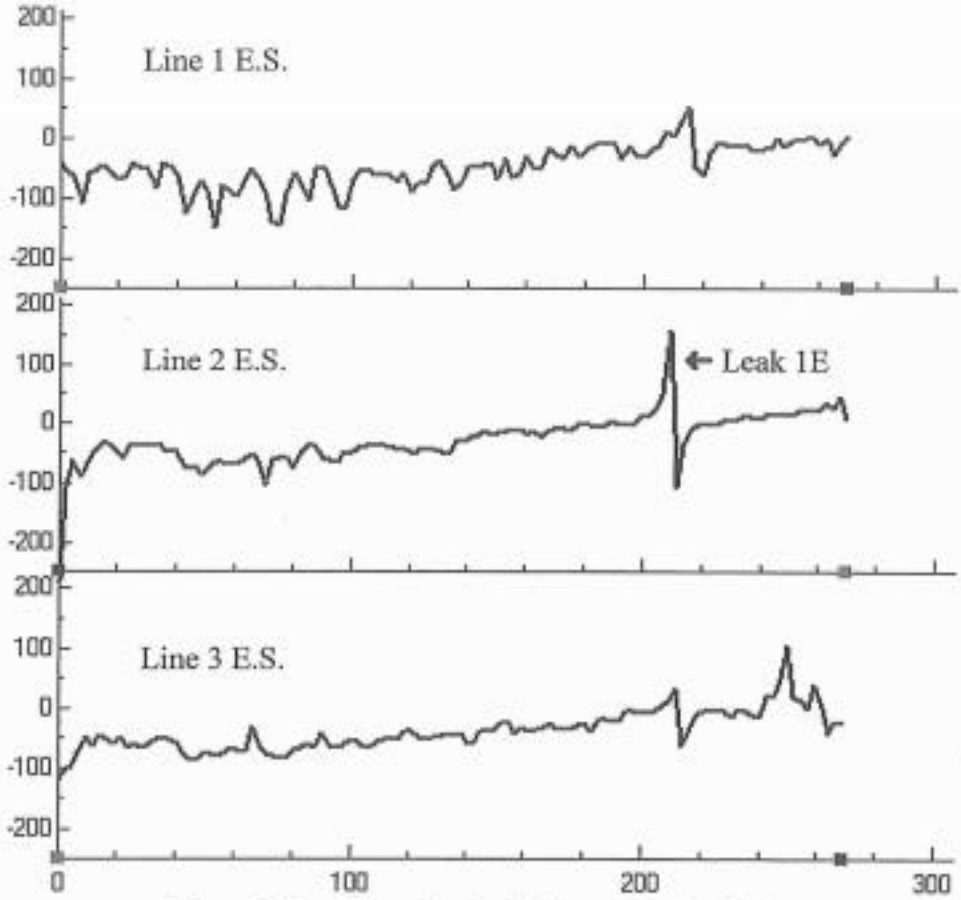
Approved by:

Daren L. Laine
President

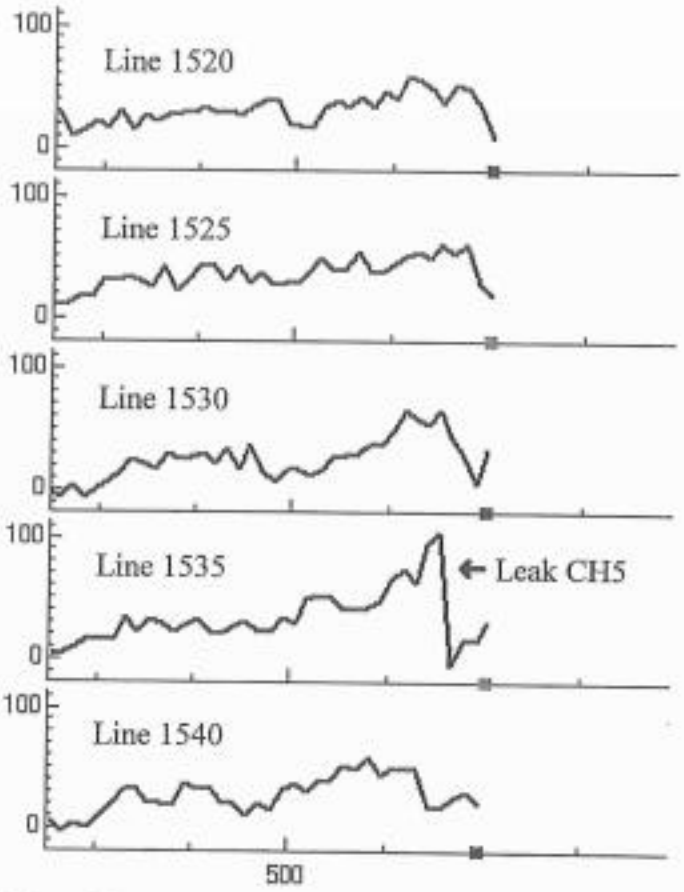
Appendix



Data Plots Showing Leak Signal of 0.5 inch-diameter Test Hole
(CAL6 was Located Under 4 Feet of Drainage Sand)



Plots of Data Showing Leak Signal for Leak 1E



Plots of Data Showing Leak Signal for Leak 5CH5

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

August 11, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Third Interim Report for "Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3N Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531

Dear Mr. Bluhm:

On August 2 through August 9, 2004, Martin Morales, and Edgar Barraza of Leak Location Services, Inc. conducted a leak location survey of the third section of the newly constructed forty-eight acre Scrubber Solids Pond 3 located at the Xcel Energy Sherco Site near Becker, Minnesota. The pond is being lined from the top down with 24-inches of sand, a single 60-mil HDPE geomembrane, a geosynthetic clay liner (gcl), and sand subgrade. The third survey was conducted in the northwest corner of pond 3N and had an area of approximately 12 acres. This report gives the results of the survey.

I. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high voltage across the liner and measure the resulting potential gradients on or in the conducting material covering the liner. If there are holes in the geomembrane, the electrical current flowing through the holes will cause measurable anomalies in the electrical potential. The location of these anomalies indicate the position of the hole.

II. LEAK LOCATION PROCEDURES

A high voltage isolated DC power supply was used to impress a voltage across the geomembrane liner by connecting the power supply to a pair of electrodes placed on opposite sides of the geomembrane. One electrode was placed in the sand drainage layer located on top of the primary liner and the second electrode was placed in the sand sub-grade. Therefore, the

geomembrane liner provided an electrical barrier between the electrodes except where there were holes in the geomembrane liner. Electrical current flowing through the holes in the geomembrane liner produced localized anomalous areas of high current density near the holes.

The survey of the cell was conducted by making potential gradient measurements on the moist sand with measurement electrodes spaced approximately 2.5 feet apart. These measurements were made approximately every 3 feet along numbered survey lines that were spaced approximately 5 feet apart. A portable digital data logger was used to collect the data. The data was then down-loaded into a portable computer for display, plotting, and analysis.

III. LEAK DETECTION SENSITIVITY/CALIBRATION TESTS

For the Leak Detection Sensitivity/Calibration Test, the sand drainage material was temporarily removed from a small area of the test section to expose the bare geomembrane. This provided access to the geomembrane for placement of the calibration test hole. A 0.25 inch-diameter hole was drilled through the geomembrane using a cordless drill and drill bit. Care was used not to drill through the underlying gel. The drilled hole was then covered and the area back-filled with two-feet of sand drainage material.

A grid of parallel string lines spaced 2.5 apart was laid out on the sand drainage material above the calibration test hole with a zero line placed directly over the hole. The lines had a length of 100 feet with the mid-point located over the center of the test hole. Figure 1 shows a drawing layout of the test hole setup.

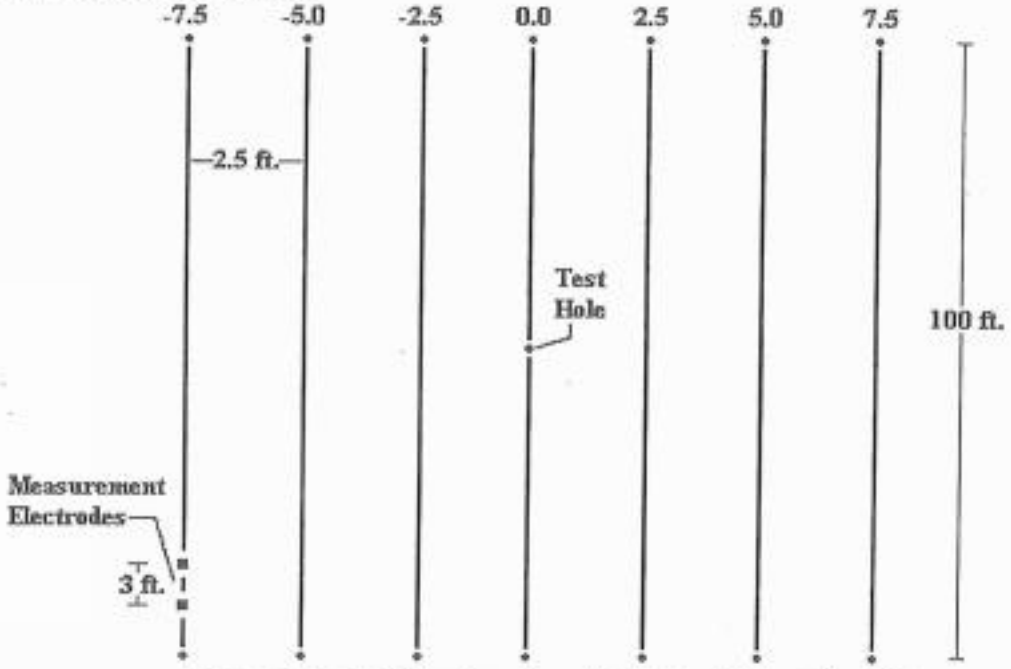


Figure 1. Leak Detection Sensitivity Test String Line Setup

A sensitivity/calibration test was performed by each set of data collection equipment at the beginning and end of each day. This information was documented and recorded on an LLSI sensitivity/calibration work sheet for future reference. Figure 2 shows a typical plot of sensitivity/calibration test with the sensitivity work sheet presented in Table1. All leak detection sensitivity tests passed with a minimum signal to noise ratio of greater than 3:1 from a distance of 7.5 feet.

Therefore, pursuant to ASTM D-7007, the defined leak detection survey distance was 7.5 feet with a survey line spacing of 15 feet. However, as an added safety factor and to allow for any changes that may occur in the sensitivity/calibration test between the start and the end of the day the survey was conducted with a survey line spacing of 5 feet.

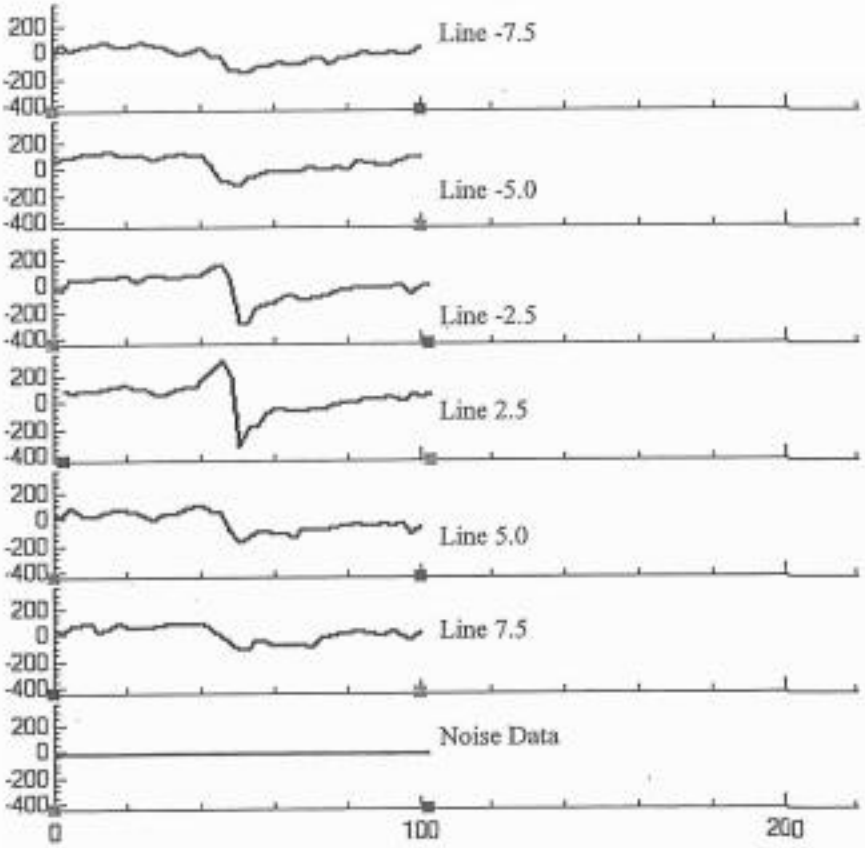


Figure 2. Plot of Sensitivity/Calibration Data for AL9

IV. SURVEY RESULTS

Eight leaks were located and verified in survey Area 3 of the Scrubber Solids Pond 3N. Figure 3 shows an approximate position for each of the located leaks. The location and description of the leaks listed in Table 4. All leaks were repaired by the liner installer and re-tested by LLSI. Plots of the individual leak signals are presented in the attached appendix.

TABLE 1. TYPICAL SENSITIVITY/CALIBRATION DATA WORK SHEET

Line Number / Position (ft.)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN	Signal/ Noise	S/N Ratio*	Pass or Fail
-7.5	26	-164	190	190/22	8.6:1	Pass
-5.0	102	-126	228	228/22	14.2:1	Pass
-2.5	154	-284	438	438/22	20:1	Pass
0.0	-10	-32	22			
2.5	314	-340	654	654/22	29.7:1	Pass
5.0	44	-182	226	226/22	10.2:1	Pass
7.5	92	-122	214	214/22	9.7:1	Pass

* A passing signal to noise ratio is 3:1.

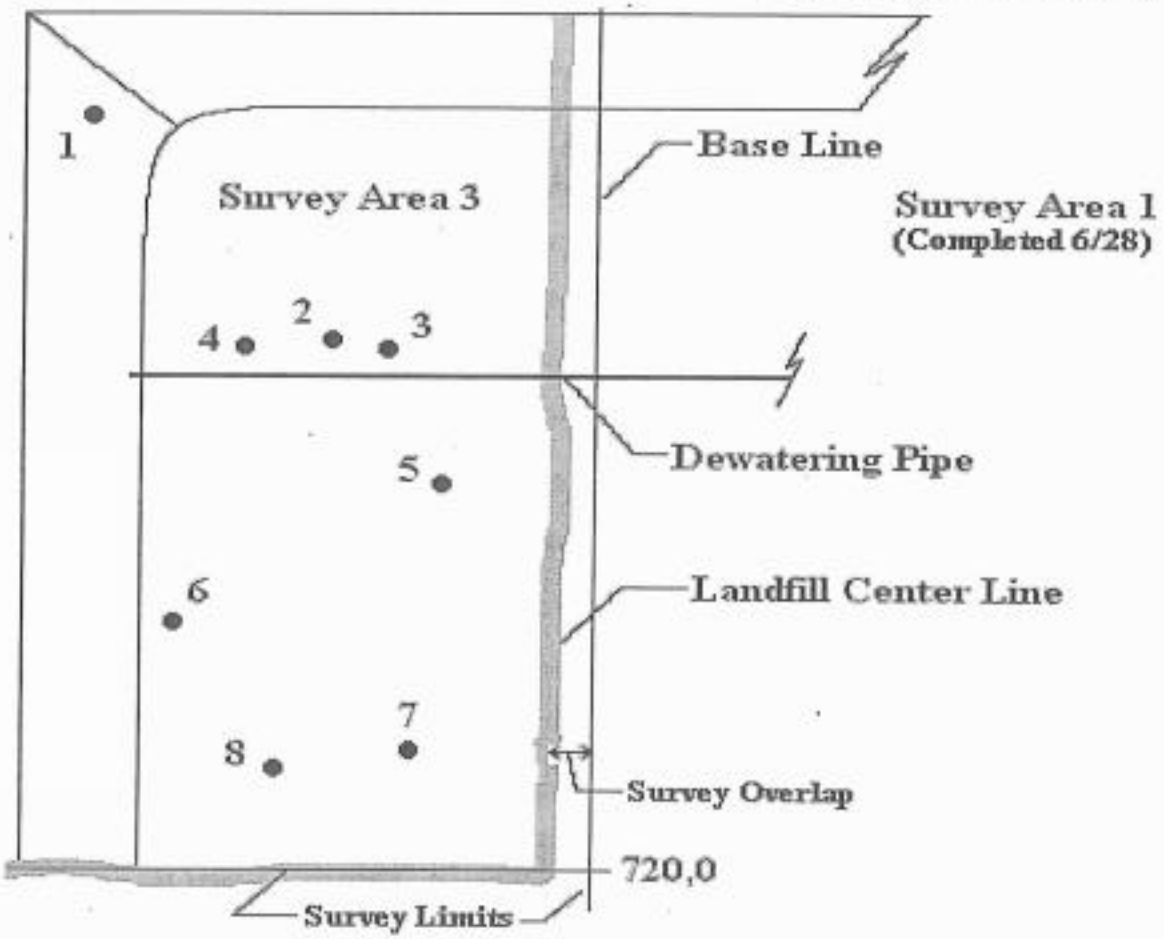


Figure 3. Approximate Locations of Holes Located in Survey Area 3

TABLE 2. LOCATIONS AND DESCRIPTION OF LEAKS
LOCATED IN SURVEY AREA 3

Hole #	Line #	Position (ft)	Verification Test Hole Description
1	210	632	one inch-diameter round puncture.
2	260	262	five inch-long knife-cut in liner
3	270	252	0.0625 inch-diameter puncture
4	275	307	one inch-diameter puncture
5	350	180	one inch-long knife cut
6	520	517	one inch-long cut in liner
7	650	130	3.5 inch-long knife cut
8	655	357	1.5 inch-long cut

If there are any questions regarding the electrical survey or this interim report, please contact us at (210) 408-1241. We appreciate the opportunity to have been of service to Xcel Energy on this important survey project.

Very truly yours,



Daren L. Laine
President

APPENDIX

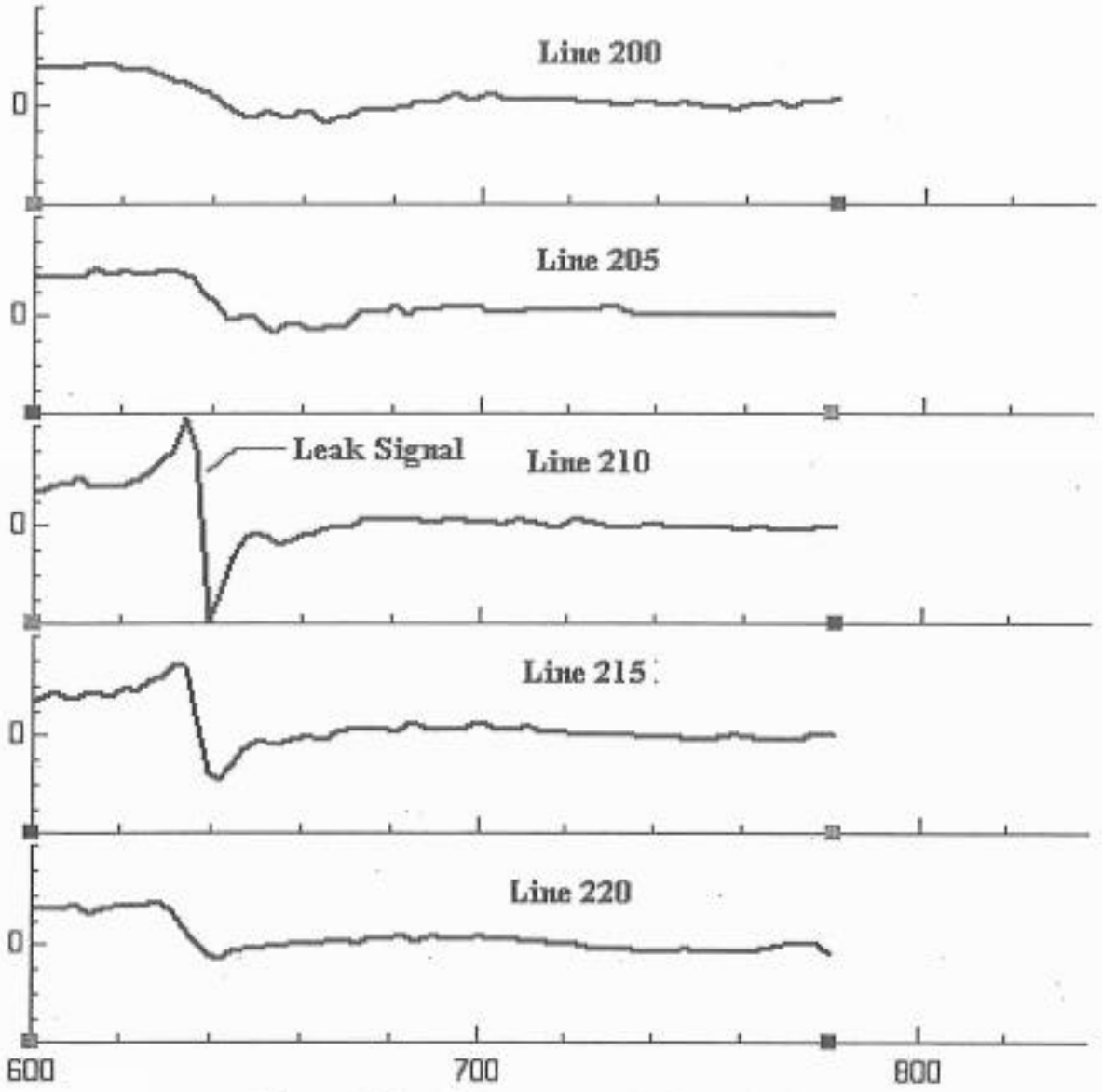


Figure 4. Plot of Survey Data Showing Signal from Leak 1

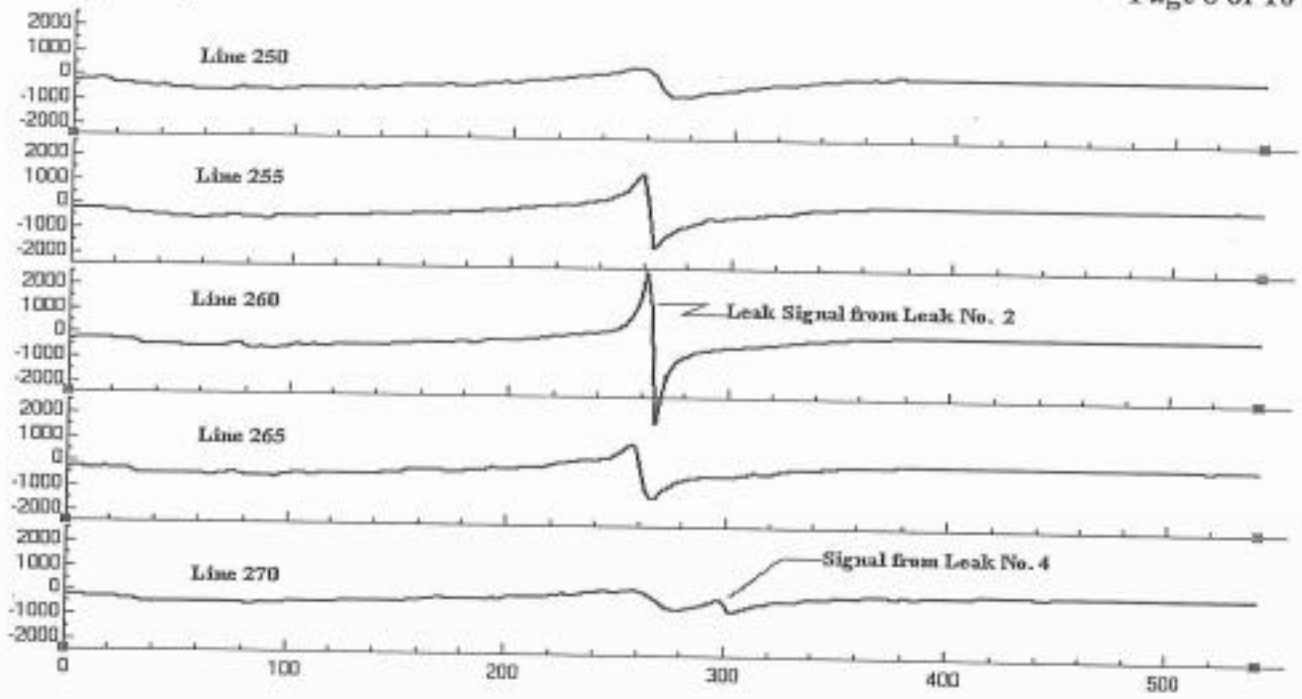


Figure 5. Plot of Survey Data Showing Signal from Leak 2
(Note small signal from leak 4)

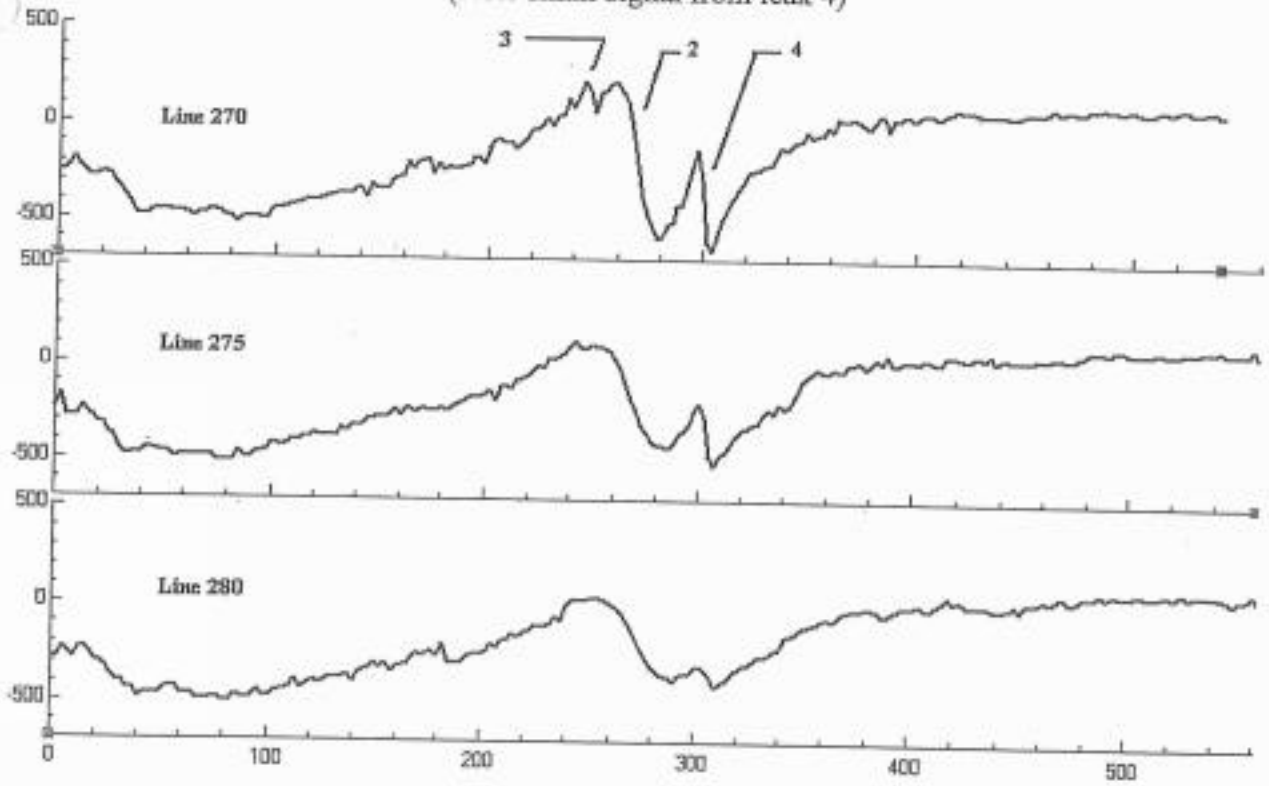


Figure 6. Plot of Survey Data Showing Signals from Leaks 2, 3 and 4
Leak No. 2 is the remnant Signal from a 5 inch-long cut 15 feet Away. (See Figure5)
Leak No. 3 is a 0.0625 diameter scoff mark
Leak No. 4 is a 1 inch-diameter puncture

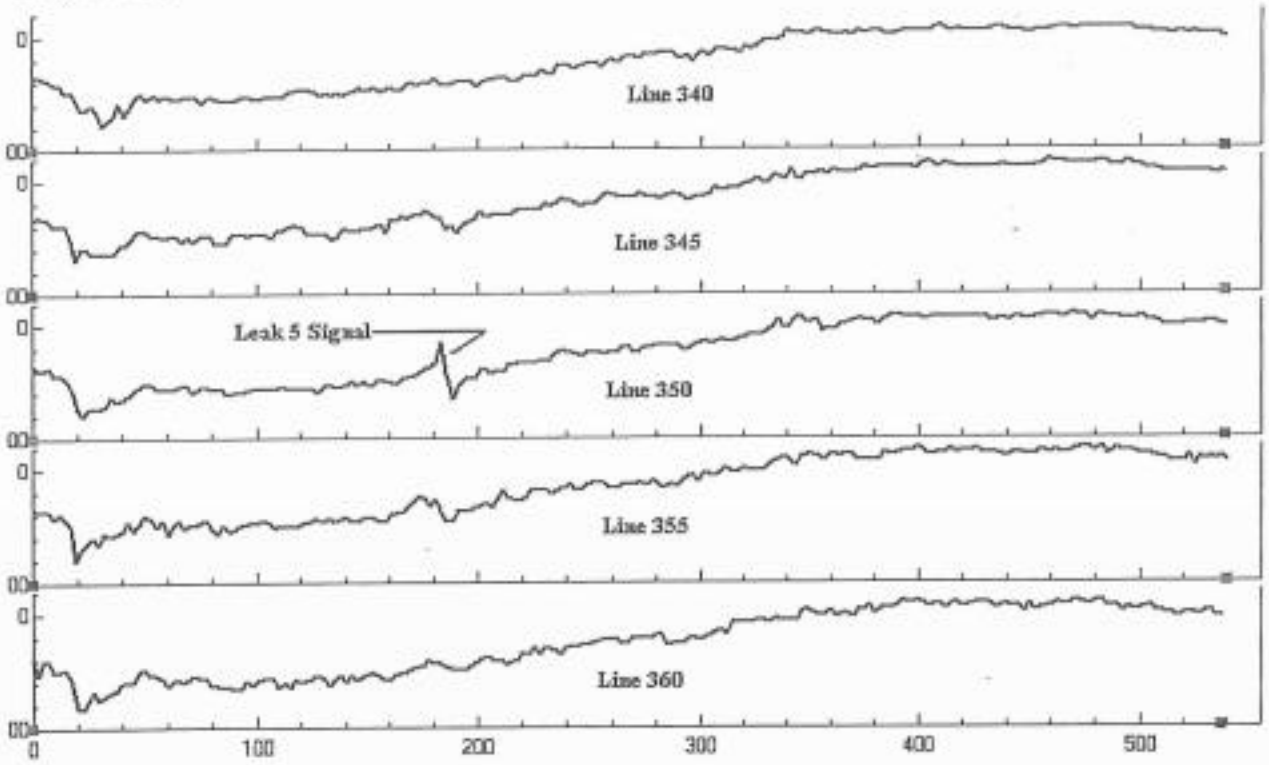


Figure 7. Plot of Survey Data Showing Signal from Leak 5

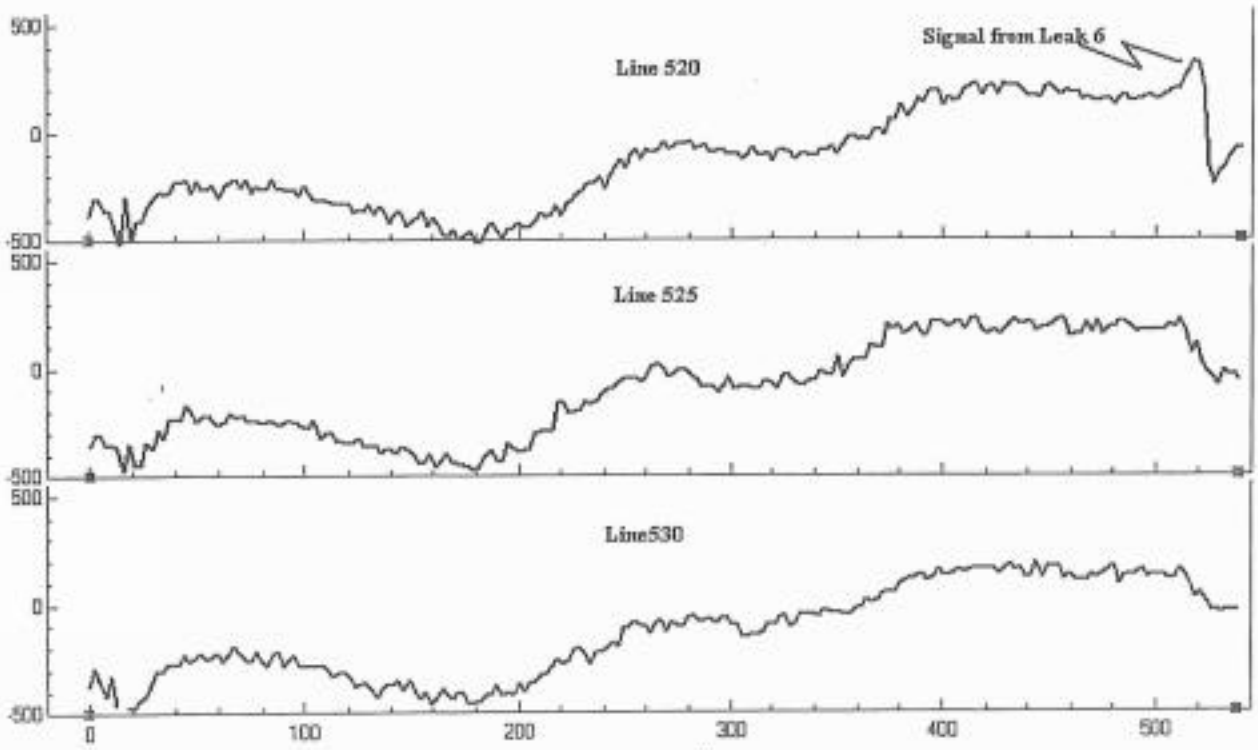


Figure 8. Plot of Survey Data Showing Signal from Leak 6.

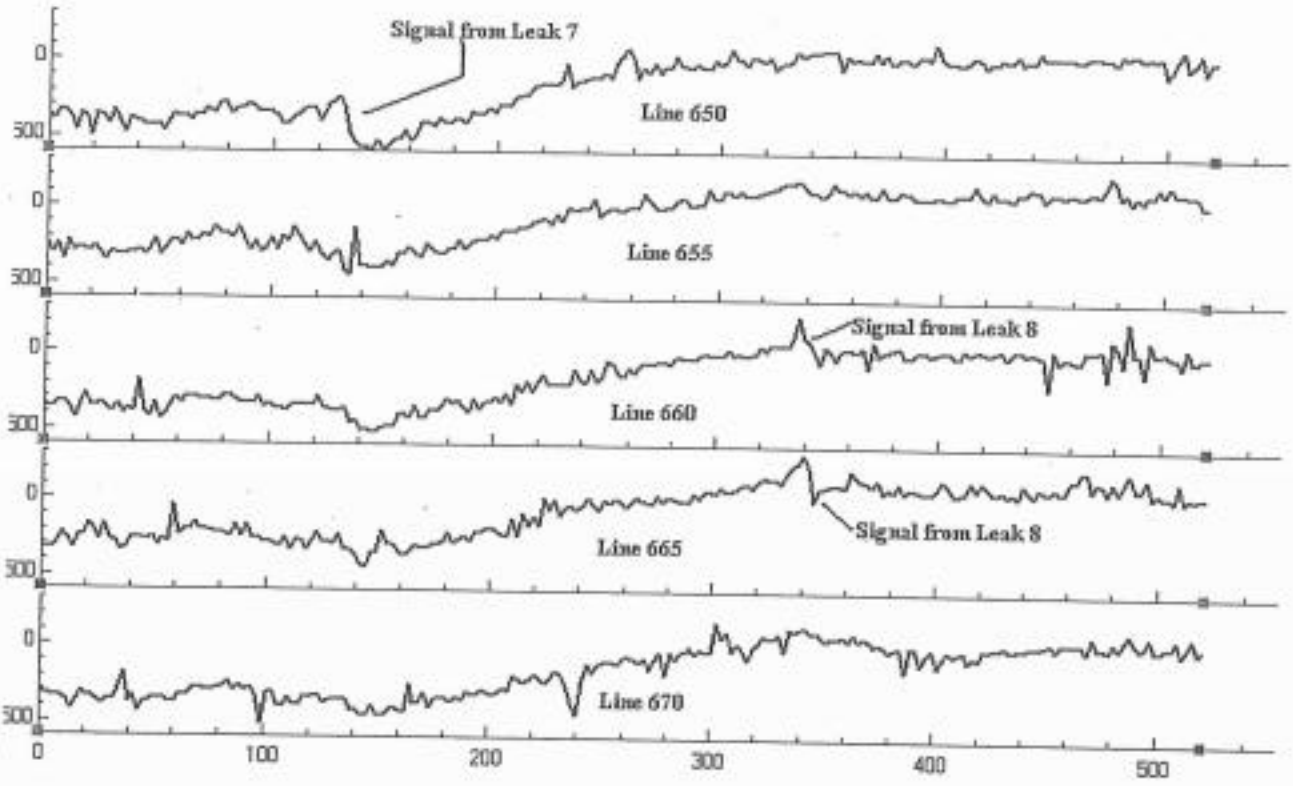


Figure 9. Plot of Survey Data Showing Signals from Leaks 7 and 8.

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

September 10, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Fourth Interim Report for "Geomembrane Leak Location Survey of the Sherco Scrubber Solids Pond 3N Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531

Dear Mr. Bluhm:

On August 24 through August 27, 2004, Martin Morales, and Edgar Barraza of Leak Location Services, Inc. conducted a leak location survey of the fourth section of the newly constructed forty-eight acre Scrubber Solids Pond 3 located at the Xcel Energy Sherco Site near Becker, Minnesota. The pond is being lined from the top down with 24-inches of sand, a single 60-mil HDPE geomembrane, a geosynthetic clay liner (gcl), and sand subgrade. The third survey was conducted in the southwest corner of pond 3N and had an area of approximately 14 acres. This report gives the results of the survey.

I. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high voltage across the liner and measure the resulting potential gradients on or in the conducting material covering the liner. If there are holes in the geomembrane, the electrical current flowing through the holes will cause measurable anomalies in the electrical potential. The location of these anomalies indicate the position of the hole.

II. LEAK LOCATION PROCEDURES

A high voltage isolated DC power supply was used to impress a voltage across the geomembrane liner by connecting the power supply to a pair of electrodes placed on opposite sides of the geomembrane. One electrode was placed in the sand drainage layer located on top of the primary liner and the second electrode was placed in the sand sub-grade. Therefore, the

geomembrane liner provided an electrical barrier between the electrodes except where there were holes in the geomembrane liner. Electrical current flowing through the holes in the geomembrane liner produced localized anomalous areas of high current density near the holes.

The survey of the cell was conducted by making potential gradient measurements on the moist sand with measurement electrodes spaced approximately 2.5 feet apart. These measurements were made approximately every 3 feet along numbered survey lines that were spaced approximately 5 feet apart. A portable digital data logger was used to collect the data. The data was then down-loaded into a portable computer for display, plotting, and analysis.

III. LEAK DETECTION SENSITIVITY/CALIBRATION TESTS

For the Leak Detection Sensitivity/Calibration Test, the sand drainage material was temporarily removed from a small area of the test section to expose the bare geomembrane. This provided access to the geomembrane for placement of the calibration test hole. A 0.25 inch-diameter hole was drilled through the geomembrane using a cordless drill and drill bit. Care was used not to drill through the underlying gcl. The drilled hole was then covered and the area back-filled with two-feet of sand drainage material.

A grid of parallel string lines spaced 2.5 apart was laid out on the sand drainage material above the calibration test hole with a zero line placed directly over the hole. The lines had a length of 100 feet with the mid-point located over the center of the test hole. Figure 1 shows a drawing layout of the test hole setup.

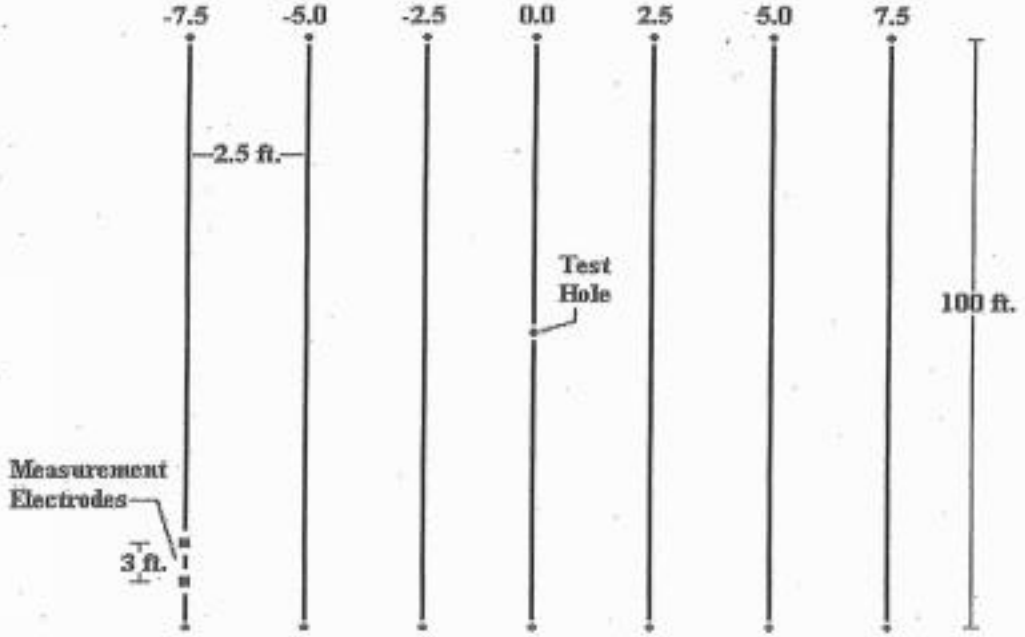


Figure 1. Leak Detection Sensitivity Test String Line Setup

A sensitivity/calibration test was performed by each set of data collection equipment at the beginning and end of each day. This information was documented and recorded on an LLSI sensitivity/calibration work sheet for future reference. Figure 2 shows a typical plot of sensitivity/calibration test with the sensitivity work sheet presented in Table1. All leak detection sensitivity tests passed with a minimum signal to noise ratio of greater than 3:1 from a distance of 7.5 feet.

Therefore, pursuant to ASTM D-7007, the defined leak detection survey distance was 7.5 feet with a survey line spacing of 15 feet. However, as an added safety factor and to allow for any changes that may occur in the sensitivity/calibration test between the start and the end of the day the survey was conducted with a survey line spacing of 5 feet.

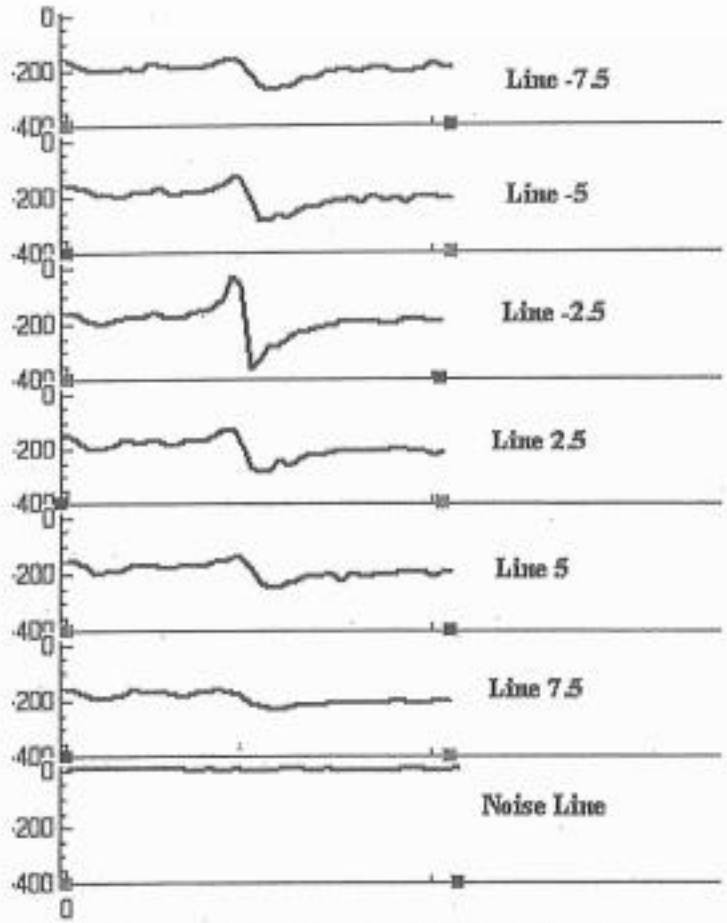


Figure 2. Plot of Sensitivity/Calibration Data for Artificial Leak

TABLE 1. TYPICAL SENSITIVITY/CALIBRATION DATA WORK SHEET

Line Number / Position (ft.)	Peak Positive (PP)	Peak Negative (PN)	Signal Level (p-p) PP-PN	Signal/ Noise	S/N Ratio*	Pass or Fail
-7.5	-154	-264	110	110/8	13.75:1	Pass
-5.0	-130	-282	152	152/8	19:1	Pass
-2.5	-32	-358	326	326/8	40.75:1	Pass
0.0	10	2	8			
2.5	-124	-282	158	158/8	19.75:1	Pass
5.0	-140	-246	106	106/8	13.25:1	Pass
7.5	-166	-228	62	62/8	7.75:1	Pass

* A passing signal to noise ratio is 3:1.

IV. SURVEY RESULTS

Six leaks were located and verified in survey Area 4 of the Scrubber Solids Pond 3N. Figure 3 shows an approximate position for each of the located leaks. The location and description of the leaks listed in Table 4. All leaks were repaired by the liner installer and re-tested by LLSI. Plots of the individual leak signals are presented in the attached appendix.

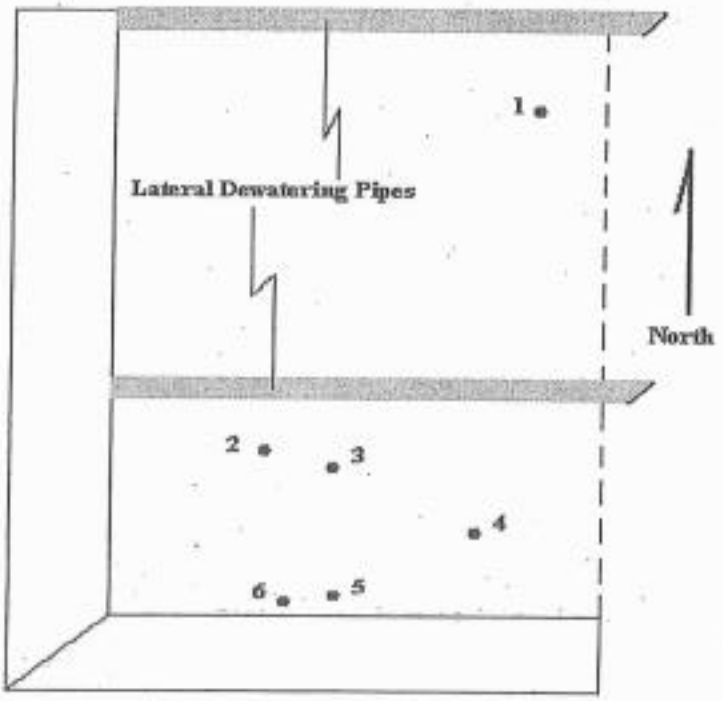


Figure 3. Approximate Locations of Holes Located in Survey Area 4

TABLE 2. LOCATIONS AND DESCRIPTION OF LEAKS
LOCATED IN SURVEY AREA 3

Hole #	Line #	Position (ft)	Hole Description
1	215	33	0.25 inch-long cut. Several scratches
2	560	330	0.125 inch-diameter puncture.
3	570	295	0.25 inch-diameter puncture
4	590	155	0.0625 inch-diameter puncture
5	710	262	2.5 inch-long knife cut
6	725	337	one inch-long open seam

If there are any questions regarding the electrical survey or this interim report, please contact us at (210) 408-1241. We appreciate the opportunity to have been of service to Xcel Energy on this important survey project.

Very truly yours,

Daren L. Laine
President

APPENDIX

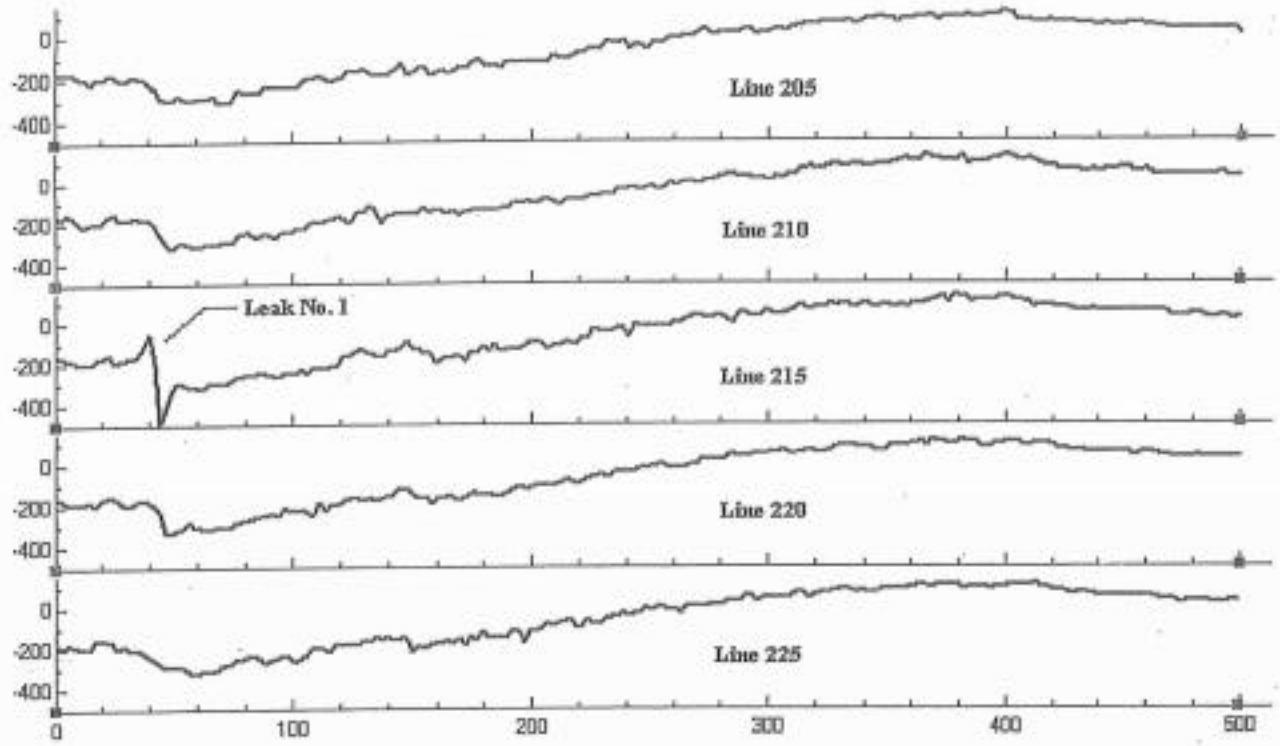


Figure 4. Plot of Survey Data Showing Signal from Leak 1

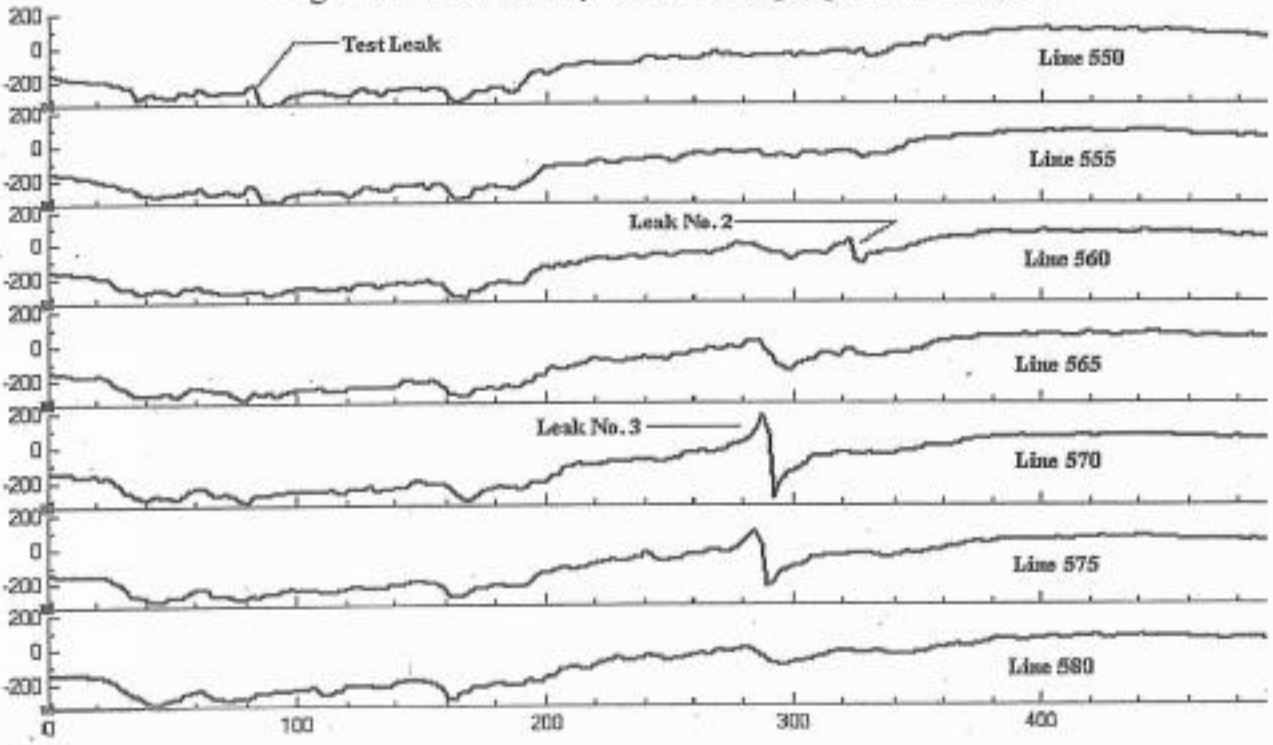


Figure 5. Plot of Survey Data Showing Signal from Leak 2 and Leak 3

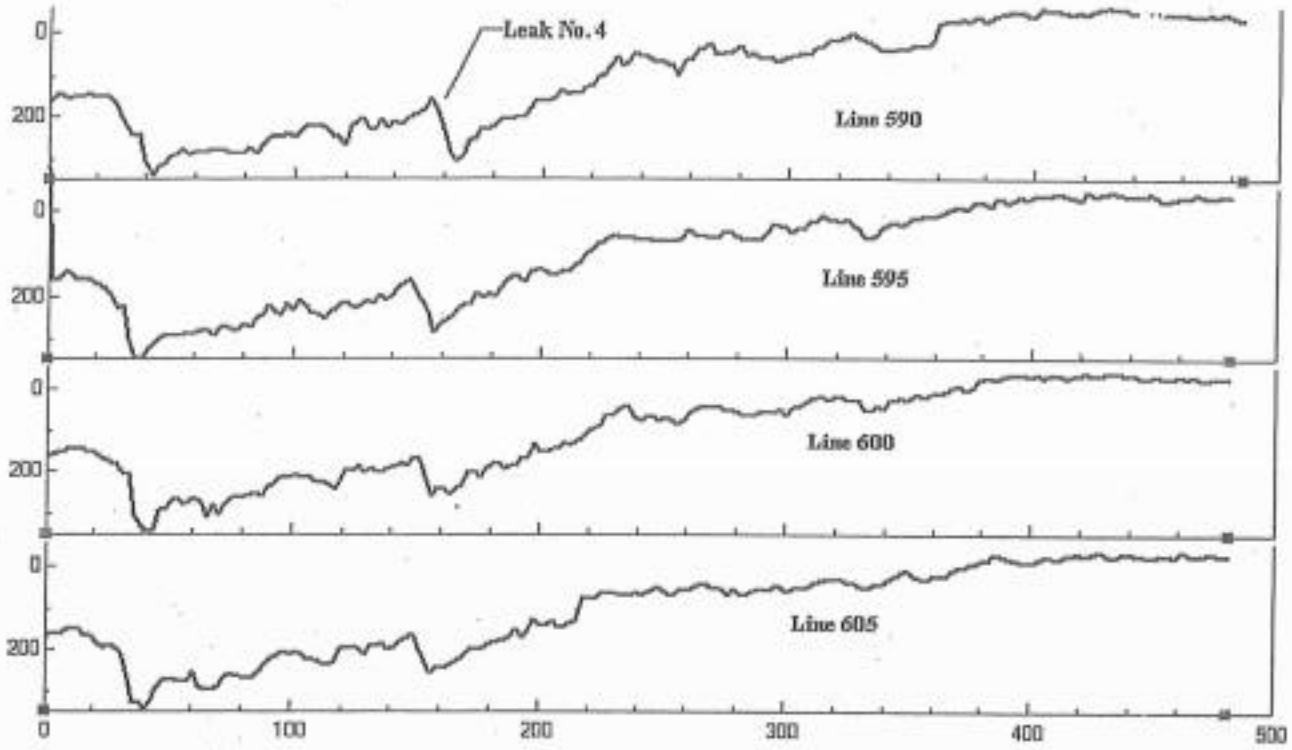


Figure 6. Plot of Survey Data Showing Signal from Leak 4

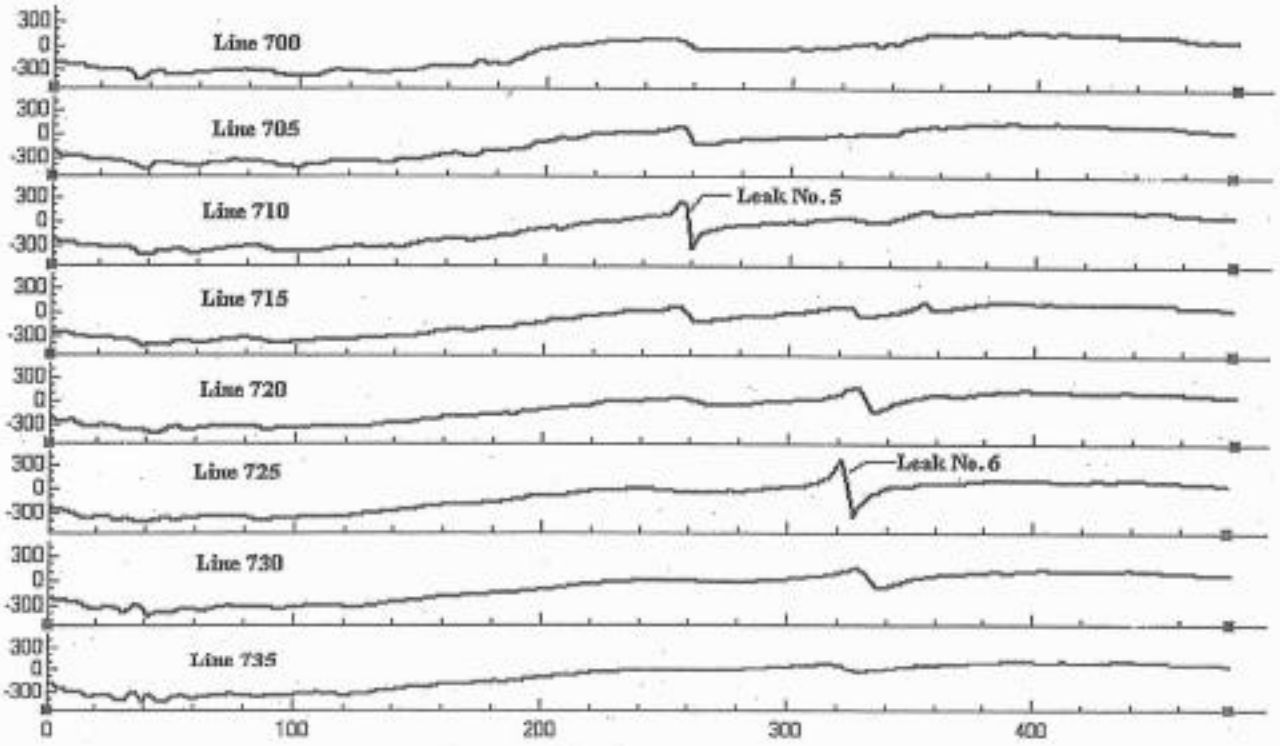


Figure 7. Plot of Survey Data Showing Signal from Leak 5 and Leak 6

LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

July 28, 2004

Xcel Energy
13999 Industrial Blvd
Becker, MN 55308

Attention: Steve Bluhm

Fax: 763-261-3154

Subject: Report for "Electrical Leak Location Survey of Two Geomembrane Lined Manholes Located at the Xcel Energy Power Plant Near Becker, MN"; LLSI Project 531A

Dear Mr. Bluhm:

On June 26 and 28, 2004, Lance Simmons and Herman Flores of Leak Location Services, Inc. (LLSI) conducted a geomembrane leak location survey of Two Geomembrane Lined Manholes located at the Xcel Energy Power Plant near Becker, Minnesota. The subject manholes are single-lined with an 80-mil HDPE "stud" type liner. This report describes the results of the work.

I. SURVEY RESULTS

Twenty-seven leaks were found during the leak location testing of Manhole DW-1 with the manhole full of water. Sheet 1/2 prepared by Isaac Fuhr of McCain and Associates, Inc. titled "Leak Location Testing of Manhole DW-1" shows the approximate locations of the leaks located in the manhole with the manhole full of water.

Eight leaks and 2 areas with a high density of leaks were found during the leak location testing of Manhole DW-1 with 3.5 feet of water in the manhole. Sheet 1/2 prepared by Isaac Fuhr of McCain and Associates, Inc. titled "Leak Location Testing of Manhole DW-1" shows the approximate locations of the leaks located in the manhole with 3.5 feet of water in the manhole.

Fourteen leaks were found during the leak location testing of Manhole DW-2 with the manhole full of water. In addition, there were leaks located around the entire circumference of the manhole at a depth of 30 feet. Sheet 1/2 prepared by Isaac Fuhr of McCain and Associates, Inc. titled "Leak Location Testing of Manhole DW-2" shows the approximate locations of the leaks located in the manhole with the manhole full of water.

Ten leaks and 2 areas with a high density of leaks were found during the leak location testing of Manhole DW-2 with 3.2 feet of water in the manhole. Sheet 1/2 prepared by Isaac Fuhr of

McCain and Associates, Inc. titled "Leak Location Testing of Manhole DW-2" shows the approximate locations of the leaks located in the manhole with 3.2 feet of water in the manhole. All drawings of the locations of the leaks are located in the appendix.

II. PRINCIPLE OF THE ELECTRICAL SURVEY METHOD

The principle of the electrical survey method for geomembrane liners is to impress a high DC voltage across the liner and measure the resulting potential gradients on or in the conducting material on the liner. If any holes are present, characteristic anomalies in the potential measurements caused by electrical current flowing through the holes indicate their location.

III. LEAK LOCATION PROCEDURES

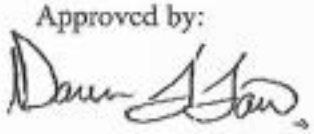
The electrical leak location method was used. The electrical leak location method detects the points where electrical current flows through water in leaks in the liner. A voltage was impressed between an electrode in the water covering the liner and an electrode connected to earth ground. Electrical current flowing through the leaks in the liner produces localized anomalous areas of high current density near the leaks. These areas are located by making electrical potential measurement scans throughout the flooded area.

A plumb bob probe survey was used for the survey of the walls of the manholes with the manholes full of water. This method is to systematically raise and lower a sensor probe along the walls of the manhole while moving around the perimeter of the manhole. When a leak is located using the plumb bob, the position of the leak is determined by measuring the distance to the sensor when the sensor is at the leak.

A wading survey was used for the survey of the floor area and the lower portions of the walls of the manholes with 3-3.5 feet of water in the manholes. For a wading survey, the operator wades in the water and systematically scans the submerged liner to locate any leaks. The operator scans the floor area with overlapping coverage, double checking any field seams that are located.

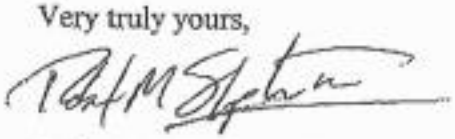
If you have any questions regarding the leak location survey or this report, please contact us at (210) 408-1241. We appreciate the opportunity to have been of service to Xcel Energy on this important service requirement.

Approved by:



Daren L. Laine
President

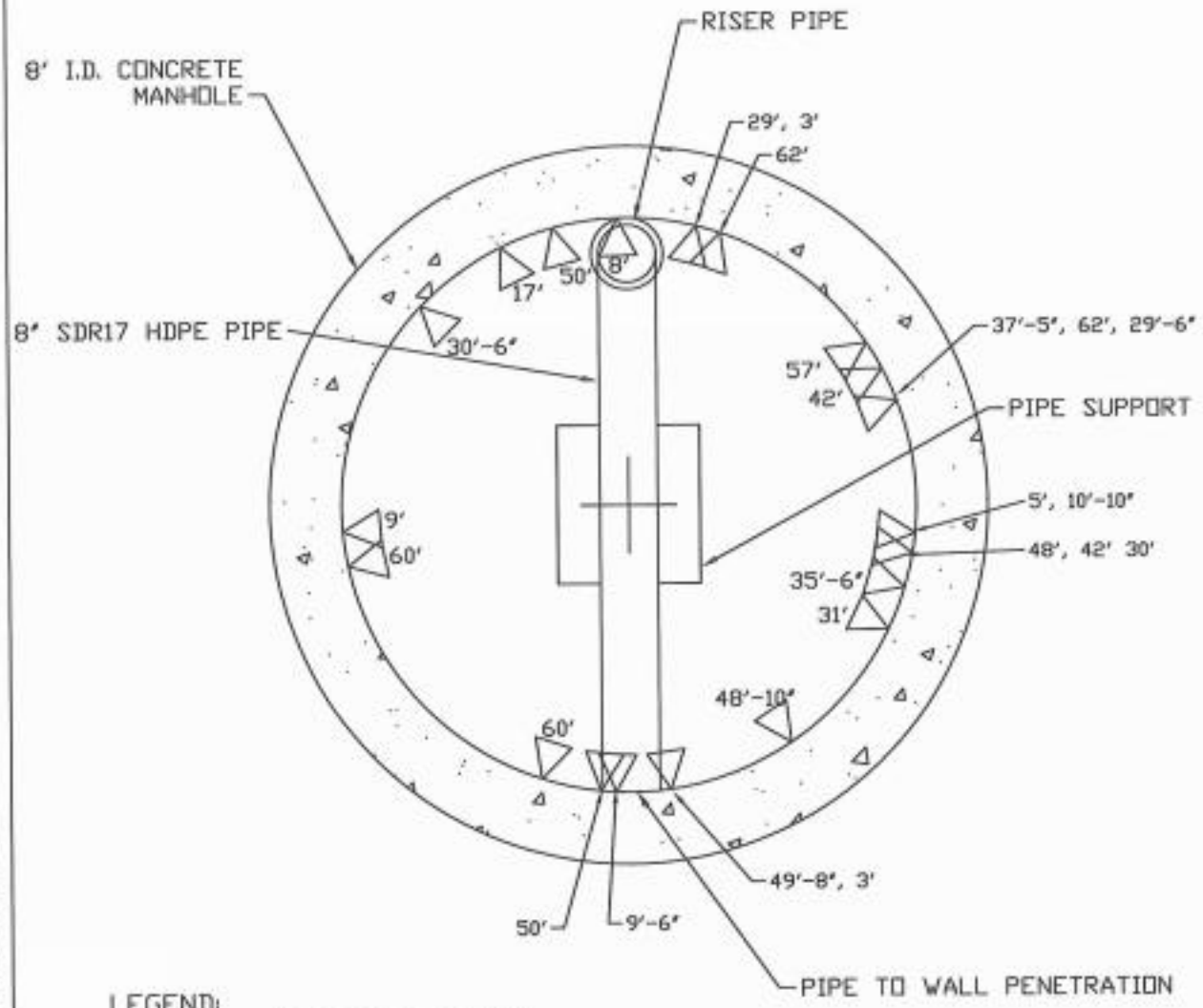
Very truly yours,



Robert M. Stephens III
Project Manager

APPENDIX

OBSERVATION OF LEAK TEST WITH MANHOLE FULL OF WATER 6/26/04



LEGEND:

LOCATION OF LEAK ALONG WALL

10'

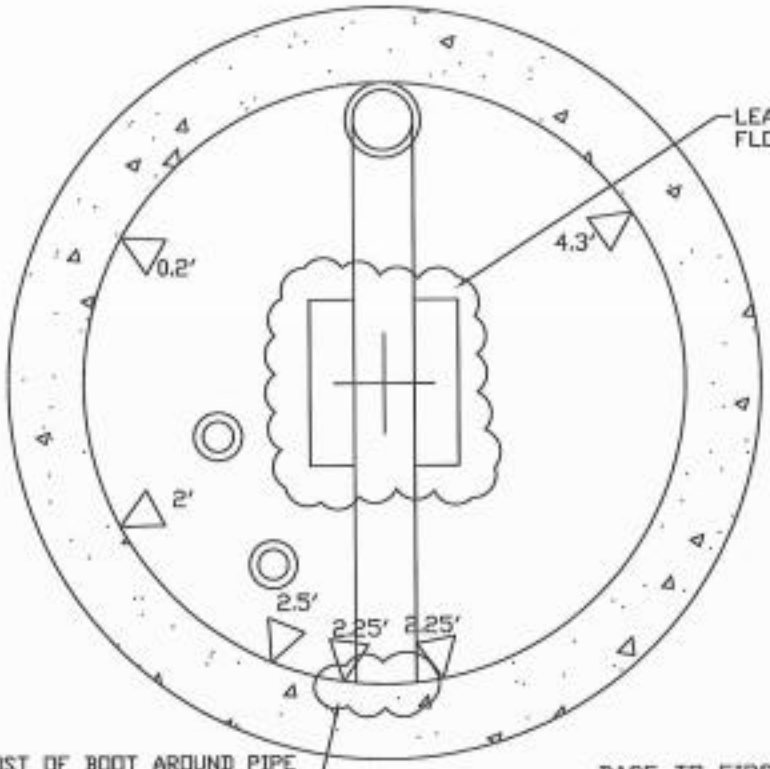
DEPTH FROM TOP RIM OF TOP SECTION OF MANHOLE

MCCAIN AND ASSOCIATES, INC.

SHERCO POND 3N XCEL ENERGY	LEAK LOCATION TESTING OF MANHOLE DW-1	
SCALE NTS	BY IJF	SHEET 1/2

P:\Projects\XCEL\SHC03009\Construction\Manholes\MHDW1 LEAK TEST.dwg, 8/2/2004 11:32:10 AM

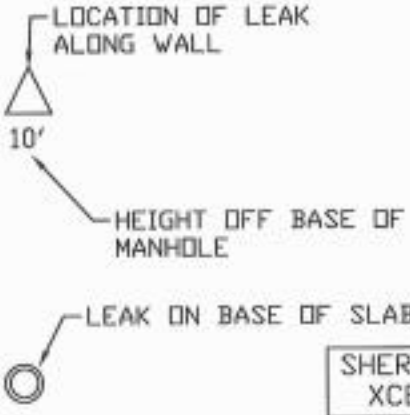
OBSERVATION OF LEAK TEST WITH 3.5 FT OF WATER IN MANHOLE 6/28/04



NOTE:

LLSI FOUND AT LEAST 10 LEAKS IN THE 3.5 FT OF MANHOLE SUBMERGED AND SUGGESTED THAT ALL EXTRUSION WELDS IN THIS SECTION BE REPAIRED.

LEGEND:

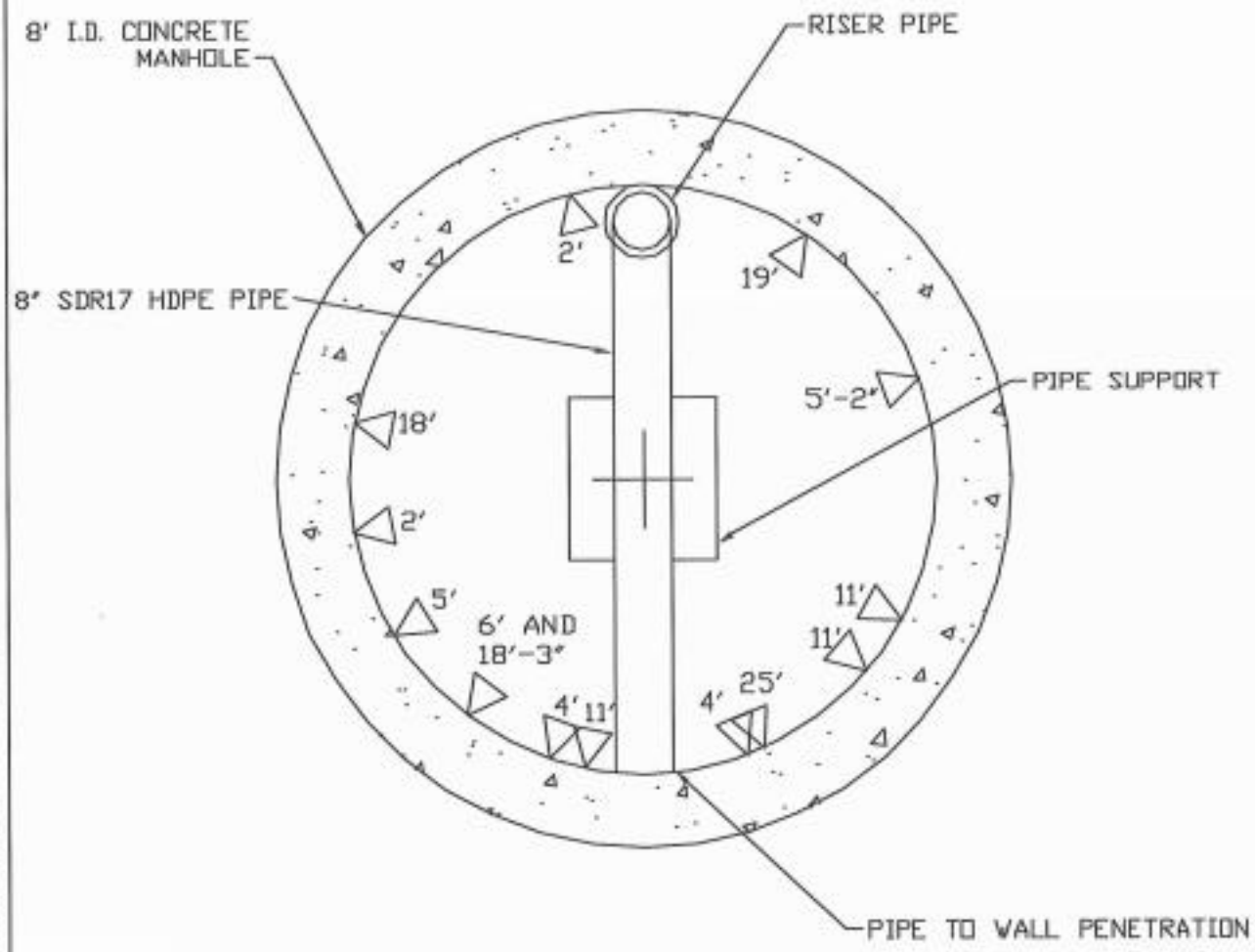


MCCAIN AND ASSOCIATES, INC.

SHERCO POND 3N XCEL ENERGY	LEAK LOCATION TESTING OF MANHOLE DW-1	
SCALE NTS	BY IJF	SHEET 2/2

P:\Projects\XCEL\SHC0306\Construction\Manholes\MH-DW1 LEAK TEST.dwg, 8/2/2004 11:33:05 AM

OBSERVATION OF LEAK TEST WITH MANHOLE FULL OF WATER 6/26/04



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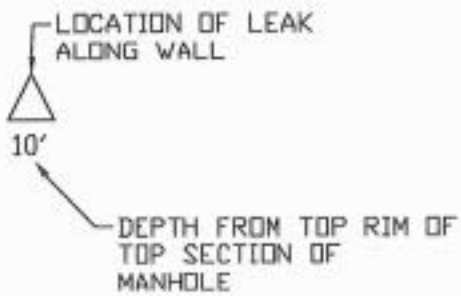


NOTE:

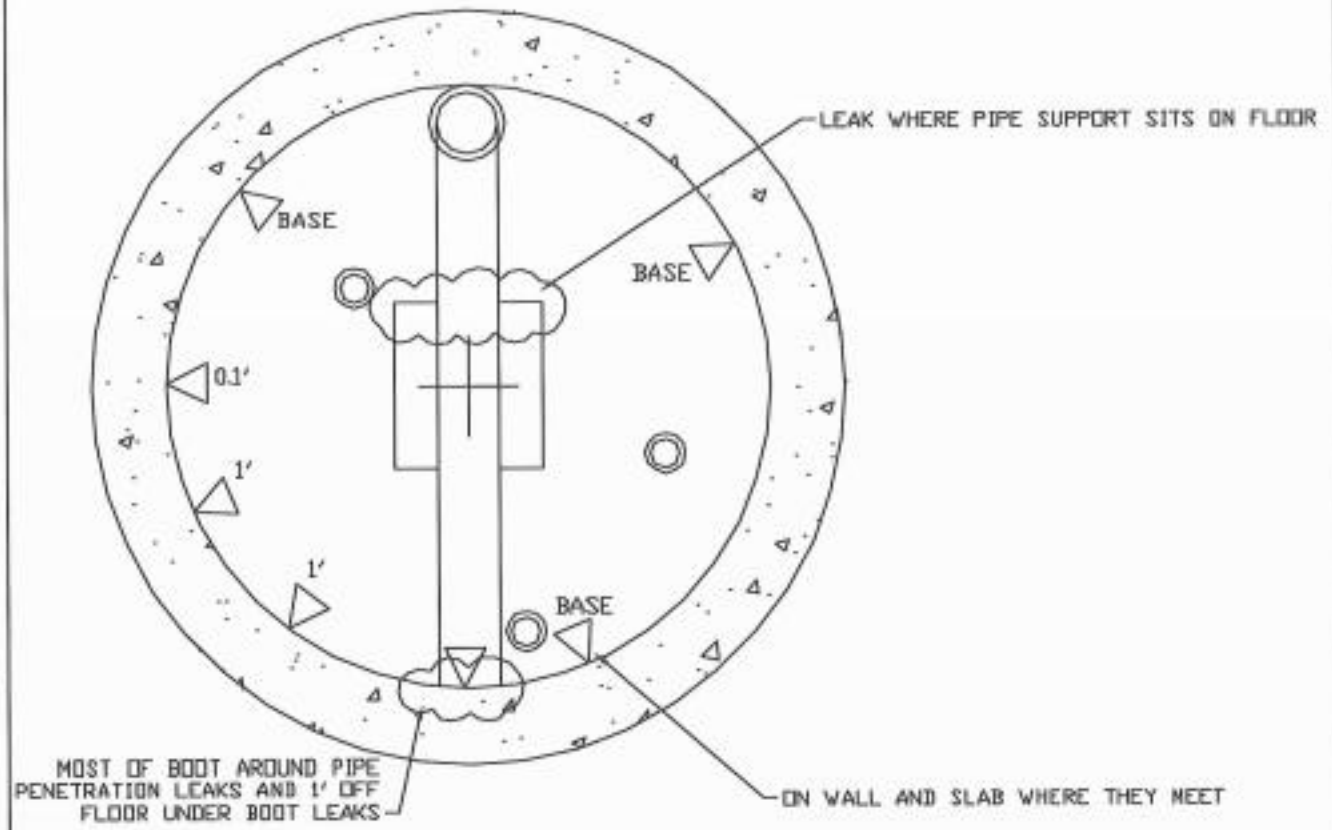
LLSI FOUND LEAKS AROUND THE CIRCUMFERENCE OF THE MANHOLE AT A DEPTH OF 30'.

MCCAIN AND ASSOCIATES, INC.

SHERCO POND 3N XCEL ENERGY	LEAK LOCATION TESTING OF MANHOLE DW-2	
SCALE NTS	BY IJF	SHEET 1/2

C:\Documents and Settings\dsy\Local Settings\Temporary Internet Files\Content.IES\OPBVYJKJ\MHDW2 LEAK TEST.dwg, 6/28/2004 9:25:21 AM

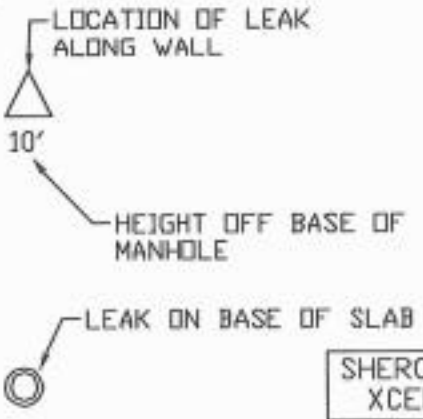
OBSERVATION OF LEAK TEST WITH 3.2 FT OF WATER IN MANHOLE 6/26/04



NOTE:

LLSI FOUND 13 LEAKS IN THE 3.2 FT OF MANHOLE SUBMERGED AND SUGGESTED THAT ALL EXTRUSION WELDS IN THIS SECTION BE REPAIRED.

LEGEND:



MCCAIN AND ASSOCIATES, INC.

SHERCO POND 3N XCEL ENERGY	LEAK LOCATION TESTING OF MANHOLE DW-2	
SCALE NTS	BY IJF	SHEET 2/2

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Appendix K

Claymax 200R Certifications

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
1350 W. SHURE DRIVE
ARLINGTON HEIGHTS, IL 60004
PHONE: (847) 392-5800
FAX: (847) 506-6150

DETERMINATION OF THE COEFFICIENT OF FRICTION BY DIRECT SHEAR METHOD (ASTM D 5321)

Project Name: Periodic Shear Test
Lovell
Requested by: Jim Olsta

Project No. Periodic Shear

Date: Sept. 12

Analyst: N. Pietrowiak

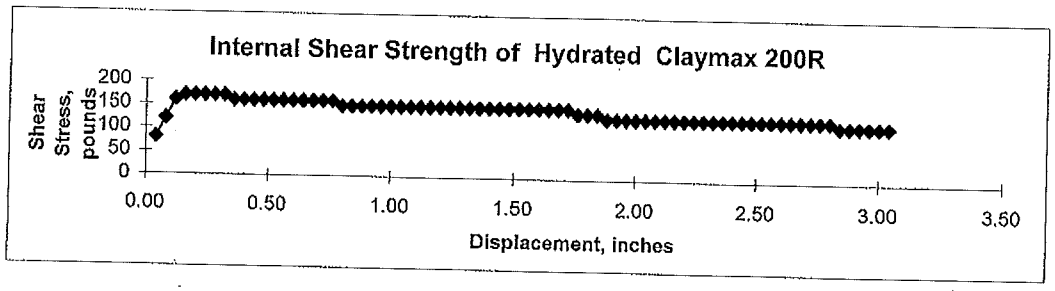
TEST PARAMETERS:

Interface Tested:

Shear Rate, in/min: 0.04
Shape of Specimen: Square
1 sample cut from Lot: 200325LO Roll: 1647
Hydration Time: 48hrs @ Normal Load

TEST RESULTS:

Normal Stress,psf	Peak Stress,psf
200	170



File Name: 3rd Quarter

2004 WEEKLY QA DATA
CLAYMAX 200R
Production Facility: Lovell, WY

Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)		Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)
1	No Production				27			
2	No Production				28			
3	200403LO	2.4×10^{-9}	6.5×10^{-9}		29			
4	200404LO	3.2×10^{-9}	8.3×10^{-9}		30			
5	200405LO	3.5×10^{-9}	8.9×10^{-9}		31			
6	200406LO	2.7×10^{-9}	7.4×10^{-9}		32			
7	No Production				33			
8	No Production				34			
9	200409LO	3.5×10^{-9}	9.9×10^{-9}		35			
10	200410LO	3.5×10^{-9}	9.6×10^{-9}		36			
11	No Production				37			
12	200412LO	4.0×10^{-9}	9.3×10^{-9}		38			
13	No Production				39			
14	No Production				40			
15	200415LO	3.9×10^{-9}	9.3×10^{-9}		41			
16	No Production				42			
17	No Production				43			
18	200418LO	2.6×10^{-9}	8.2×10^{-9}		44			
19	200419LO	2.7×10^{-9}	8.1×10^{-9}		45			
20	200420LO	2.4×10^{-9}	8.2×10^{-9}		46			
21	200421LO	3.2×10^{-9}	9.6×10^{-9}		47			
22	200422LO	4.9×10^{-9}	1.2×10^{-9}		48			
23	200423LO	2.2×10^{-9}	7.1×10^{-9}		49			
24	200424LO	3.0×10^{-9}	8.0×10^{-9}		50			
25					51			
26					52			

All testing is performed according to ASTM D5887 using 5psi confining pressure and 2psi head pressure.

SI® Geosolutions

6/10/2004

Roger Wilke
American Colloid Cetco WY
PO Box 428
Lovell WY 82431
BOL: PO:

This is to Certify that Product 311 is a nonwoven geotextile manufactured at one of the SI Corporations facilities that has achieved ISO-9002 certification for its systemic approach to quality will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This products was continuously inspected for the presence of needles none were detected

PROPERTY	TEST METHOD	UNITS	ENGLISH	METRIC
Mass/Unit Area	ASTM D-5261	oz/sy	2.7	92
Thickness	ASTM D-5199	mils (mm)	30	1
Tensile Strength (Grab)	ASTM D-4632	lbs (N)	80	356
Elongation	ASTM D-4632	%	50	50
Puncture	ASTM D-4833	lbs (N)	50	222
Mullen Burst	ASTM D-3786	psi (kPa)	150	1034
Trapezoidal Tear MD	ASTM D-4533	lbs (N)	30	134
Wide Width Tensile	ASTM-D4595	lbs/ft (kN/m)	360	5.3
UV Resistance	ASTM-D4355	%	70	70
Apparent Opening Size (AOS) Upper Limit	ASTM-D4751	US Std. Sieve (mm)	50	.300
Permittivity	ASTM-D4491	1/sec	2.00	2.00
Permeability	ASTM-D4491	cm/sec	0.22	0.22
Water Flow Rate	ASTM-D4491	gpm/ft² (l/min/m²)	150	6112

Toni Ruppert
Ringgold Quality Lab
Quality Manager

Seller makes no warranty expressed or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet SI Corporation current published specifications, and the Customer gives notice to SI Corporation before installing the product, then SI Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 11/3/2003

SI® Geosolutions

6/10/2004

Roger Wilke
American Colloid Cetco WY
PO Box 428
Lovell WY 82431
BOL: PO:

This is to Certify that Product 311L is a nonwoven geotextile manufactured at one of the SI Corporations facilities that has achieved ISO-9002 certification for its systemic approach to quality will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This products was continuously inspected for the presence of needles none were detected

PROPERTY	TEST METHOD	UNITS	ENGLISH	METRIC
Mass/Unit Area	ASTM D-5261	oz/sy	2.7	92
Thickness	ASTM D-5199	mils (mm)	30	1
Tensile Strength (Grab)	ASTM D-4632	lbs (N)	60	267
Elongation	ASTM D-4632	%	40	40
Puncture	ASTM D-4833	lbs (N)	30	134
Mullen Burst	ASTM D-3786	psi (kPa)	N/A	N/A
Trapezoidal Tear MD	ASTM D-4533	lbs (N)	30	134
Wide Width Tensile	ASTM-D4595	lbs/ft (kN/m)	N/A	N/A
UV Resistance	ASTM-D4355	%	70	70
Apparent Opening Size (AOS) Upper Limit	ASTM-D4751	US Std. Sieve (mm)	50	.300
Permittivity	ASTM-D4491	1/sec	N/A	N/A
Permeability	ASTM-D4491	cm/sec		
Water Flow Rate	ASTM-D4491	gpm/ft² (l/min/m²)	N/A	N/A

Toni Ruppert
Ringgold Quality Lab
Quality Manager

Seller makes no warranty expressed or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet SI Corporation current published specifications, and the Customer gives notice to SI Corporation before installing the product, then SI Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 11/3/2003

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 27, 2004
PO: 9656-00
Order #: 187953, 187960

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on 5/25 -5/26 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187953, 187960
Ship Date:	5/25 -5/26

CONTENTS:

PACKING LIST
DAILY CLAYMAX PRODUCTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
CLAYMAX MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

PO: 9656-00

ORDER NO:.. 000187953
ORDER DATE: 5/17/2004
SHIP DATE:. 5/26/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT SF	200420LO	00001383	150.0	15.0	2250.0	2965.0
LO-CLAYMAX200R		SFT SF	200420LO	00001384	150.0	15.0	2250.0	2970.0
LO-CLAYMAX200R		SFT SF	200420LO	00001385	150.0	15.0	2250.0	2980.0
LO-CLAYMAX200R		SFT SF	200421LO	00001692	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT SF	200421LO	00001693	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT SF	200421LO	00001698	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT SF	200421LO	00001699	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT SF	200421LO	00001700	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT SF	200421LO	00001701	150.0	15.0	2250.0	3070.0
LO-CLAYMAX200R		SFT SF	200421LO	00001702	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT SF	200421LO	00001708	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT SF	200421LO	00001709	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT SF	200421LO	00001710	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT SF	200421LO	00001711	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT SF	200421LO	00001712	150.0	15.0	2250.0	3062.0
ORDER TOTALS.....							33750.0	45692.0
TOTAL ITEMS.....			15					

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187960
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001703	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001704	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001705	150.0	15.0	2250.0	3075.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001706	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001707	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001715	150.0	15.0	2250.0	3025.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001716	150.0	15.0	2250.0	3024.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001717	150.0	15.0	2250.0	3020.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001718	150.0	15.0	2250.0	3023.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001719	150.0	15.0	2250.0	3019.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001730	150.0	15.0	2250.0	3020.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001731	150.0	15.0	2250.0	3021.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001732	150.0	15.0	2250.0	3033.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001733	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001734	150.0	15.0	2250.0	3033.0
ORDER TOTALS.....							33750.0	45592.0

TOTAL ITEMS..... 15

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187953, 187960
Ship Date:	5/25 -5/26

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **Claymax 200R** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **03-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **050304C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	902.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404F
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**SI Geosolutions**
PRODUCTION Facility:	**SI Corporation** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Jack Rooke
Brand Name:	Geotex 311

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC
2002952734	2051406	1006701	311L	4/7/2004	3.2	30	86	90	45	75
2002952745	2051406	1006701	311L	4/7/2004	3.5	30	89	89	54	82
2003006216	2052484	1004839	311	4/15/2004	3.9	67	101	140	62	73
2003006218	2052484	1004839	311	4/15/2004	3.8	61	95	127	64	74
2003006220	2052484	1004839	311	4/15/2004	3.3	53	80	106	65	75
2003006223	2052484	1004839	311	4/15/2004	3.4	53	100	114	61	73
2003006225	2052484	1004839	311	4/15/2004	3.5	58	90	110	63	80
2003006227	2052484	1004839	311	4/15/2004	3.7	63	95	120	60	77
2003006230	2052484	1004839	311	4/15/2004	3.5	53	93	107	64	77
2003006232	2052484	1004839	311	4/15/2004	3.7	62	81	117	66	76
2003006235	2052484	1004839	311	4/16/2004	3.6	55	80	94	72	78
2003006239	2052484	1004839	311	4/16/2004	3.5	58	82	110	61	76
2003006242	2052484	1004839	311	4/16/2004	3.6	55	84	92	60	76
2003006245	2052484	1004839	311	4/16/2004	3.6	56	85	108	66	75
2003006254	2052484	1004839	311	4/16/2004	3.6	58	90	119	60	72
2003006257	2052484	1004839	311	4/16/2004	3.4	58	93	110	59	73
2003006749	2052484	1004839	311	4/16/2004	3.7	59	89	110	66	77
2003009315	2052353	1006701	311L	4/16/2004	3.4	33	103	94	60	85
2003009316	2052353	1006701	311L	4/16/2004	3.2	31	95	104	58	74
2003009320	2052353	1006701	311L	4/16/2004	3.2	30	96	101	57	74
2003009323	2052353	1006701	311L	4/17/2004	3.4	31	99	100	50	72
2003009328	2052353	1006701	311L	4/17/2004	3.6	30	95	92	53	75
2003009332	2052353	1006701	311L	4/17/2004	3.5	31	93	92	54	75
2003009337	2052353	1006701	311L	4/17/2004	3.6	32	106	102	55	75
2003009342	2052353	1006701	311L	4/17/2004	3.6	30	96	100	52	73
2003009355	2052353	1006701	311L	4/17/2004	4.5	33	104	127	63	68
2003009357	2052353	1006701	311L	4/17/2004	5.1	38	166	188	48	74
2003009363	2052353	1006701	311L	4/17/2004	5.3	41	152	172	49	76
2003009367	2052353	1006701	311L	4/17/2004	3.4	30	92	98	49	74
2003009370	2052353	1006701	311L	4/17/2004	3.8	31	99	113	48	75
2003009374	2052353	1006701	311L	4/17/2004	3.2	30	95	92	53	71
2003015839	2052353	1006701	311L	4/17/2004	3.5	30	92	106	52	70
2003115180	2054309	1004839	311L	5/4/2004	3.8	49	106	120	55	74

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	PUNOT
2002320961	2040999	1005428	311I	5/3/2004	3.3	63	85	111	85	75	53
2002320964	2040999	1005428	311I	5/3/2004	3.5	70	73	103	81	85	60
2002320968	2040999	1005428	311I	5/3/2004	4.1	77	96	122	86	82	59
2002321221	2040999	1005428	311I	5/3/2004	3.8	77	86	112	78	87	68
2002321224	2040999	1005428	311I	5/3/2004	3.4	66	74	106	78	77	63
2002321008	2040999	1005428	311I	5/3/2004	3.4	70	70	107	76	81	66
2002321232	2040999	1005428	311L	5/3/2004	4.2	81	79	92	81	86	77
2002324355	2040999	1005428	311L	5/3/2004	3.6	75	87	122	80	79	63
2002324358	2040999	1005428	311L	5/3/2004	3.9	73	82	125	78	84	61
2002839382	2048067	1006701	311L	5/3/2004	3.7	33	84	103	54	70	54
2002839383	2048067	1006701	311L	5/3/2004	3.6	32	85	108	56	64	50
2002839387	2048067	1006701	311L	5/3/2004	3.7	34	78	104	52	69	49
2002839389	2048067	1006701	311L	5/3/2004	3.8	33	83	114	59	67	58
2002839393	2048067	1006701	311L	5/3/2004	3.5	32	68	85	57	63	44
2002839399	2048067	1006701	311L	5/3/2004	3.8	33	83	98	53	69	49
2002839402	2048067	1006701	311L	5/3/2004	3.4	32	77	84	55	73	44
2002839406	2048067	1006701	311L	5/3/2004	3.6	31	68	79	55	69	48
2002839410	2048067	1006701	311L	5/3/2004	3.4	32	69	80	51	73	45
2002839417	2048067	1006701	311L	5/3/2004	3.6	34	77	77	53	69	49
2002839814	2048067	1006701	311L	5/3/2004	3.3	32	83	84	53	66	50
2002847789	2048067	1006701	311L	5/3/2004	3.5	33	81	100	52	69	53
2002847792	2048067	1006701	311L	5/3/2004	3.4	33	80	91	47	68	47
2002952766	2051406	1006701	311L	5/3/2004	3.6	30	88	91	50	71	46

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187953

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLK-200R-2.7	2002952880		3.7	89.6
LO-N/W-BLK-200R-2.7	2002952887		4.1	93.2
LO-N/W-BLK-200R-2.7	2002952890		3.5	97.2
LO-N/W-BLK-200R-2.7	2002961030		3.3	88.9
LO-N/W-BLK-200R-2.7	2003016079		3.6	95.9

QCG#FT2 QCT#FT2
5/27/04 11:47:48

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187960

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs marv MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001734	.82	354.70
LO-CLAYMAX200R	200421LO	00001733	.82	354.70
LO-CLAYMAX200R	200421LO	00001732	.82	354.70
LO-CLAYMAX200R	200421LO	00001731	.82	354.70
LO-CLAYMAX200R	200421LO	00001730	.82	354.70
LO-CLAYMAX200R	200421LO	00001719	.81	354.70
LO-CLAYMAX200R	200421LO	00001718	.81	354.70
LO-CLAYMAX200R	200421LO	00001717	.81	354.70
LO-CLAYMAX200R	200421LO	00001716	.81	354.70
LO-CLAYMAX200R	200421LO	00001715	.81	354.70
LO-CLAYMAX200R	200421LO	00001707	.81	354.70
LO-CLAYMAX200R	200421LO	00001706	.81	354.70
LO-CLAYMAX200R	200421LO	00001705	.81	354.70
LO-CLAYMAX200R	200421LO	00001704	.81*	354.70
LO-CLAYMAX200R	200421LO	00001703	.82	354.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

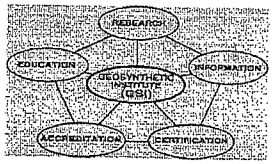
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187953, 187960
Ship Date:	5/25 -5/26

CETCO hereby affirms and certifies that the _____ Claymax 200R _____ material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	100 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 QCT#FT2
5/27/04 9:15:42

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187953

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001712	.81	354.70
LO-CLAYMAX200R	200421LO	00001711	.81	354.70
LO-CLAYMAX200R	200421LO	00001710	.81	354.70
LO-CLAYMAX200R	200421LO	00001709	.81	354.70
LO-CLAYMAX200R	200421LO	00001708	.81	354.70
LO-CLAYMAX200R	200421LO	00001702	.82	354.70
LO-CLAYMAX200R	200421LO	00001701	.82	354.70
LO-CLAYMAX200R	200421LO	00001700	.82	354.70
LO-CLAYMAX200R	200421LO	00001699	.82	354.70
LO-CLAYMAX200R	200421LO	00001698	.82	354.70
LO-CLAYMAX200R	200421LO	00001693	.82	354.70
LO-CLAYMAX200R	200421LO	00001692	.82	354.70
LO-CLAYMAX200R	200420LO	00001385	.83	283.10
LO-CLAYMAX200R	200420LO	00001384	.83	283.10
LO-CLAYMAX200R	200420LO	00001383	.83	283.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
5/27/04 9:15:42

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187953

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00001383	LO-CLAYMAX200R	150	2250	2965	2003016079		2003015841		050304C
00001384	LO-CLAYMAX200R	150	2250	2970	2003016079		2003015841		050304C
00001385	LO-CLAYMAX200R	150	2250	2980	2003016079		2003015841		050304C
LOT# 200421LO									
00001692	LO-CLAYMAX200R	150	2250	3065	2002952890		2002961033		051404E
00001693	LO-CLAYMAX200R	150	2250	3063	2002952890		2002961033		051404E
00001698	LO-CLAYMAX200R	150	2250	3068	2003009365		2002961033		051404E
00001699	LO-CLAYMAX200R	150	2250	3064	2003009365		2002961033		051404E
00001700	LO-CLAYMAX200R	150	2250	3068	2003009365		2002961033		051404E
00001701	LO-CLAYMAX200R	150	2250	3070	2003009365		2002961033		051404E
00001702	LO-CLAYMAX200R	150	2250	3064	2003009365		2003009348		051404E
00001708	LO-CLAYMAX200R	150	2250	3066	2003009365		2003009348		051404E
00001709	LO-CLAYMAX200R	150	2250	3062	2003009365		2003009348		051404E
00001710	LO-CLAYMAX200R	150	2250	3064	2003009365		2003009348		051404E
00001711	LO-CLAYMAX200R	150	2250	3061	2003009365		2003009348		051404E
00001712	LO-CLAYMAX200R	150	2250	3062	2003009365		2003009348		051404E

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/27/04 11:47:48

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187960

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001703	LO-CLAYMAX200R	150	2250	3071	2003009365		2003009348		051404E
00001704	LO-CLAYMAX200R	150	2250	3068	2003009365		2003009348		051404E
00001705	LO-CLAYMAX200R	150	2250	3075	2003009365		2003009348		051404E
00001706	LO-CLAYMAX200R	150	2250	3069	2003009365		2003009348		051404E
00001707	LO-CLAYMAX200R	150	2250	3065	2003009365		2003009348		051404E
00001715	LO-CLAYMAX200R	150	2250	3025	2003009354		2003009348		051404E
00001716	LO-CLAYMAX200R	150	2250	3024	2003009354		2003009348		051404E
00001717	LO-CLAYMAX200R	150	2250	3020	2003009354		2003009348		051404E
00001718	LO-CLAYMAX200R	150	2250	3023	2003009354		2003009348		051404E
00001719	LO-CLAYMAX200R	150	2250	3019	2003009354		2003009348		051404E
00001730	LO-CLAYMAX200R	150	2250	3020	2002839409		2002952880		051404F
00001731	LO-CLAYMAX200R	150	2250	3021	2002839409		2002952880		051404F
00001732	LO-CLAYMAX200R	150	2250	3033	2002839409		2003009381		051404F
00001733	LO-CLAYMAX200R	150	2250	3026	2002839409		2003009381		051404F
00001734	LO-CLAYMAX200R	150	2250	3033	2002839409		2003009381		051404F

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 28, 2004
PO: 9656-00
Order #: 187954, 187955

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on May 27, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187954, 187955
Ship Date:	27-May

CONTENTS:

PACKING LIST
DAILY CLAYMAX PRODUCTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
CLAYMAX MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187954
ORDER DATE: 5/17/2004
SHIP DATE:. 5/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200420LO	00001373	150.0	15.0	2250.0	2977.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001374	150.0	15.0	2250.0	2979.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001376	150.0	15.0	2250.0	2981.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001382	150.0	15.0	2250.0	2975.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001542	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001543	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001544	150.0	15.0	2250.0	3060.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001545	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001546	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001547	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001548	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001549	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001550	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001551	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001691	150.0	15.0	2250.0	3063.0
ORDER TOTALS.....							33750.0	45613.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187955
ORDER DATE: 5/17/2004
SHIP DATE:. 5/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200422LO	00002020	150.0	15.0	2250.0	3030.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002049	150.0	15.0	2250.0	3042.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002050	150.0	15.0	2250.0	3050.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002051	150.0	15.0	2250.0	3048.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002052	150.0	15.0	2250.0	3046.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002053	150.0	15.0	2250.0	3038.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002054	150.0	15.0	2250.0	3030.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002055	150.0	15.0	2250.0	3042.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002056	150.0	15.0	2250.0	3041.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002057	150.0	15.0	2250.0	3044.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002058	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002059	150.0	15.0	2250.0	3049.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002060	150.0	15.0	2250.0	3042.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002061	150.0	15.0	2250.0	3036.0
LO-CLAYMAX200R		SFT	SF 200422LO	00002062	150.0	15.0	2250.0	3035.0
ORDER TOTALS.....							33750.0	45634.0

TOTAL ITEMS..... 15

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187954, 187955
Ship Date:	27-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **Claymax 200R** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

~~Sherri McArthur~~ Shirl Waglair
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: AMERICAN COLLOID COMPANY

PRODUCTION

Facility: AMERICAN COLLOID COMPANY
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: CG 50

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050304C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051204E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT. DATE: 17-May-04
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051704D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	11.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT DATE: 17-May-04
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051704E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	11.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 18-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051804C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 18-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051804D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **SI Geosolutions**

PRODUCTION

Facility: **SI Corporation**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: Geotex 311

SI® Geosolutions

1228	2003009316	2052353	1006701	311L	5/3/2004	3.4	33	103	94	60	85	49	
1229	2003009316	2052353	1006701	311L	5/3/2004	3.2	31	95	104	58	74	51	
1230	2003009320	2052353	1006701	311L	5/3/2004	3.2	30	96	101	57	74	46	
1231	2003009323	2052353	1006701	311L	5/3/2004	3.4	31	99	100	50	72	50	
1232	2003009332	2052353	1006701	311L	5/3/2004	3.5	31	93	92	54	75	59	
1233	2003009337	2052353	1006701	311L	5/3/2004	3.6	32	106	102	55	75	53	
1234	2003009342	2052353	1006701	311L	5/3/2004	3.6	30	96	100	52	73	55	
1235	2003009355	2052353	1006701	311L	5/3/2004	4.5	33	104	127	63	68	63	
1236	2003009357	2052353	1006701	311L	5/3/2004	5.1	38	166	186	48	74	94	
1237	2003009363	2052353	1006701	311L	5/3/2004	5.3	41	152	172	49	76	91	
1238	2003009367	2052353	1006701	311L	5/3/2004	3.4	30	92	98	49	74	54	
1239	2003009370	2052353	1006701	311L	5/3/2004	3.8	31	99	113	48	75	60	
1240	2003009374	2052353	1006701	311L	5/3/2004	3.2	30	95	92	53	71	50	

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	PUNOT
2002320961	2040999	1005428	311I	5/3/2004	3.3	63	85	111	85	75	53
2002320964	2040999	1005428	311I	5/3/2004	3.5	70	73	103	81	85	60
2002320968	2040999	1005428	311I	5/3/2004	4.1	77	96	122	86	82	59
2002321221	2040999	1005428	311I	5/3/2004	3.8	77	86	112	78	87	68
2002321224	2040999	1005428	311I	5/3/2004	3.4	66	74	106	78	77	63
2002321008	2040999	1005428	311I	5/3/2004	3.4	70	70	107	76	81	66
2002321232	2040999	1005428	311L	5/3/2004	4.2	81	79	92	81	86	77
2002324355	2040999	1005428	311L	5/3/2004	3.6	75	87	122	80	79	63
2002324358	2040999	1005428	311L	5/3/2004	3.9	73	82	125	78	84	61
2002839382	2048067	1006701	311L	5/3/2004	3.7	33	84	103	54	70	54
2002839383	2048067	1006701	311L	5/3/2004	3.6	32	85	108	56	64	50
2002839387	2048067	1006701	311L	5/3/2004	3.7	34	78	104	52	69	49
2002839389	2048067	1006701	311L	5/3/2004	3.8	33	83	114	59	67	58
2002839393	2048067	1006701	311L	5/3/2004	3.5	32	68	85	57	63	44
2002839399	2048067	1006701	311L	5/3/2004	3.8	33	83	98	53	69	49
2002839402	2048067	1006701	311L	5/3/2004	3.4	32	77	84	55	73	44
2002839406	2048067	1006701	311L	5/3/2004	3.6	31	68	79	55	69	48
2002839410	2048067	1006701	311L	5/3/2004	3.4	32	69	80	51	73	45
2002839417	2048067	1006701	311L	5/3/2004	3.6	34	77	77	53	69	49
2002839814	2048067	1006701	311L	5/3/2004	3.3	32	83	84	53	66	50
2002847789	2048067	1006701	311L	5/3/2004	3.5	33	81	100	52	69	53
2002847792	2048067	1006701	311L	5/3/2004	3.4	33	80	91	47	68	47
2002952766	2051406	1006701	311L	5/3/2004	3.6	30	88	91	50	71	46

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1315	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC				
1316	2003115183	2054309	1004839	311L	5/5/2004	3.5	102	113	65	77				
1317	2003115186	2054309	1004839	311L	5/5/2004	3.4	106	110	58	78				
1318	2003115189	2054309	1004839	311L	5/5/2004	3.8	100	117	61	80				
1319	2003115193	2054309	1004839	311L	5/5/2004	3.4	98	112	59	79				
1320	2003115197	2054309	1004839	311L	5/5/2004	3.7	90	110	63	82				
1321	2003115201	2054309	1004839	311L	5/5/2004	5.7	142	174	69	88				
1322	2003115203	2054309	1004839	311L	5/5/2004	3.8	94	113	72	80				
1323	2003115204	2054309	1004839	311L	5/5/2004	4.0	101	132	63	87				
1324	2003115215	2054309	1004839	311L	5/5/2004	3.6	101	124	60	74				
1325	2003115218	2054309	1004839	311L	5/5/2004	3.5	96	112	64	83				
1326	2003115221	2054309	1004839	311L	5/6/2004	3.6	93	123	64	78				
1327	2003115225	2054309	1004839	311L	5/6/2004	3.5	98	108	59	90				
1328	2003119960	2054309	1004839	311L	5/6/2004	3.7	100	118	68	80				
1329	2003119964	2054309	1004839	311L	5/6/2004	3.6	107	136	70	84				
1330	2003119972	2054309	1004839	311L	5/7/2004	3.8	101	127	65	90				
1331	2003136600	2054321	1006701	311L	5/7/2004	3.3	93	91	55	78				
1332	2003136603	2054321	1006701	311L	5/7/2004	3.2	79	83	52	71				
1333	2003136605	2054321	1006701	311L	5/7/2004	3.5	83	90	49	67				
1334	2003136608	2054321	1006701	311L	5/10/2004	3.6	90	96	55	71				
1335	2003136612	2054321	1006701	311L	5/10/2004	3.4	77	86	50	60				
1336	2003136616	2054321	1006701	311L	5/10/2004	3.3	73	76	48	68				
1337	2003136618	2054321	1006701	311L	5/10/2004	3.4	64	75	43	60				
1338	2003136623	2054321	1006701	311L	5/10/2004	3.5	71	76	43	63				
1339	2003136629	2054321	1006701	311L	5/10/2004	3.6	79	79	47	65				
1340	2003136632	2054321	1006701	311L	5/10/2004	3.2	78	73	42	66				
1341	2003136635	2054321	1006701	311L	5/10/2004	3.6	72	85	47	67				
1342	2003136643	2054321	1006701	311L	5/10/2004	3.5	76	77	48	65				
1343	2003136647	2054321	1006701	311L	5/10/2004	3.6	77	87	49	69				
1344	2003136650	2054321	1006701	311L	5/11/2004	3.2	75	70	42	62				
1345	2003136655	2054321	1006701	311L	5/11/2004	3.7	82	87	46	66				
1346	2003136660	2054321	1006701	311L	5/11/2004	3.6	84	90	41	72				
1347	2003136666	2054321	1006701	311L	5/11/2004	3.7	80	78	44	71				
1348	2003136675	2054321	1006701	311L	5/11/2004	3.7	82	86	43	64				
1349	2003136680	2054321	1006701	311L	5/11/2004	3.6	81	81	45	62				
1350	2003136685	2054321	1006701	311L	5/11/2004	3.4	87	81	46	68				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1242	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC			
1243														
1244	2002952734	2051406	1006701	311L	4/7/2004	3.2	30	86	90	45	75			
1245	2002952745	2051406	1006701	311L	4/7/2004	3.5	30	89	89	54	82			
1246	2003006216	2052484	1004839	311	4/15/2004	3.9	67	101	140	62	73			
1247	2003006218	2052484	1004839	311	4/15/2004	3.8	61	95	127	64	74			
1248	2003006220	2052484	1004839	311	4/15/2004	3.3	53	80	106	65	75			
1249	2003006223	2052484	1004839	311	4/15/2004	3.4	53	100	114	61	73			
1250	2003006225	2052484	1004839	311	4/15/2004	3.5	58	90	110	63	80			
1251	2003006227	2052484	1004839	311	4/15/2004	3.7	63	95	120	60	77			
1252	2003006230	2052484	1004839	311	4/15/2004	3.5	53	93	107	64	77			
1253	2003006232	2052484	1004839	311	4/15/2004	3.7	62	81	117	66	76			
1254	2003006235	2052484	1004839	311	4/16/2004	3.6	55	80	94	72	78			
1255	2003006239	2052484	1004839	311	4/16/2004	3.5	58	82	110	61	76			
1256	2003006242	2052484	1004839	311	4/16/2004	3.6	55	84	92	60	76			
1257	2003006245	2052484	1004839	311	4/16/2004	3.6	56	85	108	66	75			
1258	2003006254	2052484	1004839	311	4/16/2004	3.6	58	90	119	60	72			
1259	2003006257	2052484	1004839	311	4/16/2004	3.4	58	93	110	59	73			
1260	2003006749	2052484	1004839	311	4/16/2004	3.7	59	89	110	66	77			
1261	2003009315	2052353	1006701	311L	4/16/2004	3.4	33	103	94	60	85			
1262	2003009316	2052353	1006701	311L	4/16/2004	3.2	31	95	104	58	74			
1263	2003009320	2052353	1006701	311L	4/16/2004	3.2	30	96	101	57	74			
1264	2003009323	2052353	1006701	311L	4/17/2004	3.4	31	99	100	50	72			
1265	2003009328	2052353	1006701	311L	4/17/2004	3.6	30	95	92	53	75			
1266	2003009332	2052353	1006701	311L	4/17/2004	3.5	31	93	92	54	75			
1267	2003009337	2052353	1006701	311L	4/17/2004	3.6	32	106	102	55	75			
1268	2003009342	2052353	1006701	311L	4/17/2004	3.6	30	96	100	52	73			
1269	2003009355	2052353	1006701	311L	4/17/2004	4.5	33	104	127	63	68			
1270	2003009357	2052353	1006701	311L	4/17/2004	5.1	38	166	188	48	74			
1271	2003009363	2052353	1006701	311L	4/17/2004	5.3	41	152	172	49	76			
1272	2003009367	2052353	1006701	311L	4/17/2004	3.4	30	92	98	49	74			
1273	2003009370	2052353	1006701	311L	4/17/2004	3.8	31	99	113	48	75			
1274	2003009374	2052353	1006701	311L	4/17/2004	3.2	30	95	92	53	71			
1275	2003015839	2052353	1006701	311L	4/17/2004	3.5	30	92	106	52	70			
1276	2003115180	2054309	1004839	311L	5/4/2004	3.8	49	106	120	55	74			
1277														

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC
2003136688	2054321	1006701	311L	5/11/2004	3.6	88	86	46	64
2003136692	2054321	1006701	311L	5/12/2004	3.6	90	95	46	70
2003136696	2054321	1006701	311L	5/12/2004	3.4	72	71	40	65
2003136700	2054321	1006701	311L	5/12/2004	3.5	74	69	41	67
2003136738	2054321	1006701	311L	5/12/2004	3.8	88	86	43	59
2003213201	2055255	1006701	311L	5/16/2004	3.8	93	98	48	61
2003213209	2055255	1006701	311L	5/16/2004	3.6	84	86	43	70
2003213224	2055255	1006701	311L	5/16/2004	3.4	85	86	46	68
2003213228	2055255	1006701	311L	5/17/2004	3.7	82	89	49	66
2003213234	2055255	1006701	311L	5/17/2004	3.5	87	82	44	65
2003213239	2055255	1006701	311L	5/17/2004	3.5	82	83	42	60
2003213245	2055255	1006701	311L	5/17/2004	3.3	85	82	46	66
2003213248	2055255	1006701	311L	5/17/2004	3.3	76	87	42	61
2003213251	2055255	1006701	311L	5/17/2004	3.5	74	87	46	56
2003213254	2055255	1006701	311L	5/17/2004	3.4	81	81	41	56
2003213257	2055255	1006701	311L	5/17/2004	3.6	75	83	41	59
2003213259	2055255	1006701	311L	5/17/2004	3.4	64	78	43	52
2003213260	2055255	1006701	311L	5/16/2004	3.4	78	81	47	69
2003225596	2055255	1006701	311L	5/17/2004	3.5	84	85	47	61
2003225599	2055255	1006701	311L	5/17/2004	3.5	75	80	41	61
2003226559	2055255	1006701	311L	5/18/2004	3.4	75	75	40	58
2003226578	2055115	1004839	311L	5/18/2004	4.5	125	154	64	75
2003226584	2055115	1004839	311L	5/18/2004	4.7	118	158	62	74
2003226590	2055115	1004839	311L	5/18/2004	4.0	107	129	61	71
2003226593	2055115	1004839	311L	5/18/2004	3.8	97	128	66	77
2003226596	2055115	1004839	311L	5/18/2004	3.7	93	123	64	75
2003226599	2055115	1004839	311L	5/18/2004	3.9	97	126	64	75
2003231310	2055115	1004839	311L	5/19/2004	3.5	83	125	62	80
2003231313	2055115	1004839	311L	5/19/2004	3.7	90	124	68	75

GEOSYNTHETIC CLAY LINER

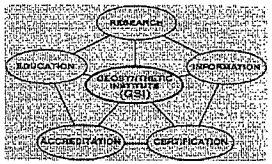
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187954, 187955
Ship Date:	27-May

CETCO hereby affirms and certifies that the Claymax 200R material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	100 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



~~Sheri McArthur~~ Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCS#T2 QCT#T2
5/28/04 6:51:41

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187954

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs.MARY MOD ASTM D 4632
LO-CLAYMAX200R	20042LO	00001691	.82	354.70
LO-CLAYMAX200R	20042LO	00001550	.85	351.30
LO-CLAYMAX200R	20042LO	00001549	.85	351.30
LO-CLAYMAX200R	20042LO	00001548	.85	351.30
LO-CLAYMAX200R	20042LO	00001547	.85	351.30
LO-CLAYMAX200R	20042LO	00001546	.85	351.30
LO-CLAYMAX200R	20042LO	00001545	.85	351.30
LO-CLAYMAX200R	20042LO	00001543	.85	351.30
LO-CLAYMAX200R	20042LO	00001542	.85	351.30
LO-CLAYMAX200R	20042LO	00001382	.83	283.10
LO-CLAYMAX200R	20042LO	00001376	.83	283.10
LO-CLAYMAX200R	20042LO	00001374	.83	283.10
LO-CLAYMAX200R	20042LO	00001373	.83	283.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

OCG#FT2 5/28/04 OCT#FT2 6:51:08

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187955

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200422LO	00002062	.85	298.70
LO-CLAYMAX200R	200422LO	00002061	.85	298.70
LO-CLAYMAX200R	200422LO	00002060	.85	298.70
LO-CLAYMAX200R	200422LO	00002059	.85	298.70
LO-CLAYMAX200R	200422LO	00002058	.85	298.70
LO-CLAYMAX200R	200422LO	00002057	.85	298.70
LO-CLAYMAX200R	200422LO	00002056	.85	298.70
LO-CLAYMAX200R	200422LO	00002055	.85*	298.70
LO-CLAYMAX200R	200422LO	00002054	.86	298.70
LO-CLAYMAX200R	200422LO	00002053	.86	298.70
LO-CLAYMAX200R	200422LO	00002052	.86	298.70
LO-CLAYMAX200R	200422LO	00002051	.86	298.70
LO-CLAYMAX200R	200422LO	00002050	.86	298.70
LO-CLAYMAX200R	200422LO	00002049	.86	298.70
LO-CLAYMAX200R	200422LO	00002020	.83	266.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG$TF1 QCT#TF1
5/28/04 6:51:08

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187955

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200422LO									
00002020	LO-CLAYMAX200R	150	2250	3030	2003136633		2003136645		051804C
00002049	LO-CLAYMAX200R	150	2250	3042	2003136635		2003136634		051704D
00002050	LO-CLAYMAX200R	150	2250	3050	2003136635		2003136634		051804D
00002051	LO-CLAYMAX200R	150	2250	3048	2003136635		2003136634		051804D
00002052	LO-CLAYMAX200R	150	2250	3046	2003136635		2003136634		051804D
00002053	LO-CLAYMAX200R	150	2250	3038	2003136635		2003136634		051804D
00002054	LO-CLAYMAX200R	150	2250	3030	2003136635		2003136634		051704E
00002055	LO-CLAYMAX200R	150	2250	3042	2003136635		2003136634		051804D
00002056	LO-CLAYMAX200R	150	2250	3041	2003136635		2003136634		051804D
00002057	LO-CLAYMAX200R	150	2250	3044	2003136635		2003136634		051804D
00002058	LO-CLAYMAX200R	150	2250	3061	2003136635		2003136634		051804D
00002059	LO-CLAYMAX200R	150	2250	3049	2003136635		2003136634		051804D
00002060	LO-CLAYMAX200R	150	2250	3042	2003136635		2003136634		051804D
00002061	LO-CLAYMAX200R	150	2250	3036	2003136635		2003136634		051804D
00002062	LO-CLAYMAX200R	150	2250	3035	2003136635		2003136634		051804D

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/28/04 6:51:41

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187954

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00001373	LO-CLAYMAX200R	150	2250	2977	2003015847		2003015841		050304C
00001374	LO-CLAYMAX200R	150	2250	2979	2002952766		2003015841		050304C
00001376	LO-CLAYMAX200R	150	2250	2981	2002952766		2003015841		050304C
00001382	LO-CLAYMAX200R	150	2250	2975	2003016079		2003015841		050304C
LOT# 200421LO									
00001542	LO-CLAYMAX200R	150	2250	3067	2003136737		2003009371		051204E
00001543	LO-CLAYMAX200R	150	2250	3064	2003136737		2003009371		051204E
00001544	LO-CLAYMAX200R	150	2250	3060	2003136737		2003009371		051204E
00001545	LO-CLAYMAX200R	150	2250	3063	2003136737		2003009371		051204E
00001546	LO-CLAYMAX200R	150	2250	3067	2003136737		2003009371		051204E
00001547	LO-CLAYMAX200R	150	2250	3065	2003136737		2003009371		051204E
00001548	LO-CLAYMAX200R	150	2250	3064	2003136737		2003009371		051204E
00001549	LO-CLAYMAX200R	150	2250	3061	2003136737		2003009371		051204E
00001550	LO-CLAYMAX200R	150	2250	3062	2003136737		2003009371		051204E
00001551	LO-CLAYMAX200R	150	2250	3065	2003136737		2003009371		051204E
00001691	LO-CLAYMAX200R	150	2250	3063	2002952890		2002961033		051404E

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 22, 2004
PO: 9656-00
Order #: 187945, 187948, 187949, 187950, 187951, 187956

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmens@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on May 21, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmens@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187945, 187948, 187949, 187950, 187951, 187956
Ship Date:	21-May

CONTENTS:

PACKING LIST
DAILY CLAYMAX PRODUCTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
CLAYMAX MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

PO: 9656-00

ORDER NO:.. 000187945
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R	SFT	SF	200412LO	00000805	150.0	15.0	2250.0	3023.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001354	150.0	15.0	2250.0	2987.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001355	150.0	15.0	2250.0	2981.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001356	150.0	15.0	2250.0	2979.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001357	150.0	15.0	2250.0	2972.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001358	150.0	15.0	2250.0	2980.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001359	150.0	15.0	2250.0	2983.0
LO-CLAYMAX200R	SFT	SF	200420LO	00001360	150.0	15.0	2250.0	2987.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001540	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001541	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001605	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001606	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001607	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001608	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001609	150.0	15.0	2250.0	3066.0
ORDER TOTALS.....							33750.0	45362.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187948
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200420LO	00001403	150.0	15.0	2250.0	2950.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001404	150.0	15.0	2250.0	2949.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001405	150.0	15.0	2250.0	2950.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001406	150.0	15.0	2250.0	2949.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001407	150.0	15.0	2250.0	2952.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001408	150.0	15.0	2250.0	2957.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001582	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001583	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001584	150.0	15.0	2250.0	3059.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001585	150.0	15.0	2250.0	3049.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001627	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001628	150.0	15.0	2250.0	3056.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001629	150.0	15.0	2250.0	3059.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001630	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001631	150.0	15.0	2250.0	3069.0
ORDER TOTALS.....							33750.0	45262.0
TOTAL ITEMS.....	15							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187949
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200420LO	00001352	150.0	15.0	2250.0	2975.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001353	150.0	15.0	2250.0	2976.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001409	150.0	15.0	2250.0	2956.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001410	150.0	15.0	2250.0	2961.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001411	150.0	15.0	2250.0	2954.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001412	150.0	15.0	2250.0	2951.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001413	150.0	15.0	2250.0	2958.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001414	150.0	15.0	2250.0	2956.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001415	150.0	15.0	2250.0	2952.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001416	150.0	15.0	2250.0	2949.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001417	150.0	15.0	2250.0	2951.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001418	150.0	15.0	2250.0	2956.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001419	150.0	15.0	2250.0	2957.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001420	150.0	15.0	2250.0	2953.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001632	150.0	15.0	2250.0	3067.0
ORDER TOTALS.....							33750.0	44472.0
TOTAL ITEMS.....	15							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187950
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001626	150.0	15.0	2250.0	3077.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001673	150.0	15.0	2250.0	3077.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001674	150.0	15.0	2250.0	3079.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001675	150.0	15.0	2250.0	3075.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001676	150.0	15.0	2250.0	3072.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001677	150.0	15.0	2250.0	3073.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001678	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001679	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001680	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001681	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001682	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001683	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001684	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001685	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001686	150.0	15.0	2250.0	3069.0
ORDER TOTALS.....							33750.0	46048.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187951
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001637	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001638	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001639	150.0	15.0	2250.0	3073.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001640	150.0	15.0	2250.0	3074.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001641	150.0	15.0	2250.0	3070.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001645	150.0	15.0	2250.0	3073.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001646	150.0	15.0	2250.0	3074.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001647	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001648	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001649	150.0	15.0	2250.0	3058.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001654	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001655	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001656	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001657	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001658	150.0	15.0	2250.0	3067.0
ORDER TOTALS.....							33750.0	46032.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187956
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001593	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001594	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001603	150.0	15.0	2250.0	3059.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001604	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001633	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001634	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001635	150.0	15.0	2250.0	3072.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001636	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001642	150.0	15.0	2250.0	3075.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001643	150.0	15.0	2250.0	3072.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001644	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001650	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001651	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001652	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001653	150.0	15.0	2250.0	3066.0
ORDER TOTALS.....							33750.0	45997.0

TOTAL ITEMS..... 15

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187945, 187948, 187949, 187950, 187951, 187956
Ship Date:	21-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **Claymax 200R** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: AMERICAN COLLOID COMPANY

PRODUCTION

Facility: AMERICAN COLLOID COMPANY
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 01-Mar-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 030104D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	11.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050304B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050304D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051204E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051204F
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

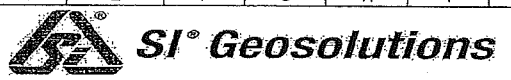
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

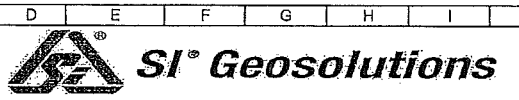
ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**SI Geosolutions**
PRODUCTION	
Facility:	**SI Corporation** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Jack Rooke
Brand Name:	Geotex 311



HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	PUNOT
2002320961	2040999	1005428	311I	5/3/2004	3.3	63	85	111	85	75	53
2002320964	2040999	1005428	311I	5/3/2004	3.5	70	73	103	81	85	60
2002320968	2040999	1005428	311I	5/3/2004	4.1	77	96	122	86	82	59
2002321221	2040999	1005428	311I	5/3/2004	3.8	77	86	112	78	87	68
2002321224	2040999	1005428	311I	5/3/2004	3.4	66	74	106	78	77	63
2002321008	2040999	1005428	311I	5/3/2004	3.4	70	70	107	76	81	66
2002321232	2040999	1005428	311L	5/3/2004	4.2	81	79	92	81	86	77
2002324355	2040999	1005428	311L	5/3/2004	3.6	75	87	122	80	79	63
2002324358	2040999	1005428	311L	5/3/2004	3.9	73	82	125	78	84	61
2002839382	2048067	1006701	311L	5/3/2004	3.7	33	84	103	54	70	54
2002839383	2048067	1006701	311L	5/3/2004	3.6	32	85	108	56	64	50
2002839387	2048067	1006701	311L	5/3/2004	3.7	34	78	104	52	69	49
2002839389	2048067	1006701	311L	5/3/2004	3.8	33	83	114	59	67	58
2002839393	2048067	1006701	311L	5/3/2004	3.5	32	68	85	57	63	44
2002839399	2048067	1006701	311L	5/3/2004	3.8	33	83	98	53	69	49
2002839402	2048067	1006701	311L	5/3/2004	3.4	32	77	84	55	73	44
2002839406	2048067	1006701	311L	5/3/2004	3.6	31	68	79	55	69	48
2002839410	2048067	1006701	311L	5/3/2004	3.4	32	69	80	51	73	45
2002839417	2048067	1006701	311L	5/3/2004	3.6	34	77	77	53	69	49
2002839814	2048067	1006701	311L	5/3/2004	3.3	32	83	84	53	66	50
2002847789	2048067	1006701	311L	5/3/2004	3.5	33	81	100	52	69	53
2002847792	2048067	1006701	311L	5/3/2004	3.4	33	80	91	47	68	47
2002952766	2051406	1006701	311L	5/3/2004	3.6	30	88	91	50	71	46



HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001943417	2034757	1005428	311L	10/20/2003	4.1	58	112	153	80	69	58	71	233
2001943420	2034757	1005428	311L	10/20/2003	4.0	68	108	144	78	70	46	74	237
2001943423	2034757	1005428	311L	10/20/2003	4.1	67	105	155	75	69	52	77	253
2001943426	2034757	1005428	311L	10/20/2003	3.7	58	94	127	77	70	43	67	217
2001943429	2034757	1005428	311L	10/20/2003	3.8	62	106	160	76	68	51	83	253
2001943432	2034757	1005428	311L	10/20/2003	3.9	58	96	120	73	67	46	66	200
2001943435	2034757	1005428	311L	10/20/2003	3.4	53	88	122	76	73	39	52	216
2001950463	2034296	1005428	311L	10/20/2003	4.3	67	104	156	74	69	58	81	231
2001950466	2034296	1004839	311L	10/20/2003	3.4	56	90	119	79	68	43	54	203
2001950870	2034296	1004839	311L	10/21/2003	3.3	47	81	125	77	69	43	59	196
2001950873	2034296	1004839	311L	10/21/2003	3.6	61	90	124	80	77	43	63	229
2001950876	2034296	1004839	311L	10/21/2003	3.7	63	86	133	73	72	48	69	197
2001950881	2034296	1004839	311L	10/21/2003	3.0	47	81	113	75	72	38	60	174
2001950885	2034296	1004839	311L	10/21/2003	3.0	39	84	103	70	69	35	50	170
2001950892	2034296	1004839	311L	10/21/2003	3.6	55	92	134	82	72	39	51	220
2001950895	2034296	1004839	311L	10/22/2003	3.6	55	97	143	81	68	49	68	207
2001950897	2034296	1004839	311L	10/22/2003	3.2	51	81	111	81	72	40	56	180
2001950905	2034296	1004839	311L	10/22/2003	4.0	62	86	121	76	65	50	61	234
2001950908	2034296	1004839	311L	10/22/2003	3.4	48	85	124	73	70	37	56	177
2001950913	2034296	1004839	311L	10/22/2003	3.8	62	105	128	80	70	50	63	223
2001950916	2034296	1004839	311L	10/22/2003	3.5	54	89	139	81	74	40	63	224
2001950919	2034296	1004839	311L	10/22/2003	3.6	56	98	126	75	66	53	75	176
2001950922	2034296	1004839	311L	10/22/2003	3.8	58	113	151	81	65	75	61	213
2001950925	2034296	1004839	311L	10/23/2003	3.8	61	92	134	77	74	47	67	194
2001950929	2034296	1004839	311L	10/23/2003	3.5	55	88	126	78	69	52	59	173
2001950933	2034296	1004839	311L	10/23/2003	3.5	52	100	141	79	69	53	63	169
2001978580	2034296	1004839	311L	10/24/2003	3.3	50	86	111	86	71	44	50	191
2001978583	2034296	1004839	311L	10/24/2003	3.4	60	82	136	90	74	43	63	201
2001978586	2035195	1005428	311L	10/24/2003	3.4	57	80	99	83	61	46	66	171
2001983244	2035195	1005428	311L	10/24/2003	4.0	64	107	158	77	72	52	75	223
2001983249	2035195	1005428	311L	10/25/2003	4.3	64	121	161	83	65	60	82	246
2001983253	2035195	1005428	311L	10/25/2003	4.6	69	113	164	81	67	59	105	253
2001983256	2035195	1005428	311L	10/27/2003	3.6	53	85	109	83	67	45	58	204
2001983259	2035195	1005428	311L	10/27/2003	4.2	66	103	127	81	66	46	72	257
2001983262	2035195	1005428	311L	10/27/2003	3.8	59	93	143	85	66	56	74	230

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC
2002952734	2051406	1006701	311L	4/7/2004	3.2	30	86	90	45	75
2002952745	2051406	1006701	311L	4/7/2004	3.5	30	89	89	54	82
2003006216	2052484	1004839	311	4/15/2004	3.9	67	101	140	62	73
2003006218	2052484	1004839	311	4/15/2004	3.8	61	95	127	64	74
2003006220	2052484	1004839	311	4/15/2004	3.3	53	80	106	65	75
2003006223	2052484	1004839	311	4/15/2004	3.4	53	100	114	61	73
2003006225	2052484	1004839	311	4/15/2004	3.5	58	90	110	63	80
2003006227	2052484	1004839	311	4/15/2004	3.7	63	95	120	60	77
2003006230	2052484	1004839	311	4/15/2004	3.5	53	93	107	64	77
2003006232	2052484	1004839	311	4/15/2004	3.7	62	81	117	66	76
2003006235	2052484	1004839	311	4/16/2004	3.6	55	80	94	72	78
2003006239	2052484	1004839	311	4/16/2004	3.5	58	82	110	61	76
2003006242	2052484	1004839	311	4/16/2004	3.6	55	84	92	60	76
2003006245	2052484	1004839	311	4/16/2004	3.6	56	85	108	66	75
2003006254	2052484	1004839	311	4/16/2004	3.6	58	90	119	60	72
2003006257	2052484	1004839	311	4/16/2004	3.4	58	93	110	59	73
2003006749	2052484	1004839	311	4/16/2004	3.7	59	89	110	66	77
2003009315	2052353	1006701	311L	4/16/2004	3.4	33	103	94	60	85
2003009316	2052353	1006701	311L	4/16/2004	3.2	31	95	104	58	74
2003009320	2052353	1006701	311L	4/16/2004	3.2	30	96	101	57	74
2003009323	2052353	1006701	311L	4/17/2004	3.4	31	99	100	50	72
2003009328	2052353	1006701	311L	4/17/2004	3.6	30	95	92	53	75
2003009332	2052353	1006701	311L	4/17/2004	3.5	31	93	92	54	75
2003009337	2052353	1006701	311L	4/17/2004	3.6	32	106	102	55	75
2003009342	2052353	1006701	311L	4/17/2004	3.6	30	96	100	52	73
2003009355	2052353	1006701	311L	4/17/2004	4.5	33	104	127	63	68
2003009357	2052353	1006701	311L	4/17/2004	5.1	38	166	188	48	74
2003009363	2052353	1006701	311L	4/17/2004	5.3	41	152	172	49	76
2003009367	2052353	1006701	311L	4/17/2004	3.4	30	92	98	49	74
2003009370	2052353	1006701	311L	4/17/2004	3.8	31	99	113	48	75
2003009374	2052353	1006701	311L	4/17/2004	3.2	30	95	92	53	71
2003015839	2052353	1006701	311L	4/17/2004	3.5	30	92	106	52	70
2003115180	2054309	1004839	311L	5/4/2004	3.8	49	106	120	55	74

SI® Geosolutions

2003009316	2052353	1006701	311L	5/3/2004	3.4	33	103	94	60	85	49
2003009316	2052353	1006701	311L	5/3/2004	3.2	31	95	104	58	74	51
2003009320	2052353	1006701	311L	5/3/2004	3.2	30	96	101	57	74	46
2003009323	2052353	1006701	311L	5/3/2004	3.4	31	99	100	50	72	50
2003009332	2052353	1006701	311L	5/3/2004	3.5	31	93	92	54	75	59
2003009337	2052353	1006701	311L	5/3/2004	3.6	32	106	102	55	75	53
2003009342	2052353	1006701	311L	5/3/2004	3.6	30	96	100	52	73	55
2003009355	2052353	1006701	311L	5/3/2004	4.5	33	104	127	63	68	63
2003009357	2052353	1006701	311L	5/3/2004	5.1	38	166	186	48	74	94
2003009363	2052353	1006701	311L	5/3/2004	5.3	41	152	172	49	76	91
2003009367	2052353	1006701	311L	5/3/2004	3.4	30	92	98	49	74	54
2003009370	2052353	1006701	311L	5/3/2004	3.8	31	99	113	48	75	60
2003009374	2052353	1006701	311L	5/3/2004	3.2	30	95	92	53	71	50

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187950

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLK-200R-2.7	2002952804		3.6	91.3
LO-N/W-BLK-200R-2.7	2002952809		3.4	92.6
LO-N/W-BLK-200R-2.7	2002952870		3.6	107.5
LO-N/W-BLK-200R-2.7	2002952880		3.7	89.6
LO-N/W-BLK-200R-2.7	2002952887		4.1	93.2
LO-N/W-BLK-200R-2.7	2002961030		3.3	88.9
LO-N/W-BLK-200R-2.7	2003181826		3.8	96.4

TOTAL PAGES 1

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC
1351										
1352	2003136688	2054321	1006701	311L	5/11/2004	3.6	88	86	46	64
1353	2003136692	2054321	1006701	311L	5/12/2004	3.6	90	95	46	70
1354	2003136696	2054321	1006701	311L	5/12/2004	3.4	72	71	40	65
1355	2003136700	2054321	1006701	311L	5/12/2004	3.5	74	69	41	67
1356	2003136738	2054321	1006701	311L	5/12/2004	3.8	88	86	43	59
1357	2003213201	2055255	1006701	311L	5/16/2004	3.8	93	98	48	61
1358	2003213209	2055255	1006701	311L	5/16/2004	3.6	84	86	43	70
1359	2003213224	2055255	1006701	311L	5/16/2004	3.4	85	86	46	68
1360	2003213228	2055255	1006701	311L	5/17/2004	3.7	82	89	49	66
1361	2003213234	2055255	1006701	311L	5/17/2004	3.5	87	82	44	65
1362	2003213239	2055255	1006701	311L	5/17/2004	3.5	82	83	42	60
1363	2003213245	2055255	1006701	311L	5/17/2004	3.3	85	82	46	66
1364	2003213248	2055255	1006701	311L	5/17/2004	3.3	76	87	42	61
1365	2003213251	2055255	1006701	311L	5/17/2004	3.5	74	87	46	56
1366	2003213254	2055255	1006701	311L	5/17/2004	3.4	81	81	41	56
1367	2003213257	2055255	1006701	311L	5/17/2004	3.6	75	83	41	59
1368	2003213259	2055255	1006701	311L	5/17/2004	3.4	64	78	43	52
1369	2003213260	2055255	1006701	311L	5/16/2004	3.4	78	81	47	69
1370	2003225596	2055255	1006701	311L	5/17/2004	3.5	84	85	47	61
1371	2003225599	2055255	1006701	311L	5/17/2004	3.5	75	80	41	61
1372	2003226559	2055255	1006701	311L	5/18/2004	3.4	75	75	40	58
1373	2003226578	2055115	1004839	311L	5/18/2004	4.5	125	154	64	75
1374	2003226584	2055115	1004839	311L	5/18/2004	4.7	118	158	62	74
1375	2003226590	2055115	1004839	311L	5/18/2004	4.0	107	129	61	71
1376	2003226593	2055115	1004839	311L	5/18/2004	3.8	97	128	66	77
1377	2003226596	2055115	1004839	311L	5/18/2004	3.7	93	123	64	75
1378	2003226599	2055115	1004839	311L	5/18/2004	3.9	97	126	64	75
1379	2003231310	2055115	1004839	311L	5/19/2004	3.5	83	125	62	80
1380	2003231313	2055115	1004839	311L	5/19/2004	3.7	90	124	68	75

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1429	PRODUCT TYPE:		NX103003 BLACK													
1430	BATCH #		1801													
1431																
1432																
1433	ROLL #	WEIGHT	MD TENSILE	STDEV	ELONGATION	XMD TENSILE	STDEV	PUNCTURE	STDEV	THICKNESS						
1434					55											
1435		2.7 - 3.1	60		40 - 75	60		30		30 MILS						
1436	1026245A	3.56	78	10	72	107	9	39		43						
1437	1026246A	3.74	111	19	80	114	16	41		48						
1438	1026247A	3.68	91	20	79	121	26	42		45						
1439	1026248A	3.82	113	22	79	116	32	43		48						
1440	1026249A	3.32	87	15	75	94	20	40		40						
1441	1026251A	3.84	95	15	80	116	20	55		68						
1442	1026252A	3.54	82	11	79	103	14	60		62						
1443	1026254A	3.56	86	10	81	110	13	49		62						
1444	1026255A	3.84	84	16	70	118	18	68		67						
1445	1026256A	3.44	93	12	76	109	25	69		42						
1446	1026257A	3.46	87	6	75	96	15	71		43						
1447	1026258A	3.36	90	29	77	106	21	78		42						
1448	1026259A	3.18	91	8	79	91	8	65		41						
1449	1026265A	4.96	124	11	78	91		65		41						
1450	1026272A	3.58	90	20	65	122	27	49	4	40						
1451	1026273A	3.18	83	14	62	119	9	55	4	35						
1452	1026274A	3.44	96	22	70	118	29	60	13	38						
1453	1026286A	3.86	93	15	72	121	89	61	13	42						
1454	1026298A	3.72	95	16	68	116	10	65	13	40						
1455	1026333A	3.6	93	13	69	122	15	54	11	40						
1456	1026334A	3.46	76	9	40	111	10	56	8	38						
1457	1026335A	3.54	90	18	67	110	17	55	5	39						
1458	1026336A	3.34	79	8	61	88	9	53	10	38						
1459	1026337A	3.42	85	11	67	91	10	54	5	36						
1460	1026339A	3.3	86	7	67	109	21	43	26	38						
1461	1026341A	3.12	81	12	63	94	12	50	4	35						
1462	1026343A	3.26	91	17	69	99	16	57	11	39						
1463	1026344A	3.44	96	16	70	99		57	8	41						
1464	1026345A	3.32	85	9	62	89	12	49	19	33						
1465	1026347A	3.34	90	18	65	101	14	54	13	38						
1466	1026348A	3.14	77	24	60	94	12	52	11	36						
1467	1026350A	3.22	89	20	59	92	18	55	21	38						
1468	1026351A	3.7	90	11	65	112	11	60	13	42						
1469	1026353A	3.58	87	14	57	110		62	25	44						
1470	1026354A	3.34	79	18	59	86	10	45	6	37						
1471	1026355A	3.42	83	24	58	94	19	50	8	40						
1472	1026357A	4.3	116	8	77	136	22	52	15	48						
1473	1026359A	3.64	89	9	68	114	11	55	5	41						
1474	1026361A	3.54	92	11	69	103	12	65	8	40						
1475	1026362A	3.38	84	13	65	107	14	57	10	41						
1476	1026364A	3.28	88	17	70	109	12	60	14	39						
1477	1026365A	3.74	93	14	73	117	18	62	15	41						
1478	1026367A	3.12	75	13	67	93	13	42	13	36						
1479	1026369A	3.2	84	14	64	97	6	48	32	37						
1480	1026372A	3.14	78	6	65	98	7	46	16	38						
1481	1026374A	3.28	79	14	62	91	17	53	18	37						
1482	1026375A	3.34	89	14	71	93	17	51	8	39						
1483	1026376A	3.2	83	14	63	98	8	50	10	37						
1484	1026377A	3.22	89	12	68	97	21	45	12	37						
1485	ROLL #	WEIGHT	MD TENSILE	STDEV	ELONGATION	XMD TENSILE	STDEV	PUNCTURE	STDEV	THICKNESS						
1486	1026378A	3.2	78	8	62	89	8	46	7	37						
1487	1026380A	3.36	83	21	62	93	10	50	12	40						
1488	1026381A	2.92	70	9	58	86	12	49	8	37						
1489																
1490																
1491																
1492																
1493																
1494																
1495																

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: AMERICAN SYNTHETIS FIBERS

PRODUCTION FACILITY: American Synthetic Fiber
312 South Holland Drive
Pendergrass, GA. 30567

CONTACT: Troy Ash 706-693-7026

BRAND NAME: GT135

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

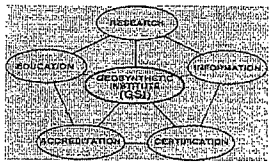
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187945, 187948, 187949, 187950, 187951, 187956
Ship Date:	21-May

CETCO hereby affirms and certifies that the Claymax 200R material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	100 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
5/22/04 7:22:44

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187948

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001631	.85	319.00
LO-CLAYMAX200R	200421LO	00001630	.85	319.00
LO-CLAYMAX200R	200421LO	00001629	.85	319.00
LO-CLAYMAX200R	200421LO	00001628	.85	319.00
LO-CLAYMAX200R	200421LO	00001627	.85	319.00
LO-CLAYMAX200R	200421LO	00001585	.85	351.30
LO-CLAYMAX200R	200421LO	00001584	.85	351.30
LO-CLAYMAX200R	200421LO	00001583	.85	351.30
LO-CLAYMAX200R	200421LO	00001582	.85	351.30
LO-CLAYMAX200R	200420LO	00001408	.86	283.10
LO-CLAYMAX200R	200420LO	00001407	.86	283.10
LO-CLAYMAX200R	200420LO	00001406	.86	283.10
LO-CLAYMAX200R	200420LO	00001405	.86*	283.10
LO-CLAYMAX200R	200420LO	00001404	.83	283.10
LO-CLAYMAX200R	200420LO	00001403	.83	283.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/21/04 12:40:18

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187945

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001609	.84	351.30
LO-CLAYMAX200R	200421LO	00001608	.84*	351.30
LO-CLAYMAX200R	200421LO	00001607	.83	351.30
LO-CLAYMAX200R	200421LO	00001606	.83	351.30
LO-CLAYMAX200R	200421LO	00001605	.83	351.30
LO-CLAYMAX200R	200421LO	00001541	.85	351.30
LO-CLAYMAX200R	200421LO	00001540	.85*	351.30*
LO-CLAYMAX200R	200420LO	00001360	.86	283.10
LO-CLAYMAX200R	200420LO	00001359	.86	283.10
LO-CLAYMAX200R	200420LO	00001358	.86	283.10
LO-CLAYMAX200R	200420LO	00001357	.86	283.10
LO-CLAYMAX200R	200420LO	00001356	.86	283.10
LO-CLAYMAX200R	200420LO	00001355	.86	283.10
LO-CLAYMAX200R	200420LO	00001354	.86*	283.10
LO-CLAYMAX200R	200412LO	00000806	.87	315.20

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/21/04 12:39:51

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187950

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001686	.82	319.00
LO-CLAYMAX200R	200421LO	00001685	.82	319.00
LO-CLAYMAX200R	200421LO	00001684	.82	319.00
LO-CLAYMAX200R	200421LO	00001683	.82	319.00
LO-CLAYMAX200R	200421LO	00001682	.82	319.00
LO-CLAYMAX200R	200421LO	00001681	.82	319.00
LO-CLAYMAX200R	200421LO	00001680	.82	319.00
LO-CLAYMAX200R	200421LO	00001679	.82	319.00
LO-CLAYMAX200R	200421LO	00001678	.82	319.00
LO-CLAYMAX200R	200421LO	00001677	.82	319.00
LO-CLAYMAX200R	200421LO	00001676	.82*	319.00
LO-CLAYMAX200R	200421LO	00001675	.86	319.00
LO-CLAYMAX200R	200421LO	00001674	.86	319.00
LO-CLAYMAX200R	200421LO	00001673	.86	319.00
LO-CLAYMAX200R	200421LO	00001626	.85	319.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/22/04 7:23:13

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187949

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001632	.85	319.00
LO-CLAYMAX200R	200420LO	00001420	.86	283.10
LO-CLAYMAX200R	200420LO	00001419	.86	283.10
LO-CLAYMAX200R	200420LO	00001418	.86	283.10
LO-CLAYMAX200R	200420LO	00001417	.86	283.10
LO-CLAYMAX200R	200420LO	00001416	.86	283.10
LO-CLAYMAX200R	200420LO	00001415	.86	283.10
LO-CLAYMAX200R	200420LO	00001414	.86	283.10
LO-CLAYMAX200R	200420LO	00001413	.86	283.10
LO-CLAYMAX200R	200420LO	00001412	.86	283.10
LO-CLAYMAX200R	200420LO	00001411	.86	283.10
LO-CLAYMAX200R	200420LO	00001410	.86	283.10
LO-CLAYMAX200R	200420LO	00001409	.86	283.10
LO-CLAYMAX200R	200420LO	00001353	.91	283.10
LO-CLAYMAX200R	200420LO	00001352	.91	283.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/22/04 7:23:42

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187956

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001653	.85	319.00
LO-CLAYMAX200R	200421LO	00001652	.85	319.00
LO-CLAYMAX200R	200421LO	00001651	.85	319.00
LO-CLAYMAX200R	200421LO	00001650	.85	319.00
LO-CLAYMAX200R	200421LO	00001644	.85	319.00
LO-CLAYMAX200R	200421LO	00001643	.85	319.00
LO-CLAYMAX200R	200421LO	00001642	.85*	319.00
LO-CLAYMAX200R	200421LO	00001636	.85	319.00
LO-CLAYMAX200R	200421LO	00001635	.85	319.00
LO-CLAYMAX200R	200421LO	00001634	.85	319.00
LO-CLAYMAX200R	200421LO	00001633	.85	319.00
LO-CLAYMAX200R	200421LO	00001604	.83	351.30
LO-CLAYMAX200R	200421LO	00001603	.83	351.30
LO-CLAYMAX200R	200421LO	00001594	.83	351.30
LO-CLAYMAX200R	200421LO	00001593	.83	351.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/21/04 12:39:26

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187951

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001658	.85	319.00
LO-CLAYMAX200R	200421LO	00001657	.85	319.00
LO-CLAYMAX200R	200421LO	00001656	.85	319.00
LO-CLAYMAX200R	200421LO	00001655	.85	319.00
LO-CLAYMAX200R	200421LO	00001654	.85	319.00
LO-CLAYMAX200R	200421LO	00001649	.85	319.00
LO-CLAYMAX200R	200421LO	00001648	.85	319.00
LO-CLAYMAX200R	200421LO	00001647	.85	319.00
LO-CLAYMAX200R	200421LO	00001646	.85	319.00
LO-CLAYMAX200R	200421LO	00001645	.85	319.00
LO-CLAYMAX200R	200421LO	00001641	.85	319.00
LO-CLAYMAX200R	200421LO	00001640	.85	319.00
LO-CLAYMAX200R	200421LO	00001639	.85	319.00
LO-CLAYMAX200R	200421LO	00001638	.85	319.00
LO-CLAYMAX200R	200421LO	00001637	.85	319.00

NOTE:
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Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCGSTF1 QCT#TF1
5/21/04 12:40:16

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187945

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200412LO									
00000805	LO-CLAYMAX200R	150	2250	3023	2001943422		1026363A		030104D
LOT# 200420LO									
00001354	LO-CLAYMAX200R	150	2250	2987	2003015847		2002952870		050304B
00001355	LO-CLAYMAX200R	150	2250	2981	2003015847		2002952870		050304B
00001356	LO-CLAYMAX200R	150	2250	2979	2003015847		2002952870		050304B
00001357	LO-CLAYMAX200R	150	2250	2972	2003015847		2002952870		050304B
00001358	LO-CLAYMAX200R	150	2250	2980	2003015847		2002839404		050304B
00001359	LO-CLAYMAX200R	150	2250	2983	2003015847		2002952870		050304B
00001360	LO-CLAYMAX200R	150	2250	2987	2003015847		2002952870		050304B
LOT# 200421LO									
00001540	LO-CLAYMAX200R	150	2250	3069	2003009369		2003009372		051204E
00001541	LO-CLAYMAX200R	150	2250	3065	2003009369		2003009372		051204E
00001605	LO-CLAYMAX200R	150	2250	3066	2003009366		2003009364		051304A
00001606	LO-CLAYMAX200R	150	2250	3069	2003009366		2003009364		051304A
00001607	LO-CLAYMAX200R	150	2250	3067	2003009366		2003009364		051304A
00001608	LO-CLAYMAX200R	150	2250	3068	2003009366		2003009364		051304A
00001609	LO-CLAYMAX200R	150	2250	3066	2003009366		2003009364		051304A

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187949

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00001352	LO-CLAYMAX200R	150	2250	2975	2003015847		2002952870		050304B
00001353	LO-CLAYMAX200R	150	2250	2976	2003015847		2002952870		050304B
00001409	LO-CLAYMAX200R	150	2250	2956	2003009343		2003015842		050304D
00001410	LO-CLAYMAX200R	150	2250	2961	2003009343		2003015842		050304D
00001411	LO-CLAYMAX200R	150	2250	2954	2003009343		2003015842		050304D
00001412	LO-CLAYMAX200R	150	2250	2951	2003009343		2003015842		050304D
00001413	LO-CLAYMAX200R	150	2250	2958	2003009343		2003015842		050304D
00001414	LO-CLAYMAX200R	150	2250	2956	2003009343		2003015842		050304D
00001415	LO-CLAYMAX200R	150	2250	2952	2003009343		2003015842		050304D
00001416	LO-CLAYMAX200R	150	2250	2949	2003009343		2003015842		050304D
00001417	LO-CLAYMAX200R	150	2250	2951	2003009343		2003015842		050304D
00001418	LO-CLAYMAX200R	150	2250	2956	2003009343		2003015842		050304D
00001419	LO-CLAYMAX200R	150	2250	2957	2003015838		2003015842		050304D
00001420	LO-CLAYMAX200R	150	2250	2953	2003015838		2003015842		050304D
LOT# 200421LO									
00001632	LO-CLAYMAX200R	150	2250	3067	2002958807		2002952887		051304A

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187948

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00001403	LO-CLAYMAX200R	150	2250	2950	2003009343		2003015843		050304D
00001404	LO-CLAYMAX200R	150	2250	2949	2003009343		2003015842		050304D
00001405	LO-CLAYMAX200R	150	2250	2950	2003009343		2003015842		050304D
00001406	LO-CLAYMAX200R	150	2250	2949	2003009343		2003015842		050304D
00001407	LO-CLAYMAX200R	150	2250	2952	2003009343		2003015842		050304D
00001408	LO-CLAYMAX200R	150	2250	2957	2003009343		2003015842		050304D
LOT# 200421LO									
00001582	LO-CLAYMAX200R	150	2250	3067	2003181826		2003136701		051204F
00001583	LO-CLAYMAX200R	150	2250	3052	2003181826		2003136701		051204F
00001584	LO-CLAYMAX200R	150	2250	3059	2003181826		2003136701		051204F
00001585	LO-CLAYMAX200R	150	2250	3049	2003181826		2003136701		051204F
00001627	LO-CLAYMAX200R	150	2250	3056	2002958807		2002952681		051304A
00001628	LO-CLAYMAX200R	150	2250	3056	2002958807		2002952887		051304A
00001629	LO-CLAYMAX200R	150	2250	3059	2002958807		2002952887		051304A
00001630	LO-CLAYMAX200R	150	2250	3068	2002958807		2002952887		051304A
00001631	LO-CLAYMAX200R	150	2250	3069	2002958807		2002952887		051304A

TOTAL SQUARE FEET..... 31,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/21/04 12:39:26

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187951

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001637	LO-CLAYMAX200R	150	2250	3069	2002958810		2002952887		051304A
00001638	LO-CLAYMAX200R	150	2250	3071	2002958810		2002952887		051304A
00001639	LO-CLAYMAX200R	150	2250	3073	2002958810		2002952887		051304A
00001640	LO-CLAYMAX200R	150	2250	3074	2002958810		2002952887		051304A
00001641	LO-CLAYMAX200R	150	2250	3070	2002958810		2002952887		051304A
00001645	LO-CLAYMAX200R	150	2250	3073	2002958810		2003009360		051304B
00001646	LO-CLAYMAX200R	150	2250	3074	2002958810		2003009360		051304B
00001647	LO-CLAYMAX200R	150	2250	3071	2002958810		2003009360		051304B
00001648	LO-CLAYMAX200R	150	2250	3069	2002958810		2003009360		051304B
00001649	LO-CLAYMAX200R	150	2250	3058	2002958810		2003009360		051304B
00001654	LO-CLAYMAX200R	150	2250	3064	2002961030		2003009360		051304B
00001655	LO-CLAYMAX200R	150	2250	3066	2002961030		2003009360		051304B
00001656	LO-CLAYMAX200R	150	2250	3068	2002961030		2002958805		051304B
00001657	LO-CLAYMAX200R	150	2250	3065	2002961030		2002958805		051304B
00001658	LO-CLAYMAX200R	150	2250	3067	2002961030		2002958805		051304B

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/21/04 12:39:51

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187950

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001626	LO-CLAYMAX200R	150	2250	3077	2002958807		2002952881		051304A
00001673	LO-CLAYMAX200R	150	2250	3077	2002952888		2002958804		051304B
00001674	LO-CLAYMAX200R	150	2250	3079	2002952888		2002958804		051304B
00001675	LO-CLAYMAX200R	150	2250	3075	2002952888		2002958804		051304B
00001676	LO-CLAYMAX200R	150	2250	3072	2002952888		2002958804		051304B
00001677	LO-CLAYMAX200R	150	2250	3073	2002952888		2002958804		051304B
00001678	LO-CLAYMAX200R	150	2250	3063	2002952888		2002958804		051304B
00001679	LO-CLAYMAX200R	150	2250	3066	2002952888		2002958804		051304B
00001680	LO-CLAYMAX200R	150	2250	3069	2002952888		2002958804		051304B
00001681	LO-CLAYMAX200R	150	2250	3064	2002952888		2002958804		051304B
00001682	LO-CLAYMAX200R	150	2250	3067	2002952888		2002958804		051304B
00001683	LO-CLAYMAX200R	150	2250	3066	2002952890		2002958804		051304B
00001684	LO-CLAYMAX200R	150	2250	3068	2002952890		2002958804		051304B
00001685	LO-CLAYMAX200R	150	2250	3063	2002952890		2002958804		051304B
00001686	LO-CLAYMAX200R	150	2250	3069	2002952890		2002958804		051304B

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/22/04 7:23:42 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187956

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001593	LO-CLAYMAX200R	150	2250	3062	2003009331		2003136701		051204F
00001594	LO-CLAYMAX200R	150	2250	3067	2003009331		2003136701		051204F
00001603	LO-CLAYMAX200R	150	2250	3059	2003009331		2003009364		051304A
00001604	LO-CLAYMAX200R	150	2250	3064	2003009331		2003009364		051304A
00001633	LO-CLAYMAX200R	150	2250	3066	2002958807		2002952887		051304A
00001634	LO-CLAYMAX200R	150	2250	3071	2002958807		2002952887		051304A
00001635	LO-CLAYMAX200R	150	2250	3072	2002958807		2002952887		051304A
00001636	LO-CLAYMAX200R	150	2250	3066	2002958810		2002952887		051304A
00001642	LO-CLAYMAX200R	150	2250	3075	2002958810		2002952887		051304A
00001643	LO-CLAYMAX200R	150	2250	3072	2002958810		2003009360		051304A
00001644	LO-CLAYMAX200R	150	2250	3071	2002958810		2003009360		051304B
00001650	LO-CLAYMAX200R	150	2250	3061	2002958810		2003009360		051304B
00001651	LO-CLAYMAX200R	150	2250	3063	2002958810		2003009360		051304B
00001652	LO-CLAYMAX200R	150	2250	3062	2002961030		2003009360		051304B
00001653	LO-CLAYMAX200R	150	2250	3066	2002961030		2003009360		051304B

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 24, 2004
PO: 9656-00
Order #: 187946, 187947, 187952

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on May 22, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187946, 187947, 187952
Ship Date:	22-May

CONTENTS:

PACKING LIST
DAILY CLAYMAX PRODUCTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
CLAYMAX MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187946
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R	SFT	SF	200421LO	00001558	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001559	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001560	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001561	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001566	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001567	150.0	15.0	2250.0	3070.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001568	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001569	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001570	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001571	150.0	15.0	2250.0	3071.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001577	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001578	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001579	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001580	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R	SFT	SF	200421LO	00001581	150.0	15.0	2250.0	3064.0
							33750.0	45987.0

ORDER TOTALS.....

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187947
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001552	150.0	15.0	2250.0	3070.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001553	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001554	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001555	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001556	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001557	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001562	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001563	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001564	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001565	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001572	150.0	15.0	2250.0	3070.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001573	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001574	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001575	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001576	150.0	15.0	2250.0	3065.0
ORDER TOTALS.....							33750.0	45982.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187952
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200420LO	00001388	150.0	15.0	2250.0	2965.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001389	150.0	15.0	2250.0	2961.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001390	150.0	15.0	2250.0	2962.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001391	150.0	15.0	2250.0	2959.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001392	150.0	15.0	2250.0	2957.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001393	150.0	15.0	2250.0	2955.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001394	150.0	15.0	2250.0	2953.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001395	150.0	15.0	2250.0	2957.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001396	150.0	15.0	2250.0	2955.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001397	150.0	15.0	2250.0	2953.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001398	150.0	15.0	2250.0	2956.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001399	150.0	15.0	2250.0	2955.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001400	150.0	15.0	2250.0	2952.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001401	150.0	15.0	2250.0	2956.0
LO-CLAYMAX200R		SFT	SF 200420LO	00001402	150.0	15.0	2250.0	2955.0
ORDER TOTALS.....							33750.0	44351.0

TOTAL ITEMS..... 15

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187946, 187947, 187952
Ship Date:	22-May

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **Claymax 200R** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Sherri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: AMERICAN COLLOID COMPANY

PRODUCTION

Facility: AMERICAN COLLOID COMPANY
92 HWY. 37
Lovell, WY 82431

Contact: Moses Briseno
Quality Assurance Coordinator
(800)-322-1160

Brand Name: CG 50

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050304C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050304D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051204E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051204F
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**SI Geosolutions**
PRODUCTION Facility:	**SI Corporation** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Jack Rooke
Brand Name:	Geotex 311

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1228	2003009316	2052353	1006701	311L	5/3/2004	3.4	33	103	94	60	85	49		
1229	2003009316	2052353	1006701	311L	5/3/2004	3.2	31	95	104	58	74	51		
1230	2003009320	2052353	1006701	311L	5/3/2004	3.2	30	96	101	57	74	46		
1231	2003009323	2052353	1006701	311L	5/3/2004	3.4	31	99	100	50	72	50		
1232	2003009332	2052353	1006701	311L	5/3/2004	3.5	31	93	92	54	75	59		
1233	2003009337	2052353	1006701	311L	5/3/2004	3.6	32	106	102	55	75	53		
1234	2003009342	2052353	1006701	311L	5/3/2004	3.6	30	96	100	52	73	55		
1235	2003009355	2052353	1006701	311L	5/3/2004	4.5	33	104	127	63	68	63		
1236	2003009357	2052353	1006701	311L	5/3/2004	5.1	38	166	186	48	74	94		
1237	2003009363	2052353	1006701	311L	5/3/2004	5.3	41	152	172	49	76	91		
1238	2003009367	2052353	1006701	311L	5/3/2004	3.4	30	92	98	49	74	54		
1239	2003009370	2052353	1006701	311L	5/3/2004	3.8	31	99	113	48	75	60		
1240	2003009374	2052353	1006701	311L	5/3/2004	3.2	30	95	92	53	71	50		
1241														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
832	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
833	2001911717	2033190	1005428	311L	10/13/2003	3.6	67	102	123	70	93	46	63	211
834	2001911720	2033190	1005428	311L	10/13/2003	4.3	79	110	155	69	90	56	81	256
835	2001911723	2033190	1005428	311L	10/13/2003	4.1	74	114	145	71	90	56	64	249
836	2001911726	2033190	1005428	311L	10/13/2003	3.8	69	107	134	69	89	56	60	241
837	2001911729	2033190	1005428	311L	10/13/2003	3.9	69	119	119	94	94	42	51	267
838	2001911732	2033190	1005428	311L	10/13/2003	3.7	65	92	124	71	88	43	59	223
839	2001911735	2033190	1005428	311L	10/14/2003	3.9	73	103	127	73	86	46	60	261
840	2001911738	2033190	1005428	311L	10/14/2003	3.7	67	118	114	69	88	49	55	249
841	2001911741	2033190	1005428	311L	10/14/2003	3.8	69	90	121	73	84	47	53	229
842	2001911744	2033190	1005428	311L	10/14/2003	4.6	84	111	169	70	90	60	76	284
843	2001911747	2033190	1005428	311L	10/14/2003	4.1	73	102	141	69	90	45	47	243
844	2001911750	2033190	1005428	311L	10/14/2003	4.2	73	112	151	80	94	51	73	246
845	2001911753	2033190	1005428	311L	10/14/2003	4.4	80	108	168	78	85	58	73	243
846	2001911755	2033190	1005428	311L	10/14/2003	4.7	85	120	176	74	88	58	81	237
847	2001911759	2033190	1005428	311L	10/14/2003	4.2	77	117	157	84	83	51	71	266
848	2001911762	2033190	1005428	311L	10/14/2003	3.9	69	100	151	79	85	49	57	207
849	2001911765	2033190	1005428	311L	10/15/2003	3.7	74	105	141	76	79	48	61	260
850	2001911768	2033190	1005428	311L	10/15/2003	3.9	71	93	133	86	91	42	60	247
851	2001911771	2033190	1005428	311L	10/15/2003	3.7	67	102	139	80	85	45	55	244
852	2001911774	2033190	1005428	311L	10/15/2003	3.7	69	104	139	78	80	37	42	223
853	2001911775	2033190	1005428	311L	10/16/2003	3.9	75	85	141	83	78	40	64	246
854	2001911777	2033190	1005428	311L	10/16/2003	3.9	70	105	155	79	82	48	68	219
855	2001911780	2033190	1005428	311L	10/16/2003	3.9	69	98	133	78	89	46	59	230
856	2001911783	2033190	1005428	311L	10/16/2003	3.8	69	93	139	82	85	48	58	206
857	2001911788	2033190	1005428	311L	10/16/2003	4.0	64	102	141	80	88	56	68	240
858	2001911791	2033190	1005428	311L	10/17/2003	4.0	75	106	139	73	83	51	61	249
859	2001911793	2033190	1005428	311L	10/17/2003	3.9	69	105	142	75	87	53	66	251
860	2001911797	2033190	1005428	311L	10/17/2003	3.8	68	96	132	81	89	42	53	251
861	2001911800	2033190	1005428	311L	10/17/2003	3.9	69	103	143	74	83	52	67	209
862	2001911803	2033190	1005428	311L	10/17/2003	3.5	65	91	123	75	89	46	56	213
863	2001911807	2033190	1005428	311L	10/17/2003	3.5	62	103	135	73	84	51	74	186
864	2001940833	2033190	1005428	311L	10/17/2003	3.9	66	103	136	233	253	53	60	231
865	2001940837	2033190	1005428	311L	10/17/2003	3.7	69	108	118	74	91	51	56	240
866	2001940840	2033190	1005428	311L	10/17/2003	3.3	59	94	111	79	95	36	49	213
867														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1351	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC				
1352	2003136688	2054321	1006701	311L	5/11/2004	3.6	88	86	46	64				
1353	2003136692	2054321	1006701	311L	5/12/2004	3.6	90	95	46	70				
1354	2003136696	2054321	1006701	311L	5/12/2004	3.4	72	71	40	65				
1355	2003136700	2054321	1006701	311L	5/12/2004	3.5	74	69	41	67				
1356	2003136738	2054321	1006701	311L	5/12/2004	3.8	88	86	43	59				
1357	2003213201	2055255	1006701	311L	5/16/2004	3.8	93	98	48	61				
1358	2003213209	2055255	1006701	311L	5/16/2004	3.6	84	86	43	70				
1359	2003213224	2055255	1006701	311L	5/16/2004	3.4	85	86	46	68				
1360	2003213228	2055255	1006701	311L	5/17/2004	3.7	82	89	49	66				
1361	2003213234	2055255	1006701	311L	5/17/2004	3.5	87	82	44	65				
1362	2003213239	2055255	1006701	311L	5/17/2004	3.5	82	83	42	60				
1363	2003213245	2055255	1006701	311L	5/17/2004	3.3	85	82	46	66				
1364	2003213248	2055255	1006701	311L	5/17/2004	3.3	76	87	42	61				
1365	2003213251	2055255	1006701	311L	5/17/2004	3.5	74	87	46	56				
1366	2003213254	2055255	1006701	311L	5/17/2004	3.4	81	81	41	56				
1367	2003213257	2055255	1006701	311L	5/17/2004	3.6	75	83	41	59				
1368	2003213259	2055255	1006701	311L	5/17/2004	3.4	64	78	43	52				
1369	2003213260	2055255	1006701	311L	5/16/2004	3.4	78	81	47	69				
1370	2003225596	2055255	1006701	311L	5/17/2004	3.5	84	85	47	61				
1371	2003225599	2055255	1006701	311L	5/17/2004	3.5	75	80	41	61				
1372	2003226559	2055255	1006701	311L	5/18/2004	3.4	75	75	40	58				
1373	2003226578	2055115	1004839	311L	5/18/2004	4.5	125	154	64	75				
1374	2003226584	2055115	1004839	311L	5/18/2004	4.7	118	158	62	74				
1375	2003226590	2055115	1004839	311L	5/18/2004	4.0	107	129	61	71				
1376	2003226593	2055115	1004839	311L	5/18/2004	3.8	97	128	66	77				
1377	2003226596	2055115	1004839	311L	5/18/2004	3.7	93	123	64	75				
1378	2003226599	2055115	1004839	311L	5/18/2004	3.9	97	126	64	75				
1379	2003231310	2055115	1004839	311L	5/19/2004	3.5	83	125	62	80				
1380	2003231313	2055115	1004839	311L	5/19/2004	3.7	90	124	68	75				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1242	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC			
1243														
1244	2002952734	2051406	1006701	311L	4/7/2004	3.2	30	86	90	45	75			
1245	2002952745	2051406	1006701	311L	4/7/2004	3.5	30	89	89	54	82			
1246	2003006216	2052484	1004839	311	4/15/2004	3.9	67	101	140	62	73			
1247	2003006218	2052484	1004839	311	4/15/2004	3.8	61	95	127	64	74			
1248	2003006220	2052484	1004839	311	4/15/2004	3.3	53	80	106	65	75			
1249	2003006223	2052484	1004839	311	4/15/2004	3.4	53	100	114	61	73			
1250	2003006225	2052484	1004839	311	4/15/2004	3.5	58	90	110	63	80			
1251	2003006227	2052484	1004839	311	4/15/2004	3.7	63	95	120	60	77			
1252	2003006230	2052484	1004839	311	4/15/2004	3.5	53	93	107	64	77			
1253	2003006232	2052484	1004839	311	4/15/2004	3.7	62	81	117	66	76			
1254	2003006235	2052484	1004839	311	4/16/2004	3.6	55	80	94	72	78			
1255	2003006239	2052484	1004839	311	4/16/2004	3.5	58	82	110	61	76			
1256	2003006242	2052484	1004839	311	4/16/2004	3.6	55	84	92	60	76			
1257	2003006245	2052484	1004839	311	4/16/2004	3.6	56	85	108	66	75			
1258	2003006254	2052484	1004839	311	4/16/2004	3.6	58	90	119	60	72			
1259	2003006257	2052484	1004839	311	4/16/2004	3.4	58	93	110	59	73			
1260	2003006749	2052484	1004839	311	4/16/2004	3.7	59	89	110	66	77			
1261	2003009315	2052353	1006701	311L	4/16/2004	3.4	33	103	94	60	85			
1262	2003009316	2052353	1006701	311L	4/16/2004	3.2	31	95	104	58	74			
1263	2003009320	2052353	1006701	311L	4/16/2004	3.2	30	96	101	57	74			
1264	2003009323	2052353	1006701	311L	4/17/2004	3.4	31	99	100	50	72			
1265	2003009328	2052353	1006701	311L	4/17/2004	3.6	30	95	92	53	75			
1266	2003009332	2052353	1006701	311L	4/17/2004	3.5	31	93	92	54	75			
1267	2003009337	2052353	1006701	311L	4/17/2004	3.6	32	106	102	55	75			
1268	2003009342	2052353	1006701	311L	4/17/2004	3.6	30	96	100	52	73			
1269	2003009355	2052353	1006701	311L	4/17/2004	4.5	33	104	127	63	68			
1270	2003009357	2052353	1006701	311L	4/17/2004	5.1	38	166	188	48	74			
1271	2003009363	2052353	1006701	311L	4/17/2004	5.3	41	152	172	49	76			
1272	2003009367	2052353	1006701	311L	4/17/2004	3.4	30	92	98	49	74			
1273	2003009370	2052353	1006701	311L	4/17/2004	3.8	31	99	113	48	75			
1274	2003009374	2052353	1006701	311L	4/17/2004	3.2	30	95	92	53	71			
1275	2003015839	2052353	1006701	311L	4/17/2004	3.5	30	92	106	52	70			
1276	2003115180	2054309	1004839	311L	5/4/2004	3.8	49	106	120	55	74			
1277														

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187946, 187947, 187952
Ship Date:	22-May

CETCO hereby affirms and certifies that the Non-Woven geotextile in the Claymax 200R product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shern McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187952

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLK-200R-2.7	2003181826		3.8	96.4
LO-N/W-BLK-200R-2.7	2003016079		3.6	95.9

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187946, 187947, 187952
Ship Date:	22-May

CETCO hereby affirms and certifies that the Claymax 200R material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	100 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

OCG#FT2 OCT#FT2
5/24/04 6:57:28

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187947

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001576	.85	351.30
LO-CLAYMAX200R	200421LO	00001575	.85	351.30
LO-CLAYMAX200R	200421LO	00001574	.85*	351.30
LO-CLAYMAX200R	200421LO	00001573	.83	351.30
LO-CLAYMAX200R	200421LO	00001572	.83	351.30
LO-CLAYMAX200R	200421LO	00001565	.83	351.30
LO-CLAYMAX200R	200421LO	00001564	.83	351.30
LO-CLAYMAX200R	200421LO	00001563	.83	351.30
LO-CLAYMAX200R	200421LO	00001562	.83	351.30
LO-CLAYMAX200R	200421LO	00001557	.83*	351.30
LO-CLAYMAX200R	200421LO	00001556	.85	351.30
LO-CLAYMAX200R	200421LO	00001555	.85	351.30
LO-CLAYMAX200R	200421LO	00001554	.85	351.30
LO-CLAYMAX200R	200421LO	00001553	.85	351.30
LO-CLAYMAX200R	200421LO	00001552	.85	351.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

OCG#FT2 OCT#FT2
5/24/04 6:57:57

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187946

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001581	.85	351.30
LO-CLAYMAX200R	200421LO	00001580	.85	351.30
LO-CLAYMAX200R	200421LO	00001579	.85	351.30
LO-CLAYMAX200R	200421LO	00001578	.85	351.30
LO-CLAYMAX200R	200421LO	00001577	.85	351.30
LO-CLAYMAX200R	200421LO	00001571	.83	351.30
LO-CLAYMAX200R	200421LO	00001570	.83	351.30
LO-CLAYMAX200R	200421LO	00001569	.83	351.30
LO-CLAYMAX200R	200421LO	00001568	.83	351.30
LO-CLAYMAX200R	200421LO	00001567	.83	351.30
LO-CLAYMAX200R	200421LO	00001566	.83	351.30
LO-CLAYMAX200R	200421LO	00001561	.83	351.30
LO-CLAYMAX200R	200421LO	00001560	.83	351.30
LO-CLAYMAX200R	200421LO	00001559	.83	351.30
LO-CLAYMAX200R	200421LO	00001558	.83	351.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 QCT#FT2
5/24/04 6:56:57

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187952

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200420LO	00001402	.83	283.10
LO-CLAYMAX200R	200420LO	00001401	.83	283.10
LO-CLAYMAX200R	200420LO	00001400	.83	283.10
LO-CLAYMAX200R	200420LO	00001399	.83	283.10
LO-CLAYMAX200R	200420LO	00001398	.83	283.10
LO-CLAYMAX200R	200420LO	00001397	.83	283.10
LO-CLAYMAX200R	200420LO	00001396	.83	283.10
LO-CLAYMAX200R	200420LO	00001395	.83	283.10
LO-CLAYMAX200R	200420LO	00001394	.83	283.10
LO-CLAYMAX200R	200420LO	00001393	.83	283.10
LO-CLAYMAX200R	200420LO	00001392	.83	283.10
LO-CLAYMAX200R	200420LO	00001391	.83	283.10
LO-CLAYMAX200R	200420LO	00001390	.83	283.10
LO-CLAYMAX200R	200420LO	00001389	.83	283.10
LO-CLAYMAX200R	200420LO	00001388	.83	283.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/24/04 6:57:28 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187947

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001552	LO-CLAYMAX200R	150	2250	3070	2003136737		2003009371		051204E
00001553	LO-CLAYMAX200R	150	2250	3065	2003136737		2003009371		051204F
00001554	LO-CLAYMAX200R	150	2250	3064	2003136737		2003009371		051204F
00001555	LO-CLAYMAX200R	150	2250	3062	2003136737		2003009371		051204F
00001556	LO-CLAYMAX200R	150	2250	3064	2003136737		2003009371		051204F
00001557	LO-CLAYMAX200R	150	2250	3068	2003136737		2003009371		051204F
00001562	LO-CLAYMAX200R	150	2250	3068	2003136691		2003136700		051204F
00001563	LO-CLAYMAX200R	150	2250	3064	2003136691		2003136700		051204F
00001564	LO-CLAYMAX200R	150	2250	3061	2003136691		2003136700		051204F
00001565	LO-CLAYMAX200R	150	2250	3066	2003136691		2003136700		051204F
00001572	LO-CLAYMAX200R	150	2250	3070	2003136691		2003136700		051204F
00001573	LO-CLAYMAX200R	150	2250	3067	2003181826		2003009347		051204F
00001574	LO-CLAYMAX200R	150	2250	3065	2003181826		2003009347		051204F
00001575	LO-CLAYMAX200R	150	2250	3063	2003181826		2003009347		051204F
00001576	LO-CLAYMAX200R	150	2250	3065	2003181826		2003009347		051204F

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/24/04 6:57:57 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187946

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001558	LO-CLAYMAX200R	150	2250	3064	2003136691		2003136700		051204F
00001559	LO-CLAYMAX200R	150	2250	3062	2003136691		2003136700		051204F
00001560	LO-CLAYMAX200R	150	2250	3069	2003136691		2003136700		051204F
00001561	LO-CLAYMAX200R	150	2250	3067	2003136691		2003136700		051204F
00001566	LO-CLAYMAX200R	150	2250	3064	2003136691		2003136700		051204F
00001567	LO-CLAYMAX200R	150	2250	3070	2003136691		2003136700		051204F
00001568	LO-CLAYMAX200R	150	2250	3067	2003136691		2003136700		051204F
00001569	LO-CLAYMAX200R	150	2250	3065	2003136691		2003136700		051204F
00001570	LO-CLAYMAX200R	150	2250	3063	2003136691		2003136700		051204F
00001571	LO-CLAYMAX200R	150	2250	3071	2003136691		2003136700		051204F
00001577	LO-CLAYMAX200R	150	2250	3062	2003181826		2003009347		051204F
00001578	LO-CLAYMAX200R	150	2250	3068	2003181826		2003009347		051204F
00001579	LO-CLAYMAX200R	150	2250	3065	2003181826		2003009347		051204F
00001580	LO-CLAYMAX200R	150	2250	3066	2003181826		2003009347		051204F
00001581	LO-CLAYMAX200R	150	2250	3064	2003181826		2003136701		051204F

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG$TF1 QCT#TF1
5/24/04 6:56:57

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187952

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00001388	LO-CLAYMAX200R	150	2250	2965	2003016079		2003015841		050304C
00001389	LO-CLAYMAX200R	150	2250	2961	2003016079		2003015841		050304C
00001390	LO-CLAYMAX200R	150	2250	2962	2003016079		2003015841		050304C
00001391	LO-CLAYMAX200R	150	2250	2959	2003016079		2003015841		050304C
00001392	LO-CLAYMAX200R	150	2250	2957	2003015843		2003015841		050304C
00001393	LO-CLAYMAX200R	150	2250	2955	2003015843		2003015841		050304C
00001394	LO-CLAYMAX200R	150	2250	2953	2003015843		2003015841		050304D
00001395	LO-CLAYMAX200R	150	2250	2957	2003009343		2003015843		050304D
00001396	LO-CLAYMAX200R	150	2250	2955	2001911728		2003015843		050304D
00001397	LO-CLAYMAX200R	150	2250	2953	2001911728		2003015843		050304D
00001398	LO-CLAYMAX200R	150	2250	2956	2001911728		2003015843		050304D
00001399	LO-CLAYMAX200R	150	2250	2955	2001911728		2003015843		050304D
00001400	LO-CLAYMAX200R	150	2250	2952	2001911728		2003015843		050304D
00001401	LO-CLAYMAX200R	150	2250	2956	2001911728		2003015843		050304D
00001402	LO-CLAYMAX200R	150	2250	2955	2001911728		2003015843		050304D

TOTAL SQUARE FEET..... 33,750

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 25, 2004
PO: 9656-00
Order #: 187943, 187944, 187957, 187958, 187959

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for Geo-Synthetics, Inc. GCL shipments to CETCO - Lovell, Wy. plant on May 24, 2004. These shipments left our .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187943, 187944, 187957, 187958, 187959
Ship Date:	24-May

CONTENTS:

PACKING LIST
DAILY CLAYMAX PRODUCTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
CLAYMAX MANUFACTURING CERTIFICATION AND TEST RESULTS
CLAYMAX MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187943
ORDER DATE: 5/17/2004
SHIP DATE:. 5/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001797	150.0	15.0	2250.0	3033.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001798	150.0	15.0	2250.0	3025.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001799	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001800	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001801	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001802	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001803	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001804	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001822	150.0	15.0	2250.0	3066.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001823	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001824	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001825	150.0	15.0	2250.0	3063.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001826	150.0	15.0	2250.0	3068.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001827	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001828	150.0	15.0	2250.0	3064.0
ORDER TOTALS.....							33750.0	45869.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187944
ORDER DATE: 5/17/2004
SHIP DATE:. 5/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001805	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001806	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001807	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001808	150.0	15.0	2250.0	3065.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001809	150.0	15.0	2250.0	3062.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001810	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001811	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001830	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001831	150.0	15.0	2250.0	3067.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001833	150.0	15.0	2250.0	3061.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001834	150.0	15.0	2250.0	3058.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001836	150.0	15.0	2250.0	3064.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001837	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001838	150.0	15.0	2250.0	3069.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001840	150.0	15.0	2250.0	3065.0
ORDER TOTALS.....							33750.0	45971.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187957
ORDER DATE: 5/17/2004
SHIP DATE:. 5/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001761	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001762	150.0	15.0	2250.0	3020.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001763	150.0	15.0	2250.0	3029.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001764	150.0	15.0	2250.0	3033.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001765	150.0	15.0	2250.0	3040.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001774	150.0	15.0	2250.0	3028.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001775	150.0	15.0	2250.0	3022.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001776	150.0	15.0	2250.0	3038.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001777	150.0	15.0	2250.0	3030.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001778	150.0	15.0	2250.0	3033.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001785	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001786	150.0	15.0	2250.0	3018.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001787	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001788	150.0	15.0	2250.0	3035.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001789	150.0	15.0	2250.0	3041.0
ORDER TOTALS.....							33750.0	45445.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187958
ORDER DATE: 5/17/2004
SHIP DATE:. 6/09/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. BEHNE 29042

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001743	150.0	15.0	2250.0	3020.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001744	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001745	150.0	15.0	2250.0	3031.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001746	150.0	15.0	2250.0	3028.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001747	150.0	15.0	2250.0	3025.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001748	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001749	150.0	15.0	2250.0	3021.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001750	150.0	15.0	2250.0	3033.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001752	150.0	15.0	2250.0	3025.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001758	150.0	15.0	2250.0	3019.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001759	150.0	15.0	2250.0	3017.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001760	150.0	15.0	2250.0	3021.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001772	150.0	15.0	2250.0	3038.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001773	150.0	15.0	2250.0	3035.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001784	150.0	15.0	2250.0	3019.0
ORDER TOTALS.....							33750.0	45384.0
TOTAL ITEMS.....	15							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187959
ORDER DATE: 5/17/2004
SHIP DATE:. 5/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-CLAYMAX200R		SFT	SF 200421LO	00001753	150.0	15.0	2250.0	3021.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001754	150.0	15.0	2250.0	3022.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001755	150.0	15.0	2250.0	3030.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001756	150.0	15.0	2250.0	3029.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001757	150.0	15.0	2250.0	3025.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001767	150.0	15.0	2250.0	3023.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001768	150.0	15.0	2250.0	3028.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001769	150.0	15.0	2250.0	3024.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001770	150.0	15.0	2250.0	3029.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001771	150.0	15.0	2250.0	3031.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001779	150.0	15.0	2250.0	3036.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001780	150.0	15.0	2250.0	3026.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001781	150.0	15.0	2250.0	3034.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001782	150.0	15.0	2250.0	3039.0
LO-CLAYMAX200R		SFT	SF 200421LO	00001783	150.0	15.0	2250.0	3026.0
ORDER TOTALS.....							33750.0	45423.0
TOTAL ITEMS.....	15							

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187943, 187944, 187957, 187958, 187959
Ship Date:	24-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **Claymax 200R** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404F
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404G
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404H
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1242	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC			
1243														
1244	2002952734	2051406	1006701	311L	4/7/2004	3.2	30	86	90	45	75			
1245	2002952745	2051406	1006701	311L	4/7/2004	3.5	30	89	89	54	82			
1246	2003006216	2052484	1004839	311	4/15/2004	3.9	67	101	140	62	73			
1247	2003006218	2052484	1004839	311	4/15/2004	3.8	61	95	127	64	74			
1248	2003006220	2052484	1004839	311	4/15/2004	3.3	53	80	106	65	75			
1249	2003006223	2052484	1004839	311	4/15/2004	3.4	53	100	114	61	73			
1250	2003006225	2052484	1004839	311	4/15/2004	3.5	58	90	110	63	80			
1251	2003006227	2052484	1004839	311	4/15/2004	3.7	63	95	120	60	77			
1252	2003006230	2052484	1004839	311	4/15/2004	3.5	53	93	107	64	77			
1253	2003006232	2052484	1004839	311	4/15/2004	3.7	62	81	117	66	76			
1254	2003006235	2052484	1004839	311	4/16/2004	3.6	55	80	94	72	78			
1255	2003006239	2052484	1004839	311	4/16/2004	3.5	58	82	110	61	76			
1256	2003006242	2052484	1004839	311	4/16/2004	3.6	55	84	92	60	76			
1257	2003006245	2052484	1004839	311	4/16/2004	3.6	56	85	108	66	75			
1258	2003006254	2052484	1004839	311	4/16/2004	3.6	58	90	119	60	72			
1259	2003006257	2052484	1004839	311	4/16/2004	3.4	58	93	110	59	73			
1260	2003006749	2052484	1004839	311	4/16/2004	3.7	59	89	110	66	77			
1261	2003009315	2052353	1006701	311L	4/16/2004	3.4	33	103	94	60	85			
1262	2003009316	2052353	1006701	311L	4/16/2004	3.2	31	95	104	58	74			
1263	2003009320	2052353	1006701	311L	4/16/2004	3.2	30	96	101	57	74			
1264	2003009323	2052353	1006701	311L	4/17/2004	3.4	31	99	100	50	72			
1265	2003009328	2052353	1006701	311L	4/17/2004	3.6	30	95	92	53	75			
1266	2003009332	2052353	1006701	311L	4/17/2004	3.5	31	93	92	54	75			
1267	2003009337	2052353	1006701	311L	4/17/2004	3.6	32	106	102	55	75			
1268	2003009342	2052353	1006701	311L	4/17/2004	3.6	30	96	100	52	73			
1269	2003009355	2052353	1006701	311L	4/17/2004	4.5	33	104	127	63	68			
1270	2003009357	2052353	1006701	311L	4/17/2004	5.1	38	166	188	48	74			
1271	2003009363	2052353	1006701	311L	4/17/2004	5.3	41	152	172	49	76			
1272	2003009367	2052353	1006701	311L	4/17/2004	3.4	30	92	98	49	74			
1273	2003009370	2052353	1006701	311L	4/17/2004	3.8	31	99	113	48	75			
1274	2003009374	2052353	1006701	311L	4/17/2004	3.2	30	95	92	53	71			
1275	2003015839	2052353	1006701	311L	4/17/2004	3.5	30	92	106	52	70			
1276	2003115180	2054309	1004839	311L	5/4/2004	3.8	49	106	120	55	74			
1277														

SI® Geosolutions

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: Geotex 311

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC
2003136688	2054321	1006701	311L	5/11/2004	3.6	88	86	46	64
2003136692	2054321	1006701	311L	5/12/2004	3.6	90	95	46	70
2003136696	2054321	1006701	311L	5/12/2004	3.4	72	71	40	65
2003136700	2054321	1006701	311L	5/12/2004	3.5	74	69	41	67
2003136738	2054321	1006701	311L	5/12/2004	3.8	88	86	43	59
2003213201	2055255	1006701	311L	5/16/2004	3.8	93	98	48	61
2003213209	2055255	1006701	311L	5/16/2004	3.6	84	86	43	70
2003213224	2055255	1006701	311L	5/16/2004	3.4	85	86	46	68
2003213228	2055255	1006701	311L	5/17/2004	3.7	82	89	49	66
2003213234	2055255	1006701	311L	5/17/2004	3.5	87	82	44	65
2003213239	2055255	1006701	311L	5/17/2004	3.5	82	83	42	60
2003213245	2055255	1006701	311L	5/17/2004	3.3	85	82	46	66
2003213248	2055255	1006701	311L	5/17/2004	3.3	76	87	42	61
2003213251	2055255	1006701	311L	5/17/2004	3.5	74	87	46	56
2003213254	2055255	1006701	311L	5/17/2004	3.4	81	81	41	56
2003213257	2055255	1006701	311L	5/17/2004	3.6	75	83	41	59
2003213259	2055255	1006701	311L	5/17/2004	3.4	64	78	43	52
2003213260	2055255	1006701	311L	5/16/2004	3.4	78	81	47	69
2003225596	2055255	1006701	311L	5/17/2004	3.5	84	85	47	61
2003225599	2055255	1006701	311L	5/17/2004	3.5	75	80	41	61
2003226559	2055255	1006701	311L	5/18/2004	3.4	75	75	40	58
2003226578	2055115	1004839	311L	5/18/2004	4.5	125	154	64	75
2003226584	2055115	1004839	311L	5/18/2004	4.7	118	158	62	74
2003226590	2055115	1004839	311L	5/18/2004	4.0	107	129	61	71
2003226593	2055115	1004839	311L	5/18/2004	3.8	97	128	66	77
2003226596	2055115	1004839	311L	5/18/2004	3.7	93	123	64	75
2003226599	2055115	1004839	311L	5/18/2004	3.9	97	126	64	75
2003231310	2055115	1004839	311L	5/19/2004	3.5	83	125	62	80
2003231313	2055115	1004839	311L	5/19/2004	3.7	90	124	68	75

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC
2003115183	2054309	1004839	311L	5/5/2004	3.5	102	113	65	77
2003115186	2054309	1004839	311L	5/5/2004	3.4	106	110	58	78
2003115189	2054309	1004839	311L	5/5/2004	3.8	100	117	61	80
2003115193	2054309	1004839	311L	5/5/2004	3.4	98	112	59	79
2003115197	2054309	1004839	311L	5/5/2004	3.7	90	110	63	82
2003115201	2054309	1004839	311L	5/5/2004	5.7	142	174	69	88
2003115203	2054309	1004839	311L	5/5/2004	3.8	94	113	72	80
2003115204	2054309	1004839	311L	5/5/2004	4.0	101	132	63	87
2003115215	2054309	1004839	311L	5/5/2004	3.6	101	124	60	74
2003115218	2054309	1004839	311L	5/5/2004	3.5	96	112	64	83
2003115221	2054309	1004839	311L	5/6/2004	3.6	93	123	64	78
2003115225	2054309	1004839	311L	5/6/2004	3.5	98	108	59	90
2003119960	2054309	1004839	311L	5/6/2004	3.7	100	118	68	80
2003119964	2054309	1004839	311L	5/6/2004	3.6	107	136	70	84
2003119972	2054309	1004839	311L	5/7/2004	3.8	101	127	65	90
2003136600	2054321	1006701	311L	5/7/2004	3.3	93	91	55	78
2003136603	2054321	1006701	311L	5/7/2004	3.2	79	83	52	71
2003136605	2054321	1006701	311L	5/7/2004	3.5	83	90	49	67
2003136608	2054321	1006701	311L	5/10/2004	3.6	90	96	55	71
2003136612	2054321	1006701	311L	5/10/2004	3.4	77	86	50	60
2003136616	2054321	1006701	311L	5/10/2004	3.3	73	76	48	68
2003136618	2054321	1006701	311L	5/10/2004	3.4	64	75	43	60
2003136623	2054321	1006701	311L	5/10/2004	3.5	71	76	43	63
2003136629	2054321	1006701	311L	5/10/2004	3.6	79	79	47	65
2003136632	2054321	1006701	311L	5/10/2004	3.2	78	73	42	66
2003136635	2054321	1006701	311L	5/10/2004	3.6	72	85	47	67
2003136643	2054321	1006701	311L	5/10/2004	3.5	76	77	48	65
2003136647	2054321	1006701	311L	5/10/2004	3.6	77	87	49	69
2003136650	2054321	1006701	311L	5/11/2004	3.2	75	70	42	62
2003136655	2054321	1006701	311L	5/11/2004	3.7	82	87	46	66
2003136660	2054321	1006701	311L	5/11/2004	3.6	84	90	41	72
2003136666	2054321	1006701	311L	5/11/2004	3.7	80	78	44	71
2003136675	2054321	1006701	311L	5/11/2004	3.7	82	86	43	64
2003136680	2054321	1006701	311L	5/11/2004	3.6	81	81	45	62
2003136685	2054321	1006701	311L	5/11/2004	3.4	87	81	46	68

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187958

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLK-200R-2.7	2002961030		3.3	88.9
LO-N/W-BLK-200R-2.7	2002952880		3.7	89.6
LO-N/W-BLK-200R-2.7	2002952887		4.1	93.2
LO-N/W-BLK-200R-2.7	2002958806		3.6	101.6
LO-N/W-BLK-200R-2.7	2002958810		3.4	93.7

QCG#FT2 5/25/04 QCT#FT2 12:45:34

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187943

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001828	.84	338.30
LO-CLAYMAX200R	200421LO	00001827	.84	338.30
LO-CLAYMAX200R	200421LO	00001826	.84	338.30
LO-CLAYMAX200R	200421LO	00001825	.84	338.30
LO-CLAYMAX200R	200421LO	00001824	.84	338.30
LO-CLAYMAX200R	200421LO	00001823	.84*	338.30
LO-CLAYMAX200R	200421LO	00001822	.81	338.30
LO-CLAYMAX200R	200421LO	00001804	.83	338.30
LO-CLAYMAX200R	200421LO	00001803	.83	338.30
LO-CLAYMAX200R	200421LO	00001802	.83	338.30
LO-CLAYMAX200R	200421LO	00001801	.83	338.30
LO-CLAYMAX200R	200421LO	00001800	.83	338.30
LO-CLAYMAX200R	200421LO	00001799	.83	338.30
LO-CLAYMAX200R	200421LO	00001798	.83	338.30
LO-CLAYMAX200R	200421LO	00001797	.83	338.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

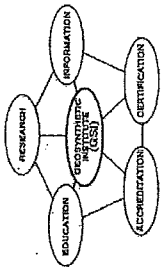
GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187943, 187944, 187957, 187958, 187959
Ship Date:	24-May

CETCO hereby affirms and certifies that the **Claymax 200R** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	100 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.



*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.

Sherri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
5/25/04 12:44:33

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187957

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001789	.83*	338.30
LO-CLAYMAX200R	200421LO	00001788	.82	338.30
LO-CLAYMAX200R	200421LO	00001787	.82	338.30
LO-CLAYMAX200R	200421LO	00001786	.82	338.30
LO-CLAYMAX200R	200421LO	00001785	.82	338.30
LO-CLAYMAX200R	200421LO	00001778	.82	338.30
LO-CLAYMAX200R	200421LO	00001777	.82	338.30
LO-CLAYMAX200R	200421LO	00001776	.82	338.30
LO-CLAYMAX200R	200421LO	00001775	.82	338.30
LO-CLAYMAX200R	200421LO	00001774	.82	338.30
LO-CLAYMAX200R	200421LO	00001765	.81	354.70
LO-CLAYMAX200R	200421LO	00001764	.81	354.70
LO-CLAYMAX200R	200421LO	00001763	.81	354.70
LO-CLAYMAX200R	200421LO	00001762	.81	354.70
LO-CLAYMAX200R	200421LO	00001761	.81	354.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/25/04 12:45:03

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187944

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001840	.84	338.30
LO-CLAYMAX200R	200421LO	00001838	.84	338.30
LO-CLAYMAX200R	200421LO	00001837	.84	338.30
LO-CLAYMAX200R	200421LO	00001836	.84	338.30
LO-CLAYMAX200R	200421LO	00001834	.84	338.30
LO-CLAYMAX200R	200421LO	00001833	.84	338.30
LO-CLAYMAX200R	200421LO	00001831	.84	338.30
LO-CLAYMAX200R	200421LO	00001830	.84	338.30
LO-CLAYMAX200R	200421LO	00001811	.81	338.30
LO-CLAYMAX200R	200421LO	00001810	.81	338.30
LO-CLAYMAX200R	200421LO	00001809	.81	338.30
LO-CLAYMAX200R	200421LO	00001808	.81	338.30
LO-CLAYMAX200R	200421LO	00001807	.81	338.30
LO-CLAYMAX200R	200421LO	00001806	.81*	338.30
LO-CLAYMAX200R	200421LO	00001805	.83	338.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 OCT#FT2
5/25/04 12:43:26

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187959

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001783	.82	338.30
LO-CLAYMAX200R	200421LO	00001782	.82	338.30
LO-CLAYMAX200R	200421LO	00001781	.82	338.30
LO-CLAYMAX200R	200421LO	00001780	.82	338.30
LO-CLAYMAX200R	200421LO	00001779	.82	338.30
LO-CLAYMAX200R	200421LO	00001771	.81	354.70
LO-CLAYMAX200R	200421LO	00001770	.81	354.70
LO-CLAYMAX200R	200421LO	00001769	.81	354.70
LO-CLAYMAX200R	200421LO	00001768	.81	354.70
LO-CLAYMAX200R	200421LO	00001767	.81	354.70
LO-CLAYMAX200R	200421LO	00001757	.81	354.70
LO-CLAYMAX200R	200421LO	00001756	.81	354.70
LO-CLAYMAX200R	200421LO	00001755	.81*	354.70
LO-CLAYMAX200R	200421LO	00001754	.85	354.70
LO-CLAYMAX200R	200421LO	00001753	.85	354.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 OCT#FT2
6/09/04 10:32:25

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187958

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs/sqf ASTM D 5993	GRAB STRENGTH 75lbs mary MOD ASTM D 4632
LO-CLAYMAX200R	200421LO	00001784	.82	338.30
LO-CLAYMAX200R	200421LO	00001773	.82	338.30
LO-CLAYMAX200R	200421LO	00001772	.82*	338.30*
LO-CLAYMAX200R	200421LO	00001760	.81	354.70
LO-CLAYMAX200R	200421LO	00001759	.81	354.70
LO-CLAYMAX200R	200421LO	00001758	.81	354.70
LO-CLAYMAX200R	200421LO	00001752	.85	354.70
LO-CLAYMAX200R	200421LO	00001750	.85	354.70
LO-CLAYMAX200R	200421LO	00001749	.85	354.70
LO-CLAYMAX200R	200421LO	00001748	.85	354.70
LO-CLAYMAX200R	200421LO	00001747	.85	354.70
LO-CLAYMAX200R	200421LO	00001746	.85	354.70
LO-CLAYMAX200R	200421LO	00001745	.85	354.70
LO-CLAYMAX200R	200421LO	00001744	.85	354.70
LO-CLAYMAX200R	200421LO	00001743	.85	354.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/25/04 12:45:34 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187943

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001797	LO-CLAYMAX200R	150	2250	3033	2003136611		2002952886		051404G
00001798	LO-CLAYMAX200R	150	2250	3025	2003136611		2002952886		051404G
00001799	LO-CLAYMAX200R	150	2250	3026	2003136611		2002952886		051404G
00001800	LO-CLAYMAX200R	150	2250	3064	2003136611		2002952886		051404G
00001801	LO-CLAYMAX200R	150	2250	3069	2003136601		2002952886		051404G
00001802	LO-CLAYMAX200R	150	2250	3063	2003136601		2002952886		051404G
00001803	LO-CLAYMAX200R	150	2250	3068	2003136601		2002952886		051404G
00001804	LO-CLAYMAX200R	150	2250	3062	2003136601		2002952886		051404G
00001822	LO-CLAYMAX200R	150	2250	3066	2002961034		2002952889		051404H
00001823	LO-CLAYMAX200R	150	2250	3064	2002961034		2002952889		051404H
00001824	LO-CLAYMAX200R	150	2250	3065	2002961034		2002952889		051404H
00001825	LO-CLAYMAX200R	150	2250	3063	2002961034		2002952889		051404H
00001826	LO-CLAYMAX200R	150	2250	3068	2002961034		2002952889		051404H
00001827	LO-CLAYMAX200R	150	2250	3069	2002961034		2003136697		051404H
00001828	LO-CLAYMAX200R	150	2250	3064	2002961034		2003136697		051404H

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187957

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001761	LO-CLAYMAX200R	150	2250	3026	2002961031		2002961032		051404F
00001762	LO-CLAYMAX200R	150	2250	3020	2002961031		2002961032		051404F
00001763	LO-CLAYMAX200R	150	2250	3029	2002961031		2002961032		051404F
00001764	LO-CLAYMAX200R	150	2250	3033	2002961031		2002961032		051404F
00001765	LO-CLAYMAX200R	150	2250	3040	2002961031		2002952885		051404F
00001774	LO-CLAYMAX200R	150	2250	3028	2002958811		2002952885		051404G
00001775	LO-CLAYMAX200R	150	2250	3022	2002958811		2002952885		051404G
00001776	LO-CLAYMAX200R	150	2250	3038	2002958811		2002952885		051404G
00001777	LO-CLAYMAX200R	150	2250	3030	2002958811		2002952885		051404G
00001778	LO-CLAYMAX200R	150	2250	3033	2002958811		2002952885		051404G
00001785	LO-CLAYMAX200R	150	2250	3026	2002958811		2003136602		051404G
00001786	LO-CLAYMAX200R	150	2250	3018	2003136611		2003136602		051404G
00001787	LO-CLAYMAX200R	150	2250	3026	2003136611		2003136602		051404G
00001788	LO-CLAYMAX200R	150	2250	3035	2003136611		2003136602		051404G
00001789	LO-CLAYMAX200R	150	2250	3041	2003136611		2003136602		051404G

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187944

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001805	LO-CLAYMAX200R	150	2250	3061	2003136601		2002952886		051404G
00001806	LO-CLAYMAX200R	150	2250	3064	2003136601		2002952886		051404G
00001807	LO-CLAYMAX200R	150	2250	3067	2003136601		2002952886		051404G
00001808	LO-CLAYMAX200R	150	2250	3065	2003136601		2002952886		051404G
00001809	LO-CLAYMAX200R	150	2250	3062	2003136601		2002952886		051404G
00001810	LO-CLAYMAX200R	150	2250	3061	2003136601		2002952886		051404G
00001811	LO-CLAYMAX200R	150	2250	3069	2003136601		2002952886		051404G
00001830	LO-CLAYMAX200R	150	2250	3069	2002961034		2003136697		051404H
00001831	LO-CLAYMAX200R	150	2250	3067	2002961034		2003136697		051404H
00001833	LO-CLAYMAX200R	150	2250	3061	2002958812		2003136697		051404H
00001834	LO-CLAYMAX200R	150	2250	3058	2002958812		2003136697		051404H
00001836	LO-CLAYMAX200R	150	2250	3064	2002958812		2003136697		051404H
00001837	LO-CLAYMAX200R	150	2250	3069	2002958812		2003136697		051404H
00001838	LO-CLAYMAX200R	150	2250	3069	2002958812		2003136697		051404H
00001840	LO-CLAYMAX200R	150	2250	3065	2002958812		2003136697		051404H

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/25/04 12:43:26

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187959

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001753	LO-CLAYMAX200R	150	2250	3021	2002958806		2002961032		051404F
00001754	LO-CLAYMAX200R	150	2250	3022	2002958806		2002961032		051404F
00001755	LO-CLAYMAX200R	150	2250	3030	2002961031		2002961032		051404F
00001756	LO-CLAYMAX200R	150	2250	3029	2002961031		2002961032		051404F
00001757	LO-CLAYMAX200R	150	2250	3025	2002961031		2002961032		051404F
00001767	LO-CLAYMAX200R	150	2250	3023	2002961031		2002952885		051404F
00001768	LO-CLAYMAX200R	150	2250	3028	2002961031		2002952885		051404F
00001769	LO-CLAYMAX200R	150	2250	3024	2002961031		2002952885		051404F
00001770	LO-CLAYMAX200R	150	2250	3029	2002958811		2002952885		051404F
00001771	LO-CLAYMAX200R	150	2250	3031	2002958811		2002952885		051404F
00001779	LO-CLAYMAX200R	150	2250	3036	2002958811		2002952885		051404G
00001780	LO-CLAYMAX200R	150	2250	3026	2002958811		2003136602		051404G
00001781	LO-CLAYMAX200R	150	2250	3034	2002958811		2003136602		051404G
00001782	LO-CLAYMAX200R	150	2250	3039	2002958811		2003136602		051404G
00001783	LO-CLAYMAX200R	150	2250	3026	2002958811		2003136602		051404G

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

QCG#TF1 QCT#TF1
6/09/04 10:32:25

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187958

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00001743	LO-CLAYMAX200R	150	2250	3020	2002958806		2003009381		051404F
00001744	LO-CLAYMAX200R	150	2250	3026	2002958806		2003009381		051404F
00001745	LO-CLAYMAX200R	150	2250	3031	2002958806		2003009381		051404F
00001746	LO-CLAYMAX200R	150	2250	3028	2002958806		2003009381		051404F
00001747	LO-CLAYMAX200R	150	2250	3025	2002958806		2003009381		051404F
00001748	LO-CLAYMAX200R	150	2250	3026	2002958806		2003009381		051404F
00001749	LO-CLAYMAX200R	150	2250	3021	2002958806		2002961032		051404F
00001750	LO-CLAYMAX200R	150	2250	3033	2002958806		2002961032		051404F
00001752	LO-CLAYMAX200R	150	2250	3025	2002958806		2002961032		051404F
00001758	LO-CLAYMAX200R	150	2250	3019	2002961031		2002961032		051404F
00001759	LO-CLAYMAX200R	150	2250	3017	2002961031		2002961032		051404F
00001760	LO-CLAYMAX200R	150	2250	3021	2002961031		2002961032		051404F
00001772	LO-CLAYMAX200R	150	2250	3038	2002958811		2002952885		051404F
00001773	LO-CLAYMAX200R	150	2250	3035	2002958811		2002952885		051404G
00001784	LO-CLAYMAX200R	150	2250	3019	2002958811		2003136602		051404G

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

Bentomat DN

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY

1350 W. SHURE DRIVE
ARLINGTON HEIGHTS, IL 60004

PHONE: (847) 392-5800
FAX: (847) 506-6150

DETERMINATION OF THE COEFFICIENT OF FRICTION BY DIRECT SHEAR METHOD (ASTM D 5321)

Project Name: 2004 1st Quarter Periodic Shear Project No. periodic

Requested by: Jim Olsta Date: 5/26/2004

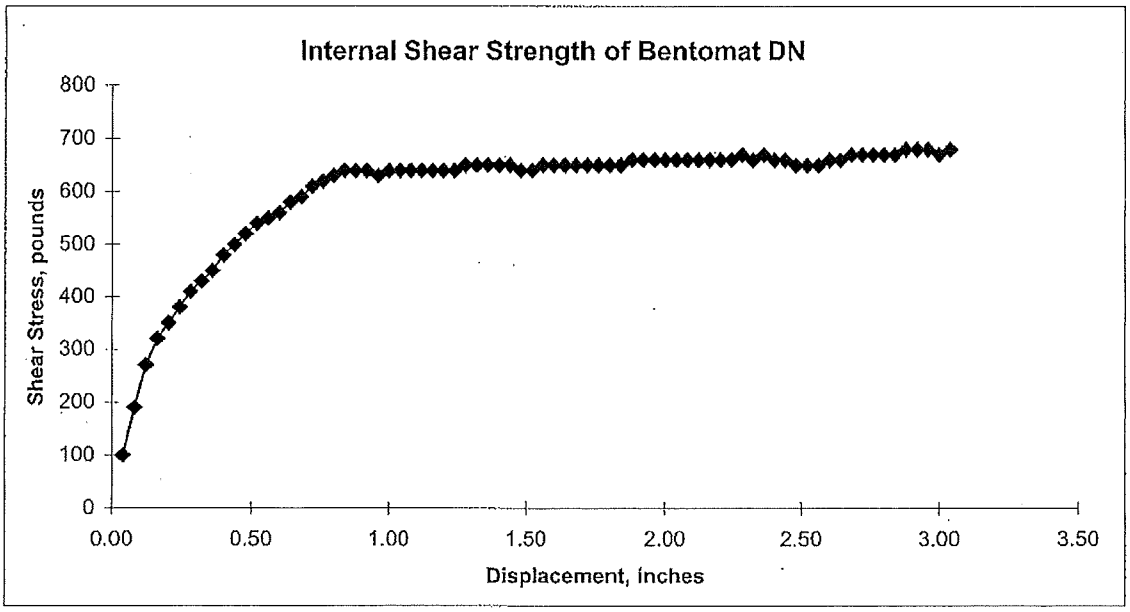
Analyst: N. Pietrowiak

TEST PARAMETERS:

Interface Tested:
Top Surface - Non-Woven side of Bentomat DN
Bottom Surface - Non-Woven Side of Bentomat DN
Shear Rate, in/min: 0.04
Shape of Specimen: Square
Lot#: 200402LO Roll#: 1
Hydration Time: 48 Hours @ Normal Load

TEST RESULTS:

Normal Stress,psf	Peak Stress,psf
200	680



The data and information contained herein is based upon accepted industry practice and standards. CETCO makes no warranty of any kind and accepts no responsibility for results obtained through application of this information.

File Name: 1st quarter

2004 WEEKLY QA DATA
BENTOMAT DN
Production Facility: Lovell, WY

Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)		Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)
1	No Production				27			
2	200402LO	3.6×10^{-9}	6.6×10^{-9}		28			
3	No Production				29			
4	No Production				30			
5	No Production				31			
6	No Production				32			
7	No Production				33			
8	200408LO	4.1×10^{-9}	8.0×10^{-9}		34			
9	200409LO	3.3×10^{-9}	6.3×10^{-9}		35			
10	200410LO				36			
11	200411LO				37			
12	200412LO	3.7×10^{-9}	7.0×10^{-9}		38			
13	No Production				39			
14	No Production				40			
15	200415LO	4.8×10^{-9}	9.1×10^{-9}		41			
16	200416LO	4.1×10^{-9}	9.0×10^{-9}		42			
17	200417LO	4.2×10^{-9}	8.2×10^{-9}		43			
18	200418LO	4.1×10^{-9}	8.9×10^{-9}		44			
19	200419LO	3.6×10^{-9}	7.8×10^{-9}		45			
20	200420LO	4.0×10^{-9}	8.6×10^{-9}		46			
21	200421LO	4.4×10^{-9}	9.6×10^{-9}		47			
22					48			
23	200423LO	4.4×10^{-9}	8.2×10^{-9}		49			
24					50			
25					51			
26					52			

All testing is performed according to ASTM D5887 using 5psi confining pressure and 2psi head pressure.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938
Ship Date:	5/25 -5/26

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:. 000187911
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.: AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200420LO	00002084	150.0	14.5	2175.0	2691.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002085	150.0	14.5	2175.0	2683.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002086	150.0	14.5	2175.0	2654.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002087	150.0	14.5	2175.0	2690.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002088	150.0	14.5	2175.0	2676.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002089	150.0	14.5	2175.0	2712.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002090	150.0	14.5	2175.0	2708.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002091	150.0	14.5	2175.0	2701.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002616	150.0	14.5	2175.0	2734.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002617	150.0	14.5	2175.0	2712.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002618	150.0	14.5	2175.0	2731.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002619	150.0	14.5	2175.0	2724.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002620	150.0	14.5	2175.0	2770.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002621	150.0	14.5	2175.0	2732.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002622	150.0	14.5	2175.0	2718.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002624	150.0	14.5	2175.0	2730.0
ORDER TOTALS.....							34800.0	43366.0
TOTAL ITEMS.....	16							

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 27, 2004
PO: 9656-00
Order #: 187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on 5/25 -5/26 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187929
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002838	150.0	14.5	2175.0	2650.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002839	150.0	14.5	2175.0	2643.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002840	150.0	14.5	2175.0	2628.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002841	150.0	14.5	2175.0	2623.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002842	150.0	14.5	2175.0	2614.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002843	150.0	14.5	2175.0	2624.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002844	150.0	14.5	2175.0	2630.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002845	150.0	14.5	2175.0	2606.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002846	150.0	14.5	2175.0	2604.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002847	150.0	14.5	2175.0	2611.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002848	150.0	14.5	2175.0	2650.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002849	150.0	14.5	2175.0	2642.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002850	150.0	14.5	2175.0	2621.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002851	150.0	14.5	2175.0	2616.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002852	150.0	14.5	2175.0	2618.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002853	150.0	14.5	2175.0	2616.0
ORDER TOTALS.....							34800.0	41996.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187930
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200420LO	00002092	150.0	14.5	2175.0	2675.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002093	150.0	14.5	2175.0	2660.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002094	150.0	14.5	2175.0	2654.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002095	150.0	14.5	2175.0	2630.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002096	150.0	14.5	2175.0	2636.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002097	150.0	14.5	2175.0	2620.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002098	150.0	14.5	2175.0	2645.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002099	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002100	150.0	14.5	2175.0	2655.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002101	150.0	14.5	2175.0	2651.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002102	150.0	14.5	2175.0	2649.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002103	150.0	14.5	2175.0	2676.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002104	150.0	14.5	2175.0	2635.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002105	150.0	14.5	2175.0	2631.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002106	150.0	14.5	2175.0	2687.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002107	150.0	14.5	2175.0	2697.0
ORDER TOTALS.....							34800.0	42426.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187932
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200420LO	00002108	150.0	14.5	2175.0	2730.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002109	150.0	14.5	2175.0	2722.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002110	150.0	14.5	2175.0	2709.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002111	150.0	14.5	2175.0	2704.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002112	150.0	14.5	2175.0	2746.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002113	150.0	14.5	2175.0	2735.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002114	150.0	14.5	2175.0	2745.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002115	150.0	14.5	2175.0	2742.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002116	150.0	14.5	2175.0	2709.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002117	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002118	150.0	14.5	2175.0	2732.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002119	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002120	150.0	14.5	2175.0	2689.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002121	150.0	14.5	2175.0	2769.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002122	150.0	14.5	2175.0	2704.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002123	150.0	14.5	2175.0	2695.0
ORDER TOTALS.....							34800.0	43530.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187934
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002625	150.0	14.5	2175.0	2733.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002626	150.0	14.5	2175.0	2726.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002627	150.0	14.5	2175.0	2719.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002628	150.0	14.5	2175.0	2740.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002629	150.0	14.5	2175.0	2731.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002630	150.0	14.5	2175.0	2730.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002631	150.0	14.5	2175.0	2725.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002632	150.0	14.5	2175.0	2724.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002633	150.0	14.5	2175.0	2721.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002634	150.0	14.5	2175.0	2722.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002635	150.0	14.5	2175.0	2698.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002636	150.0	14.5	2175.0	2750.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002637	150.0	14.5	2175.0	2680.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002638	150.0	14.5	2175.0	2730.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002639	150.0	14.5	2175.0	2734.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002642	150.0	14.5	2175.0	2726.0
ORDER TOTALS.....							34800.0	43589.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187935
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200420LO	00002138	150.0	14.5	2175.0	2504.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002139	150.0	14.5	2175.0	2495.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002140	150.0	14.5	2175.0	2489.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002141	150.0	14.5	2175.0	2504.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002142	150.0	14.5	2175.0	2500.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002585	150.0	14.5	2175.0	2750.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002586	150.0	14.5	2175.0	2726.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002587	150.0	14.5	2175.0	2710.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002588	150.0	14.5	2175.0	2738.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002596	150.0	14.5	2175.0	2773.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002597	150.0	14.5	2175.0	2779.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002598	150.0	14.5	2175.0	2789.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002854	150.0	14.5	2175.0	2634.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002855	150.0	14.5	2175.0	2657.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002856	150.0	14.5	2175.0	2658.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002857	150.0	14.5	2175.0	2670.0
ORDER TOTALS.....							34800.0	42376.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187936
ORDER DATE: 5/17/2004
SHIP DATE:. 5/26/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002748	150.0	14.5	2175.0	2604.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002790	150.0	14.5	2175.0	2688.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002791	150.0	14.5	2175.0	2671.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002792	150.0	14.5	2175.0	2680.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002793	150.0	14.5	2175.0	2681.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002794	150.0	14.5	2175.0	2670.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002795	150.0	14.5	2175.0	2636.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002796	150.0	14.5	2175.0	2650.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002797	150.0	14.5	2175.0	2684.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002798	150.0	14.5	2175.0	2682.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002803	150.0	14.5	2175.0	2657.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002804	150.0	14.5	2175.0	2654.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002805	150.0	14.5	2175.0	2641.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002806	150.0	14.5	2175.0	2690.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002807	150.0	14.5	2175.0	2660.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002808	150.0	14.5	2175.0	2663.0
ORDER TOTALS.....							34800.0	42611.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187937
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN	SFT SF	200421LO	00002640	150.0	14.5	2175.0	2749.0
LO-BENTOMAT DN	SFT SF	200421LO	00002641	150.0	14.5	2175.0	2738.0
LO-BENTOMAT DN	SFT SF	200421LO	00002643	150.0	14.5	2175.0	2755.0
LO-BENTOMAT DN	SFT SF	200421LO	00002644	150.0	14.5	2175.0	2748.0
LO-BENTOMAT DN	SFT SF	200421LO	00002645	150.0	14.5	2175.0	2721.0
LO-BENTOMAT DN	SFT SF	200421LO	00002646	150.0	14.5	2175.0	2707.0
LO-BENTOMAT DN	SFT SF	200421LO	00002647	150.0	14.5	2175.0	2718.0
LO-BENTOMAT DN	SFT SF	200421LO	00002648	150.0	14.5	2175.0	2743.0
LO-BENTOMAT DN	SFT SF	200421LO	00002649	150.0	14.5	2175.0	2721.0
LO-BENTOMAT DN	SFT SF	200421LO	00002650	150.0	14.5	2175.0	2716.0
LO-BENTOMAT DN	SFT SF	200421LO	00002651	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN	SFT SF	200421LO	00002652	150.0	14.5	2175.0	2849.0
LO-BENTOMAT DN	SFT SF	200421LO	00002653	150.0	14.5	2175.0	2735.0
LO-BENTOMAT DN	SFT SF	200421LO	00002654	150.0	14.5	2175.0	2709.0
LO-BENTOMAT DN	SFT SF	200421LO	00002655	150.0	14.5	2175.0	2731.0
LO-BENTOMAT DN	SFT SF	200421LO	00002656	150.0	14.5	2175.0	2715.0
ORDER TOTALS.....						34800.0	43755.0
TOTAL ITEMS.....	16						

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187938
ORDER DATE: 5/17/2004
SHIP DATE:. 5/26/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN	SFT SF	200421LO	00002809	150.0	14.5	2175.0	2717.0
LO-BENTOMAT DN	SFT SF	200421LO	00002810	150.0	14.5	2175.0	2693.0
LO-BENTOMAT DN	SFT SF	200421LO	00002813	150.0	14.5	2175.0	2673.0
LO-BENTOMAT DN	SFT SF	200421LO	00002814	150.0	14.5	2175.0	2653.0
LO-BENTOMAT DN	SFT SF	200421LO	00002815	150.0	14.5	2175.0	2647.0
LO-BENTOMAT DN	SFT SF	200421LO	00002816	150.0	14.5	2175.0	2649.0
LO-BENTOMAT DN	SFT SF	200421LO	00002817	150.0	14.5	2175.0	2654.0
LO-BENTOMAT DN	SFT SF	200421LO	00002818	150.0	14.5	2175.0	2630.0
LO-BENTOMAT DN	SFT SF	200421LO	00002822	150.0	14.5	2175.0	2640.0
LO-BENTOMAT DN	SFT SF	200421LO	00002823	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN	SFT SF	200421LO	00002858	150.0	14.5	2175.0	2674.0
LO-BENTOMAT DN	SFT SF	200421LO	00002859	150.0	14.5	2175.0	2676.0
LO-BENTOMAT DN	SFT SF	200421LO	00002862	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN	SFT SF	200421LO	00002863	150.0	14.5	2175.0	2683.0
LO-BENTOMAT DN	SFT SF	200421LO	00002864	150.0	14.5	2175.0	2694.0
LO-BENTOMAT DN	SFT SF	200421LO	00002867	150.0	14.5	2175.0	2680.0
ORDER TOTALS.....						34800.0	42673.0
TOTAL ITEMS.....	16						

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938
Ship Date:	5/25 -5/26

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938
Ship Date:	5/25 -5/26

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 06-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050604A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 06-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050604B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
1933	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR							
1934	2001917005	2033248	1006612	HH65L	10/14/2003	7.0	235	231							
1935	2001917009	2033248	1006612	HH65L	10/14/2003	6.5	201	260							
1936	2001917012	2033248	1006612	HH65L	10/14/2003	6.7	218	272							
1937	2001917015	2033248	1006612	HH65L	10/14/2003	6.4	174	213							
1938	2001917018	2033248	1006612	HH65L	10/14/2003	6.5	198	223							
1939	2001917271	2033248	1006612	HH65L	10/15/2003	6.7	217	256							
1940	2001917274	5033248	1006612	HH65L	10/15/2003	7.1	202	230							
1941	2001917277	2033248	1006612	HH65L	10/15/2003	7.2	222	227							
1942	2001917279	2033248	1006612	HH65L	10/15/2003	7.8	254	255							
1943	2001917284	2033248	1006612	HH65L	10/15/2003	6.8	231	227							
1944	2001917287	2033248	1006612	HH65L	10/15/2003	6.2	178	174							
1945	2001917290	2033248	1006612	HH65L	10/15/2003	7.6	223	246							
1946	2001917297	2033248	1006612	HH65L	10/15/2003	6.4	219	243							
1947	2001925025	2033248	1006612	HH65L	10/15/2003	6.9	231	235							
1948	2001925028	2033248	1006612	HH65L	10/15/2003	7.3	207	243							
1949	2002037033	2034771	1006612	HH65L	10/31/2003	7.5	228	267							
1950	2002037040	2034771	1006612	HH65L	10/31/2003	7.4	219	240							
1951	2002037045	2034771	1006612	HH65L	10/31/2003	6.8	203	224							
1952	2002037048	2034771	1006612	HH65L	10/31/2003	7.3	215	239							
1953	2002037051	2034771	1006612	HH65L	10/31/2003	6.6	203	208							
1954	2002037054	2034771	1006612	HH65L	10/31/2003	7.5	216	224							
1955	2002037057	2034771	1006612	HH65L	11/1/2003	7.6	207	247							
1956	2002037060	2034771	1006612	HH65L	11/1/2003	7.0	199	210							
1957	2002037063	2034771	1006612	HH65L	11/1/2003	6.5	177	197							
1958	2002037066	2034771	1006612	HH65L	11/1/2003	8.2	253	257							
1959	2002037070	2034771	1006612	HH65L	11/1/2003	6.3	200	228							
1960	2002037073	2034771	1006612	HH65L	11/1/2003	6.5	189	239							
1961	2002037076	2034771	1006612	HH65L	11/1/2003	7.2	227	238							
1962	2002037080	2034771	1006612	HH65L	11/1/2003	6.6	183	215							
1963	2002045803	2036166	1006612	HH65L	11/3/2003	6.5	170	181							
1964	2002045806	2036166	1006612	HH65L	11/3/2003	6.2	176	188							
1965	2002045809	2036166	1006612	HH65L	11/3/2003	7.0	213	220							
1966															
1967															
1968															
1969															
1970															
1971															
1972															
1973															
1974															
1975															
1976															
1977															
1978															

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION
Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
2175	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSCR	TENSMA							
2176	2003006296	2051118	1006612	HH65L	4/15/2004	8.0	215	236							
2177	2003006299	2051118	1006612	HH65L	4/15/2004	6.8	182	180							
2178	2003006302	2051118	1006612	HH65L	4/15/2004	6.4	174	167							
2179	2003006305	2051118	1006612	HH65L	4/16/2004	6.7	193	191							
2180	2003006308	2051118	1006612	HH65L	4/16/2004	6.6	187	173							
2181	2003006311	2051118	1006612	HH65L	4/16/2004	7.7	201	202							
2182	2003006316	2051118	1006612	HH65L	4/16/2004	6.0	174	175							
2183	2003006319	2051118	1006612	HH65L	4/16/2004	6.5	202	204							
2184	2003006323	2051118	1006612	HH65L	4/16/2004	6.9	199	198							
2185	2003006328	2051118	1006612	HH65L	4/19/2004	7.3	205	195							
2186	2003006331	2051118	1006612	HH65L	4/19/2004	7.1	198	185							
2187	3003006334	2051118	1006612	HH65L	4/19/2004	6.3	185	169							
2188	2003006338	2051118	1006612	HH65L	4/19/2004	7.0	207	189							
2189	2003006340	2051118	1006612	HH65L	4/19/2004	6.6	194	205							
2190	2003006344	2051118	1006612	HH65L	4/19/2004	7.3	228	192							
2191	2003006348	2051118	1006612	HH65L	4/19/2004	7.4	210	179							
2192	2003006352	2051118	1006612	HH65L	4/19/2004	7.1	190	165							
2193	2003006355	2051118	1006612	HH65L	4/19/2004	6.8	192	182							
2194	2003006358	2051118	1006612	HH65L	4/19/2004	6.5	198	194							
2195	2003024397	2051118	1006612	HH65L	4/20/2004	6.7	215	180							
2196															
2197															
2198															

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
2071	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR							
2072	2002390789	2040165	1006612	HH65L	12/29/2003	6.5	216	204							
2073	2002390790	2040165	1006612	HH65L	12/29/2003	6.3	177	196							
2074	2002390793	2040165	1006612	HH65L	12/29/2003	6.8	209	212							
2075	2002390797	2040165	1006612	HH65L	12/29/2003	7.1	186	246							
2076	2002390800	2040165	1006612	HH65L	12/29/2003	6.2	203	194							
2077	2002390804	2040165	1006612	HH65L	12/29/2003	6.2	198	200							
2078	2002390808	2040165	1006612	HH65L	12/29/2003	6.8	194	210							
2079	2002390812	2040165	1006612	HH65L	12/30/2003	6.5	212	232							
2080	2002390816	2040165	1006612	HH65L	12/30/2003	6.3	185	206							
2081	2002390819	2040165	1006612	HH65L	12/30/2003	6.1	195	193							
2082	2002390821	2040165	1006612	HH65L	12/30/2003	6.8	197	238							
2083	2002390824	2040165	1006612	HH65L	12/30/2003	6.4	204	187							
2084	2002390827	2040165	1006612	HH65L	12/30/2003	6.3	186	194							
2085	2002390831	2040165	1006612	HH65L	12/30/2003	6.4	194	181							
2086	2002390835	2040165	1006612	HH65L	12/30/2003	7.0	201	227							
2087	2002390839	2040165	1006612	HH65L	12/30/2003	6.4	206	209							
2088															
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COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187935

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLACK-DN-6OZ	052104NW1		6.4	295.4
LO-N/W-BLACK-DN-6OZ	052104NW2		6.3	196.9

TOTAL PAGES 1

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2246	2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230
2247	2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212
2248	2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210
2249	2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214
2250	2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205
2251	2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211
2252	2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215
2253	2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231
2254	2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188
2255	2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169
2256	2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207
2257	2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214
2258	2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216
2259	2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187
2260	2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189
2261	2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218
2262	2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193
2263	2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193
2264	2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203
2265	2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190
2266	2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196
2267	2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215
2268	2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259
2269	2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220
2270	2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225
2271	2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209
2272	2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200
2273	2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221
2274	2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215
2275	2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195
2276	2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213
2277	2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193
2278	2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163
2279	2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222
2280	2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226
2281	2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241
2282	2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216
2283	2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213
2284	2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199
2285	2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222
2286	2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194
2287	2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213
2288	2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212
2289	2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235
2290	2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**Colloid Environmental Technologies Co.**
PRODUCTION FACILITY:	**CETCO** **102 Conners Road** **Villa Rica, GA 30180**
CONTACT:	Debbie Bivins 404-459-4995
BRAND NAME:	Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938
Ship Date:	5/25 -5/26

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT DN product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCS#TF3 QCT#TF3
5/27/04 12:08:51

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL NY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187911

MATERIAL	LOT#	ROLL#	GEOTEXTILE	GRAB STRENGTH
			6.0oz/sy mv ASTM D 5261	6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200350VR	00003843	6.3	77.4
LO-N/W-WHITE-DN	200350VR	00003844	6.3	77.4
LO-N/W-WHITE-DN	200410VR	00000766	6.6	49.2

TOTAL PAGES 1

QCG#TF3 QCT#TF3
5/27/04 12:08:09

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187930

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000777	6.8	69.3
LO-N/W-WHITE-DN	200411VR	00000780	6.8	69.3

TOTAL PAGES 1

QCG#TF3 QCT#TF3
5/27/04 12:08:30

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187929

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000878	7.2	52.0
LO-N/W-WHITE-DN	200412VR	00000866	7.2	52.0
LO-N/W-WHITE-DN	200412VR	00000886	6.6	28.4

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:07:26 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187934

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200338VR	00002991	6.5	40.2
LO-N/W-WHITE-DN	200350VR	00003843	6.3	77.4
LO-N/W-WHITE-DN	200411VR	00000806	6.7	33.2

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:07:47 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187932

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000780	6.8	69.3
LO-N/W-WHITE-DN	200417VR	00001400	6.6	71.4

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:06:42 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187936

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200409VR	00000694	6.6	59.2
LO-N/W-WHITE-DN	200410VR	00000742	6.5	50.0
LO-N/W-WHITE-DN	200412VR	00000953	6.5	48.0
LO-N/W-WHITE-DN	200418VR	00001490	6.7	58.8

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:07:05 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187935

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200408VR	00000608	6.6	58.3
LO-N/W-WHITE-DN	200409VR	00000634	6.7	47.6
LO-N/W-WHITE-DN	200413VR	00001035	6.8	52.2
LO-N/W-WHITE-DN	200417VR	00001402	6.6	71.4
LO-N/W-WHITE-DN	200418VR	00001447	6.5	40.0

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:06:19 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187938

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/N-WHITE-DN	200410VR	00000742	6.5	50.0
LO-N/N-WHITE-DN	200411VR	00000874	6.6	49.0
LO-N/N-WHITE-DN	200412VR	00000884	6.6	28.4
LO-N/N-WHITE-DN	200413VR	00001035	6.8	52.2
LO-N/N-WHITE-DN	200413VR	00001086	6.6	67.1

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/27/04 12:05:54 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187937

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/N-WHITE-DN	200316VR	00002836	6.8	47.7
LO-N/N-WHITE-DN	200338VR	00002991	6.5	40.2
LO-N/N-WHITE-DN	200352VR	00003917	6.8	78.3

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187932

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-NW-WHITE-ST	051404NW1		6.9	72.3

QCG#FT2 QCT#FT2
5/27/04 12:08:51

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187911

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002624	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002622	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002621	.85*	373.20	37.60*
LO-BENTOMAT DN	200421LO	00002620	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002619	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002618	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002617	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002616	.89	373.20	30.30
LO-BENTOMAT DN	200420LO	00002091	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002090	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002089	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002088	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002087	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002086	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002085	.84*	290.60	44.20*
LO-BENTOMAT DN	200420LO	00002084	.89	290.60	37.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

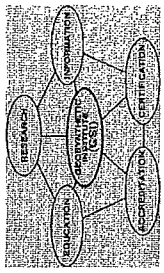
MANUFACTURING CERTIFICATION

Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187911, 187929, 187930, 187932, 187934, 187935, 187936, 187937, 187938
Ship Date: 5/25 -5/26

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
5/27/04 12:08:08

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187930

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200420LO	00002107	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002106	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002105	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002104	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002103	.92*	290.60	43.10*
LO-BENTOMAT DN	200420LO	00002102	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002101	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002100	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002099	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002098	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002097	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002096	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002095	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002094	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002093	.84	290.60	44.20
LO-BENTOMAT DN	200420LO	00002092	.84	290.60	44.20

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:08:30

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187929

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002853	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002852	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002851	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002850	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002849	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002848	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002847	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002846	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002845	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002844	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002843	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002842	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002841	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002840	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002839	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002838	.85	303.20	38.40

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:07:26

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187934

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002642	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002639	.84*	373.20	39.30*
LO-BENTOMAT DN	200421LO	00002638	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002637	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002636	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002635	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002634	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002633	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002632	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002631	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002630	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002629	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002628	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002627	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002626	.85	373.20	37.60
LO-BENTOMAT DN	200421LO	00002625	.85	373.20	37.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present. test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:07:47

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187932

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200420LO	00002123	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002122	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002121	.97*	290.60	33.80*
LO-BENTOMAT DN	200420LO	00002120	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002119	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002118	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002117	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002116	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002115	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002114	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002113	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002112	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002111	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002110	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002109	.92	290.60	43.10
LO-BENTOMAT DN	200420LO	00002108	.92	290.60	43.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present. test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:06:42

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187936

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002808	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002807	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002806	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002805	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002804	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002803	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002798	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002797	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002796	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002795	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002794	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002793	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002792	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002791	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002790	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002748	.91	286.20	45.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:07:05

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187935

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002857	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002856	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002855	.89*	367.40*	31.30*
LO-BENTOMAT DN	200421LO	00002854	.85	303.20	38.40
LO-BENTOMAT DN	200421LO	00002598	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002597	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002596	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002588	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002587	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002586	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002585	.87*	373.20*	28.90*
LO-BENTOMAT DN	200420LO	00002142	.84	282.00	33.50
LO-BENTOMAT DN	200420LO	00002141	.84	282.00	33.50
LO-BENTOMAT DN	200420LO	00002140	.84	282.00	33.50
LO-BENTOMAT DN	200420LO	00002139	.84*	282.00*	33.50*
LO-BENTOMAT DN	200420LO	00002138	.97	290.60	33.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:06:19

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187938

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002867	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002864	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002863	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002862	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002859	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002858	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002823	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002822	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002818	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002817	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002816	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002815	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002814	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002813	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002810	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002809	.92	303.20	36.90

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/27/04 12:05:54

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187937

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002656	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002655	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002654	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002653	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002652	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002651	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002650	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002649	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002648	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002647	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002646	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002645	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002644	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002643	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002641	.84	373.20	39.30
LO-BENTOMAT DN	200421LO	00002640	.84	373.20	39.30

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
5/27/04 12:08:50

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187911

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00002084	LO-BENTOMAT DN	150	2175	2691	200410VR	00000766	2003006304		050604A
00002085	LO-BENTOMAT DN	150	2175	2683	200410VR	00000766	2003006304		050604A
00002086	LO-BENTOMAT DN	150	2175	2654	200410VR	00000766	2001917012		050604A
00002087	LO-BENTOMAT DN	150	2175	2690	200410VR	00000766	2001917012		050604A
00002088	LO-BENTOMAT DN	150	2175	2676	200410VR	00000766	2001917012		050604A
00002089	LO-BENTOMAT DN	150	2175	2712	200410VR	00000766	2001917012		050604A
00002090	LO-BENTOMAT DN	150	2175	2708	200410VR	00000766	2001917012		050604A
00002091	LO-BENTOMAT DN	150	2175	2701	200410VR	00000766	2001917012		050604A
LOT# 200421LO									
00002616	LO-BENTOMAT DN	150	2175	2734	200350VR	00003844	2003006301		051304C
00002617	LO-BENTOMAT DN	150	2175	2712	200350VR	00003844	2003006301		051304C
00002618	LO-BENTOMAT DN	150	2175	2731	200350VR	00003844	2003006301		051304C
00002619	LO-BENTOMAT DN	150	2175	2724	200350VR	00003843	2003006301		051304C
00002620	LO-BENTOMAT DN	150	2175	2770	200350VR	00003843	2003006301		051304C
00002621	LO-BENTOMAT DN	150	2175	2732	200350VR	00003843	2003006301		051304C
00002622	LO-BENTOMAT DN	150	2175	2718	200350VR	00003843	2003024397		051304C
00002624	LO-BENTOMAT DN	150	2175	2730	200350VR	00003843	2003024397		051304C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
5/27/04 12:08:08

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187930

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00002092	LO-BENTOMAT DN	150	2175	2675	200411VR	00000777	2001917012		050604A
00002093	LO-BENTOMAT DN	150	2175	2660	200411VR	00000777	2001917012		050604A
00002094	LO-BENTOMAT DN	150	2175	2654	200411VR	00000777	2001917012		050604A
00002095	LO-BENTOMAT DN	150	2175	2630	200411VR	00000777	2001917012		050604A
00002096	LO-BENTOMAT DN	150	2175	2636	200411VR	00000777	2001917012		050604A
00002097	LO-BENTOMAT DN	150	2175	2620	200411VR	00000777	2001917012		050604A
00002098	LO-BENTOMAT DN	150	2175	2645	200411VR	00000777	2001917012		050604A
00002099	LO-BENTOMAT DN	150	2175	2625	200411VR	00000777	2001917012		050604A
00002100	LO-BENTOMAT DN	150	2175	2655	200411VR	00000780	2003024399		050604A
00002101	LO-BENTOMAT DN	150	2175	2651	200411VR	00000780	2003024399		050604A
00002102	LO-BENTOMAT DN	150	2175	2649	200411VR	00000780	2003024399		050604A
00002103	LO-BENTOMAT DN	150	2175	2676	200411VR	00000780	2003024399		050604A
00002104	LO-BENTOMAT DN	150	2175	2635	200411VR	00000780	2003024399		050604A
00002105	LO-BENTOMAT DN	150	2175	2631	200411VR	00000780	2003024399		050604A
00002106	LO-BENTOMAT DN	150	2175	2687	200411VR	00000780	2003024399		050604A
00002107	LO-BENTOMAT DN	150	2175	2697	200411VR	00000780	2003024399		050604A

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/27/04 12:08:30

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187929

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002838	LO-BENTOMAT DN	150	2175	2650	200411VR	00000878	2001917275		051404D
00002839	LO-BENTOMAT DN	150	2175	2643	200411VR	00000878	2001917275		051404D
00002840	LO-BENTOMAT DN	150	2175	2628	200411VR	00000878	2001917275		051404D
00002841	LO-BENTOMAT DN	150	2175	2623	200411VR	00000878	2001917275		051404D
00002842	LO-BENTOMAT DN	150	2175	2614	200411VR	00000878	2001917275		051404D
00002843	LO-BENTOMAT DN	150	2175	2624	200411VR	00000878	2001917275		051404D
00002844	LO-BENTOMAT DN	150	2175	2630	200411VR	00000878	2001917275		051404D
00002845	LO-BENTOMAT DN	150	2175	2606	200412VR	00000866	2001917275		051404D
00002846	LO-BENTOMAT DN	150	2175	2604	200412VR	00000866	2001917275		051404D
00002847	LO-BENTOMAT DN	150	2175	2611	200412VR	00000886	2001925030		051404D
00002848	LO-BENTOMAT DN	150	2175	2650	200412VR	00000886	2001925030		051404D
00002849	LO-BENTOMAT DN	150	2175	2642	200412VR	00000886	2001925030		051404D
00002850	LO-BENTOMAT DN	150	2175	2621	200412VR	00000886	2001925030		051404D
00002851	LO-BENTOMAT DN	150	2175	2616	200412VR	00000886	2001925030		051404D
00002852	LO-BENTOMAT DN	150	2175	2618	200412VR	00000886	2001925030		051404D
00002853	LO-BENTOMAT DN	150	2175	2616	200412VR	00000886	2001925030		051404D

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/27/04 12:07:26 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187934

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002625	LO-BENTOMAT DN	150	2175	2733	200350VR	00003843	2003024397		051304C
00002626	LO-BENTOMAT DN	150	2175	2726	200350VR	00003843	2003024397		051304D
00002627	LO-BENTOMAT DN	150	2175	2719	200411VR	00000806	2003024397		051304D
00002628	LO-BENTOMAT DN	150	2175	2740	200411VR	00000806	2003024397		051304D
00002629	LO-BENTOMAT DN	150	2175	2731	200411VR	00000806	2003024397		051304D
00002630	LO-BENTOMAT DN	150	2175	2730	200411VR	00000806	2003006307		051304D
00002631	LO-BENTOMAT DN	150	2175	2725	200411VR	00000806	2003006307		051304D
00002632	LO-BENTOMAT DN	150	2175	2724	200411VR	00000806	2003006307		051304D
00002633	LO-BENTOMAT DN	150	2175	2721	200338VR	00002991	2003006307		051304D
00002634	LO-BENTOMAT DN	150	2175	2722	200338VR	00002991	2003006307		051304D
00002635	LO-BENTOMAT DN	150	2175	2698	200338VR	00002991	2003006307		051304D
00002636	LO-BENTOMAT DN	150	2175	2750	200338VR	00002991	2003006307		051304D
00002637	LO-BENTOMAT DN	150	2175	2680	200338VR	00002991	2003006307		051304D
00002638	LO-BENTOMAT DN	150	2175	2730	200338VR	00002991	2003006307		051304D
00002639	LO-BENTOMAT DN	150	2175	2734	200338VR	00002991	2003006307		051304D
00002642	LO-BENTOMAT DN	150	2175	2726	200338VR	00002991	2003006307		051304D

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/27/04 12:07:47 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187932

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00002108	LO-BENTOMAT DN	150	2175	2730	200411VR	00000780	2003024399		050604A
00002109	LO-BENTOMAT DN	150	2175	2722	200417VR	00001400	2003024399		050604A
00002110	LO-BENTOMAT DN	150	2175	2709	200417VR	00001400	2003024399		050604A
00002111	LO-BENTOMAT DN	150	2175	2704	200417VR	00001400	2003024399		050604A
00002112	LO-BENTOMAT DN	150	2175	2746	200417VR	00001400	2003024399		050604A
00002113	LO-BENTOMAT DN	150	2175	2735	200417VR	00001400	2003024396		050604A
00002114	LO-BENTOMAT DN	150	2175	2745	200417VR	00001400	2003024396		050604A
00002115	LO-BENTOMAT DN	150	2175	2742	200417VR	00001400	2003024396		050604A
00002116	LO-BENTOMAT DN	150	2175	2709	200417VR	00001400	2003024396		050604A
00002117	LO-BENTOMAT DN	150	2175	2699	200417VR	00001400	2003024396		050604A
00002118	LO-BENTOMAT DN	150	2175	2732	051404NW1		2003024396		050604B
00002119	LO-BENTOMAT DN	150	2175	2700	051404NW1		2003024396		050604B
00002120	LO-BENTOMAT DN	150	2175	2689	051404NW1		2003024396		050604B
00002121	LO-BENTOMAT DN	150	2175	2769	051404NW1		2003024396		050604B
00002122	LO-BENTOMAT DN	150	2175	2704	051404NW1		2003024396		050604B
00002123	LO-BENTOMAT DN	150	2175	2695	051404NW1		2003024396		050604B

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/27/04 12:06:42

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187936

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002748	LO-BENTOMAT DN	150	2175	2604	200412VR	00000953	2003006312		051404B
00002790	LO-BENTOMAT DN	150	2175	2688	200409VR	00000694	2003180719		051404B
00002791	LO-BENTOMAT DN	150	2175	2671	200409VR	00000694	2003180719		051404C
00002792	LO-BENTOMAT DN	150	2175	2680	200409VR	00000694	2003180719		051404C
00002793	LO-BENTOMAT DN	150	2175	2681	200409VR	00000694	2003180719		051404C
00002794	LO-BENTOMAT DN	150	2175	2670	200409VR	00000694	2003180719		051404C
00002795	LO-BENTOMAT DN	150	2175	2636	200409VR	00000694	2003180719		051404C
00002796	LO-BENTOMAT DN	150	2175	2650	200418VR	00001490	2003006325		051404C
00002797	LO-BENTOMAT DN	150	2175	2684	200418VR	00001490	2003006325		051404C
00002798	LO-BENTOMAT DN	150	2175	2682	200418VR	00001490	2003006325		051404C
00002803	LO-BENTOMAT DN	150	2175	2657	200410VR	00000742	2003006325		051404C
00002804	LO-BENTOMAT DN	150	2175	2654	200410VR	00000742	2003006325		051404C
00002805	LO-BENTOMAT DN	150	2175	2641	200410VR	00000742	2003006325		051404C
00002806	LO-BENTOMAT DN	150	2175	2690	200410VR	00000742	2003006325		051404C
00002807	LO-BENTOMAT DN	150	2175	2660	200410VR	00000742	2003006325		051404C
00002808	LO-BENTOMAT DN	150	2175	2663	200410VR	00000742	2002037036		051404C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1
5/27/04 12:07:05

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187935

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00002138	LO-BENTOMAT DN	150	2175	2504	200417VR	00001402	2003006331		050604B
00002139	LO-BENTOMAT DN	150	2175	2495	200417VR	00001402	2003006331		050604B
00002140	LO-BENTOMAT DN	150	2175	2489	200417VR	00001402	2003006331		050604B
00002141	LO-BENTOMAT DN	150	2175	2504	200417VR	00001402	2003006331		050604B
00002142	LO-BENTOMAT DN	150	2175	2500	200417VR	00001402	2003006331		050604B
LOT# 200421LO									
00002585	LO-BENTOMAT DN	150	2175	2750	200408VR	00000608	052104NW1		051304C
00002586	LO-BENTOMAT DN	150	2175	2726	200408VR	00000608	052104NW1		051304C
00002587	LO-BENTOMAT DN	150	2175	2710	200408VR	00000608	052104NW1		051304C
00002588	LO-BENTOMAT DN	150	2175	2738	200409VR	00000634	052104NW1		051304C
00002596	LO-BENTOMAT DN	150	2175	2773	200418VR	00001447	052104NW1		051304C
00002597	LO-BENTOMAT DN	150	2175	2779	200418VR	00001447	2003006344		051304C
00002598	LO-BENTOMAT DN	150	2175	2789	200418VR	00001447	2003006344		051304C
00002854	LO-BENTOMAT DN	150	2175	2634	200413VR	00001035	2001925030		051404D
00002855	LO-BENTOMAT DN	150	2175	2657	200413VR	00001035	2001925030		051404D
00002856	LO-BENTOMAT DN	150	2175	2658	200413VR	00001035	2001925030		051404D
00002857	LO-BENTOMAT DN	150	2175	2670	200413VR	00001035	2001925030		051404D

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187938

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002809	LO-BENTOMAT DN	150	2175	2717	200410VR	00000742	2002037036		051404C
00002810	LO-BENTOMAT DN	150	2175	2693	200410VR	00000742	2002037036		051404C
00002813	LO-BENTOMAT DN	150	2175	2673	200411VR	00000874	2002037036		051404C
00002814	LO-BENTOMAT DN	150	2175	2653	200411VR	00000874	2002037036		051404C
00002815	LO-BENTOMAT DN	150	2175	2647	200411VR	00000874	2002037036		051404C
00002816	LO-BENTOMAT DN	150	2175	2649	200411VR	00000874	2002037036		051404C
00002817	LO-BENTOMAT DN	150	2175	2654	200411VR	00000874	2002037036		051404C
00002818	LO-BENTOMAT DN	150	2175	2630	200411VR	00000874	2002037036		051404C
00002822	LO-BENTOMAT DN	150	2175	2640	200413VR	00001086	2001925029		051404C
00002823	LO-BENTOMAT DN	150	2175	2625	200413VR	00001086	2001925029		051404C
00002858	LO-BENTOMAT DN	150	2175	2674	200413VR	00001035	2001925030		051404D
00002859	LO-BENTOMAT DN	150	2175	2676	200413VR	00001035	2001925030		051404D
00002862	LO-BENTOMAT DN	150	2175	2685	200413VR	00001035	2002390820		051404D
00002863	LO-BENTOMAT DN	150	2175	2683	200412VR	00000884	2002390820		051404D
00002864	LO-BENTOMAT DN	150	2175	2694	200412VR	00000884	2002390820		051404D
00002867	LO-BENTOMAT DN	150	2175	2680	200412VR	00000884	2002390820		051404D

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187937

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002640	LO-BENTOMAT DN	150	2175	2749	200338VR	00002991	2003006307		051304D
00002641	LO-BENTOMAT DN	150	2175	2738	200338VR	00002991	2003006307		051304D
00002643	LO-BENTOMAT DN	150	2175	2755	200336VR	00002836	2003006307		051304D
00002644	LO-BENTOMAT DN	150	2175	2748	200336VR	00002836	2003006330		051304D
00002645	LO-BENTOMAT DN	150	2175	2721	200336VR	00002836	2003006330		051304D
00002646	LO-BENTOMAT DN	150	2175	2707	200336VR	00002836	2003006330		051304D
00002647	LO-BENTOMAT DN	150	2175	2718	200336VR	00002836	2003006330		051304D
00002648	LO-BENTOMAT DN	150	2175	2743	200336VR	00002836	2003006330		051304D
00002649	LO-BENTOMAT DN	150	2175	2721	200336VR	00002836	2003006330		051304D
00002650	LO-BENTOMAT DN	150	2175	2716	200336VR	00002836	2003006330		051304D
00002651	LO-BENTOMAT DN	150	2175	2700	200336VR	00002836	2003006330		051304D
00002652	LO-BENTOMAT DN	150	2175	2849	200352VR	00003917	2003006343		051304D
00002653	LO-BENTOMAT DN	150	2175	2735	200352VR	00003917	2003006343		051304D
00002654	LO-BENTOMAT DN	150	2175	2709	200352VR	00003917	2003006343		051304D
00002655	LO-BENTOMAT DN	150	2175	2731	200352VR	00003917	2003006343		051304D
00002656	LO-BENTOMAT DN	150	2175	2715	200352VR	00003917	2003006343		051304D

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 28, 2004
PO: 9656-00
Order #: 187939

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on May 27, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187939
Ship Date:	27-May

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187939
ORDER DATE: 5/17/2004
SHIP DATE:. 5/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERICO LOGISTICS

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002736	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002737	150.0	14.5	2175.0	2687.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002738	150.0	14.5	2175.0	2688.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002745	150.0	14.5	2175.0	2633.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002746	150.0	14.5	2175.0	2605.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002747	150.0	14.5	2175.0	2626.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002751	150.0	14.5	2175.0	2617.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002757	150.0	14.5	2175.0	2655.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002758	150.0	14.5	2175.0	2662.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002760	150.0	14.5	2175.0	2640.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002766	150.0	14.5	2175.0	2655.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002774	150.0	14.5	2175.0	2703.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002781	150.0	14.5	2175.0	2727.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002782	150.0	14.5	2175.0	2733.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002783	150.0	14.5	2175.0	2723.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002802	150.0	14.5	2175.0	2664.0
ORDER TOTALS.....							34800.0	42703.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187939
Ship Date:	27-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

~~Sherri McArthur~~ Shaina Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187939
Ship Date:	27-May

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

~~Sherri McArthur~~ Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2175	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSCR	TENSMA							
2176	2003006296	2051118	1006612	HH65L	4/15/2004	8.0	215	236							
2177	2003006299	2051118	1006612	HH65L	4/15/2004	6.8	182	180							
2178	2003006302	2051118	1006612	HH65L	4/15/2004	6.4	174	167							
2179	2003006305	2051118	1006612	HH65L	4/16/2004	6.7	193	191							
2180	2003006308	2051118	1006612	HH65L	4/16/2004	6.6	187	173							
2181	2003006311	2051118	1006612	HH65L	4/16/2004	7.7	201	202							
2182	2003006316	2051118	1006612	HH65L	4/16/2004	6.0	174	175							
2183	2003006319	2051118	1006612	HH65L	4/16/2004	6.5	202	204							
2184	2003006323	2051118	1006612	HH65L	4/16/2004	6.9	199	198							
2185	2003006328	2051118	1006612	HH65L	4/19/2004	7.3	205	195							
2186	2003006331	2051118	1006612	HH65L	4/19/2004	7.1	198	185							
2187	3003006334	2051118	1006612	HH65L	4/19/2004	6.3	185	169							
2188	2003006338	2051118	1006612	HH65L	4/19/2004	7.0	207	189							
2189	2003006340	2051118	1006612	HH65L	4/19/2004	6.6	194	205							
2190	2003006344	2051118	1006612	HH65L	4/19/2004	7.3	228	192							
2191	2003006348	2051118	1006612	HH65L	4/19/2004	7.4	210	179							
2192	2003006352	2051118	1006612	HH65L	4/19/2004	7.1	190	165							
2193	2003006355	2051118	1006612	HH65L	4/19/2004	6.8	192	182							
2194	2003006358	2051118	1006612	HH65L	4/19/2004	6.5	198	194							
2195	2003024397	2051118	1006612	HH65L	4/20/2004	6.7	215	180							
2196															
2197															
2198															

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION
Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230
2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212
2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210
2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214
2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205
2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211
2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215
2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231
2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188
2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169
2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207
2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214
2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216
2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187
2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189
2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218
2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193
2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193
2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203
2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190
2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196
2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215
2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259
2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220
2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225
2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209
2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200
2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221
2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215
2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195
2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213
2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193
2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163
2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222
2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226
2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241
2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216
2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213
2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199
2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222
2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194
2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213
2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212
2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235
2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION FACILITY:
CETCO
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187939
Ship Date:	27-May

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT DN product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

~~Sheri McArthur~~ Shaina Vagle
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG$TF3 QCT$TF3 CETCO PAGE: 1
5/28/04 6:59:20 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187939

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200410VR	00000742	6.5	50.0
LO-N/W-WHITE-DN	200411VR	00000877	7.2	52.0
LO-N/W-WHITE-DN	200412VR	00000881	7.2	52.0
LO-N/W-WHITE-DN	200412VR	00000952	6.5	48.0
LO-N/W-WHITE-DN	200412VR	00000953	6.5	48.0
LO-N/W-WHITE-DN	200412VR	00000964	7.1	41.8
LO-N/W-WHITE-DN	200421VR	00001705	6.8	66.1

TOTAL PAGES 1

QCG#FT2 QCT#FT2
5/28/04 6:59:19

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187939

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002802	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002783	.92*	303.20	47.20*
LO-BENTOMAT DN	200421LO	00002782	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002781	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002774	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002766	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002760	.91	286.20	45.90
LO-BENTOMAT DN	200421LO	00002758	.91	286.20	45.90
LO-BENTOMAT DN	200421LO	00002757	.91	286.20	45.90
LO-BENTOMAT DN	200421LO	00002751	.91	286.20	45.90
LO-BENTOMAT DN	200421LO	00002747	.91*	286.20	45.90*
LO-BENTOMAT DN	200421LO	00002746	.86	286.20	43.00
LO-BENTOMAT DN	200421LO	00002745	.86	286.20	43.00
LO-BENTOMAT DN	200421LO	00002738	.86	286.20	43.00
LO-BENTOMAT DN	200421LO	00002737	.86	286.20	43.00
LO-BENTOMAT DN	200421LO	00002736	.86	286.20	43.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187939

Ship Date: 27-May

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF1 QCT#TF1
5/28/04 6:59:19

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187939

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002736	LO-BENTOMAT DN	150	2175	2685	200421VR	00001705	2003180721		051404A
00002737	LO-BENTOMAT DN	150	2175	2687	200421VR	00001705	2003180721		051404A
00002738	LO-BENTOMAT DN	150	2175	2688	200421VR	00001705	2003180721		051404A
00002745	LO-BENTOMAT DN	150	2175	2633	200412VR	00000953	2003006312		051404A
00002746	LO-BENTOMAT DN	150	2175	2605	200412VR	00000953	2003006312		051404B
00002747	LO-BENTOMAT DN	150	2175	2626	200412VR	00000953	2003006312		051404B
00002751	LO-BENTOMAT DN	150	2175	2617	200412VR	00000964	2003006312		051404B
00002757	LO-BENTOMAT DN	150	2175	2655	200412VR	00000964	2003180709		051404B
00002758	LO-BENTOMAT DN	150	2175	2662	200412VR	00000964	2003180709		051404B
00002760	LO-BENTOMAT DN	150	2175	2640	200411VR	00000877	2003180709		051404B
00002766	LO-BENTOMAT DN	150	2175	2655	200411VR	00000877	2003180709		051404B
00002774	LO-BENTOMAT DN	150	2175	2703	200412VR	00000952	2003180720		051404B
00002781	LO-BENTOMAT DN	150	2175	2727	200412VR	00000881	2003180719		051404B
00002782	LO-BENTOMAT DN	150	2175	2733	200412VR	00000881	2003180719		051404B
00002783	LO-BENTOMAT DN	150	2175	2723	200412VR	00000881	2003180719		051404B
00002802	LO-BENTOMAT DN	150	2175	2664	200410VR	00000742	2003006325		051404C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 3, 2004
PO: 9656-00
Order #: 187940, 187941, 187942

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on June 2, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187940, 187941, 187942
Ship Date:	2-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187940
ORDER DATE: 5/17/2004
SHIP DATE:. 6/02/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200423LO	00002887	150.0	14.5	2175.0	2703.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002888	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002889	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002890	150.0	14.5	2175.0	2599.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002897	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002898	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002899	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002900	150.0	14.5	2175.0	2692.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002901	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002907	150.0	14.5	2175.0	2690.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002908	150.0	14.5	2175.0	2601.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002909	150.0	14.5	2175.0	2613.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002910	150.0	14.5	2175.0	2620.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002911	150.0	14.5	2175.0	2611.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002934	150.0	14.5	2175.0	2605.0
ORDER TOTALS.....							32625.0	39908.0
TOTAL ITEMS.....	15							

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187941
ORDER DATE: 5/17/2004
SHIP DATE:. 6/02/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT SF	200421LO	00002734	150.0	14.5	2175.0	2683.0
LO-BENTOMAT DN		SFT SF	200421LO	00002735	150.0	14.5	2175.0	2684.0
LO-BENTOMAT DN		SFT SF	200421LO	00002777	150.0	14.5	2175.0	2686.0
LO-BENTOMAT DN		SFT SF	200421LO	00002778	150.0	14.5	2175.0	2710.0
LO-BENTOMAT DN		SFT SF	200421LO	00002779	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT SF	200421LO	00002780	150.0	14.5	2175.0	2696.0
LO-BENTOMAT DN		SFT SF	200423LO	00002871	150.0	14.5	2175.0	2691.0
LO-BENTOMAT DN		SFT SF	200423LO	00002872	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN		SFT SF	200423LO	00002873	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT SF	200423LO	00002874	150.0	14.5	2175.0	2692.0
LO-BENTOMAT DN		SFT SF	200423LO	00002875	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT SF	200423LO	00002876	150.0	14.5	2175.0	2690.0
LO-BENTOMAT DN		SFT SF	200423LO	00002885	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT SF	200423LO	00002896	150.0	14.5	2175.0	2680.0
LO-BENTOMAT DN		SFT SF	200423LO	00002906	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT SF	200423LO	00002915	150.0	14.5	2175.0	2615.0
ORDER TOTALS.....							34800.0	43002.0

TOTAL ITEMS..... 16

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187942
ORDER DATE: 5/17/2004
SHIP DATE:. 6/02/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT SF	200423LO	00002916	150.0	14.5	2175.0	2612.0
LO-BENTOMAT DN		SFT SF	200423LO	00002917	150.0	14.5	2175.0	2615.0
LO-BENTOMAT DN		SFT SF	200423LO	00002918	150.0	14.5	2175.0	2610.0
LO-BENTOMAT DN		SFT SF	200423LO	00002919	150.0	14.5	2175.0	2622.0
LO-BENTOMAT DN		SFT SF	200423LO	00002920	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN		SFT SF	200423LO	00002923	150.0	14.5	2175.0	2600.0
LO-BENTOMAT DN		SFT SF	200423LO	00002924	150.0	14.5	2175.0	2606.0
LO-BENTOMAT DN		SFT SF	200423LO	00002925	150.0	14.5	2175.0	2601.0
LO-BENTOMAT DN		SFT SF	200423LO	00002926	150.0	14.5	2175.0	2611.0
LO-BENTOMAT DN		SFT SF	200423LO	00002927	150.0	14.5	2175.0	2620.0
LO-BENTOMAT DN		SFT SF	200423LO	00002928	150.0	14.5	2175.0	2618.0
LO-BENTOMAT DN		SFT SF	200423LO	00002929	150.0	14.5	2175.0	2616.0
LO-BENTOMAT DN		SFT SF	200423LO	00002930	150.0	14.5	2175.0	2613.0
LO-BENTOMAT DN		SFT SF	200423LO	00002931	150.0	14.5	2175.0	2617.0
LO-BENTOMAT DN		SFT SF	200423LO	00002932	150.0	14.5	2175.0	2614.0
LO-BENTOMAT DN		SFT SF	200423LO	00002933	150.0	14.5	2175.0	2620.0
ORDER TOTALS.....							34800.0	41820.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187940, 187941, 187942
Ship Date:	2-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187940, 187941, 187942
Ship Date:	2-Jun

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052104B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052104C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**SI Geosolutions**
PRODUCTION Facility:	**SI Corporation** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Jack Rooke
Brand Name:	HH65L

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2246	2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230
2247	2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212
2248	2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210
2249	2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214
2250	2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205
2251	2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211
2252	2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215
2253	2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231
2254	2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188
2255	2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169
2256	2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207
2257	2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214
2258	2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216
2259	2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187
2260	2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189
2261	2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218
2262	2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193
2263	2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193
2264	2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203
2265	2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190
2266	2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196
2267	2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215
2268	2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259
2269	2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220
2270	2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225
2271	2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209
2272	2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200
2273	2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221
2274	2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215
2275	2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195
2276	2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213
2277	2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193
2278	2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163
2279	2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222
2280	2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226
2281	2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241
2282	2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216
2283	2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213
2284	2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199
2285	2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222
2286	2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194
2287	2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213
2288	2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212
2289	2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235
2290	2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	BURST	ELONGC	ELONGM	TENSCR	TENSMA	THICK	TTEARC	TTEARM
2200	2002957700	2051124	1004557	650	4/7/2004	5.8		130	113	83	62	143		
2201	2002957714	2051124	1004557	650	4/8/2004	6.6		95	98	162	89	146		
2202	2002957719	2051124	1004557	650	4/8/2004	7.1		131	136	126	77	161		
2203	2002957725	2051124	1004557	650	4/8/2004	6.6		122	133	118	91	156		
2204	2003055334	2051122	1004557	650	4/23/2004	7.2	210	135	124	117	78	155	38	35
2205	2003055339	2051122	1004557	650	4/23/2004	7.0	201	116	125	99	76	151	41	32
2206	2003055344	2051122	1004557	650	4/26/2004	6.9	257	121	117	108	75	163		
2207	2003055349	2051122	1004557	650	4/26/2004	7.6	250	118	121	119	81	164		
2208	2003055353	2051122	1004557	650	4/26/2004	7.6	250	132	125	129	91	170	47	45

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2003180763	2052354	1006612	HH65L	5/14/2004	6.7	179	225
2003180767	2052354	1006612	HH65L	5/15/2004	6.6	170	
2003180769	2052354	1006612	HH65L	5/15/2004	6.4	183	
2003180771	2052354	1006612	HH65L	5/15/2004	6.4	156	
2003180772	2052354	1006612	HH65L	5/15/2004	6.9	199	
2003180773	2052354	1006612	HH65L	5/15/2004	6.7	193	
2003180776	2052354	1006612	HH65L	5/15/2004	6.4	175	203
2003180779	2052354	1006612	HH65L	5/15/2004	6.5	178	210
2003180783	2052354	1006612	HH65L	5/15/2004	7.0	166	236
2003180788	2052354	1006612	HH65L	5/15/2004	7.1	175	233
2003180793	2055218	1006612	HH65L	5/17/2004	8.2	206	237
2003180797	2055218	1006612	HH65L	5/17/2004	6.9	170	221
2003180800	2055218	1006612	HH65L	5/17/2004	6.6	182	235
2003180803	2055218	1006612	HH65L	5/17/2004	6.7	167	224
2003180806	2055218	1006612	HH65L	5/17/2004	6.6	168	200
2003180808	2055218	1006612	HH65L	5/17/2004	7.0	183	245
2003180810	2055218	1006612	HH65L	5/17/2004	7.2	190	233
2003180813	2055218	1006612	HH65L	5/17/2004	7.4	161	242
2003180816	2055218	1006612	HH65L	5/17/2004	7.4	205	261
2003180820	2055218	1006612	HH65L	5/17/2004	6.9	177	223
2003180824	2055218	1006612	HH65L	5/17/2004	7.1	197	247
2003180828	2055218	1006612	HH65L	5/18/2004	6.4	174	229
2003180831	2055218	1006612	HH65L	5/18/2004	7.0	176	229
2003180834	2055218	1006612	HH65L	5/18/2004	6.6	162	210
2003180837	2055218	1006612	HH65L	5/18/2004	6.6	163	235
2003180840	2055218	1006612	HH65L	5/18/2004	7.2	181	233
2003180843	2055218	1006612	HH65L	5/18/2004	6.2	176	222
2003180847	2055218	1006612	HH65L	5/18/2004	6.1	170	213
2003180855	2055218	1006612	HH65L	5/18/2004	6.8	185	223
2003180857	2055218	1006612	HH65L	5/18/2004	6.6	165	216
2003180861	2055218	1006612		5/18/2004	7.0	163	216
2003180864	2055218	1006612	HH65L	5/19/2004	6.4	164	188
2003180867	2055218	1006612	HH65L	5/19/2004	6.8	166	224
2003180870	2055218	1006612	HH65L	5/19/2004	6.6	168	222
2003231117	2055218	1006612	HH65L	5/19/2004	6.5	177	230
2003231534	2055218	1006612	HH65L	5/20/2004	6.9	160	235

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187940, 187941, 187942
Ship Date:	2-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT DN** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF3 QCT#TF3
6/03/04 11:58:10

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187941

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200412VR	00000881	7.2	52.0
LO-N/W-WHITE-DN	200412VR	00000952	6.5	48.0
LO-N/W-WHITE-DN	200413VR	00001070	6.6	65.9
LO-N/W-WHITE-DN	200413VR	00001075	6.6	65.9
LO-N/W-WHITE-DN	200414VR	00001090	7.0	56.4
LO-N/W-WHITE-DN	200421VR	00001705	6.8	66.1
LO-N/W-WHITE-DN	200422VR	00001810	6.5	44.1
LO-N/W-WHITE-DN	200422VR	00001865	7.0	96.9
LO-N/W-WHITE-DN	200422VR	00001875	7.0	98.9

TOTAL PAGES 1

QCG#TF3 QCT#TF3
6/03/04 11:58:38

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187940

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200413VR	00001070	6.6	65.9
LO-N/W-WHITE-DN	200414VR	00001090	7.0	56.4
LO-N/W-WHITE-DN	200420VR	00001597	6.8	79.7
LO-N/W-WHITE-DN	200420VR	00001599	6.8	79.7

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TF3 QCT#TF3 CETCO PAGE: 1
6/03/04 11:57:38 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187942

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200420VR	00001597	6.8	79.7
LO-N/W-WHITE-DN	200422VR	00001810	6.5	44.1
LO-N/W-WHITE-DN	200422VR	00001872	7.0	98.9

TOTAL PAGES 1

QCG#FT2 6/03/04 QCT#FT2 11:58:38

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187940

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200423LO	00002934	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002911	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002910	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002909	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002908	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002907	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002901	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002900	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002899	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002898	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002897	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002890	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002889	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002888	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002887	.85	281.80	27.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

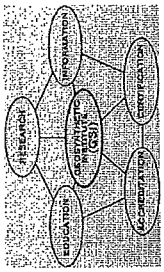
MANUFACTURING CERTIFICATION

Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187940, 187941, 187942
Ship Date: 2-Jun

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
6/03/04 11:57:37

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187942

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA ,75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200423LO	00002933	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002932	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002931	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002930	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002929	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002928	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002927	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002926	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002925	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002924	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002923	.84	281.80	39.60
LO-BENTOMAT DN	200423LO	00002920	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002919	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002918	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002917	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002916	.98	281.80	34.70

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
6/03/04 11:58:09

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187941

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA ,75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200423LO	00002915	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002906	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002896	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002885	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002876	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002875	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002874	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002873	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002872	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002871	.89	281.80	36.80
LO-BENTOMAT DN	200421LO	00002780	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002779	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002778	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002777	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002735	.86	286.20	43.00
LO-BENTOMAT DN	200421LO	00002734	.86	286.20	43.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/03/04 11:58:38

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187940

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200423LO									
00002887	LO-BENTOMAT DN	150	2175	2703	200413VR	00001070	2003231523		052104B
00002888	LO-BENTOMAT DN	150	2175	2700	200413VR	00001070	2003231523		052104B
00002889	LO-BENTOMAT DN	150	2175	2695	200413VR	00001070	2003231523		052104B
00002890	LO-BENTOMAT DN	150	2175	2599	200413VR	00001070	2003231523		052104B
00002897	LO-BENTOMAT DN	150	2175	2685	200420VR	00001599	2003180753		052104B
00002898	LO-BENTOMAT DN	150	2175	2699	200420VR	00001599	2003180753		052104B
00002899	LO-BENTOMAT DN	150	2175	2700	200420VR	00001599	2003180753		052104B
00002900	LO-BENTOMAT DN	150	2175	2692	200420VR	00001599	2003180753		052104B
00002901	LO-BENTOMAT DN	150	2175	2695	200420VR	00001599	2003180753		052104B
00002907	LO-BENTOMAT DN	150	2175	2690	200414VR	00001090	2003180758		052104B
00002908	LO-BENTOMAT DN	150	2175	2601	200414VR	00001090	2003180758		052104C
00002909	LO-BENTOMAT DN	150	2175	2613	200414VR	00001090	2003180758		052104C
00002910	LO-BENTOMAT DN	150	2175	2620	200414VR	00001090	2003180758		052104C
00002911	LO-BENTOMAT DN	150	2175	2611	200414VR	00001090	2003180758		052104C
00002934	LO-BENTOMAT DN	150	2175	2605	200420VR	00001597	2003180791		052104C

TOTAL SQUARE FEET..... 32,625

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
6/03/04 11:57:37

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187942

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200423LO									
00002916	LO-BENTOMAT DN	150	2175	2612	200422VR	00001810	2003180758		052104C
00002917	LO-BENTOMAT DN	150	2175	2615	200422VR	00001810	2003180758		052104C
00002918	LO-BENTOMAT DN	150	2175	2610	200422VR	00001810	2003180758		052104C
00002919	LO-BENTOMAT DN	150	2175	2622	200422VR	00001810	2003180765		052104C
00002920	LO-BENTOMAT DN	150	2175	2625	200422VR	00001810	2003180765		052104C
00002923	LO-BENTOMAT DN	150	2175	2600	200422VR	00001872	2003180765		052104C
00002924	LO-BENTOMAT DN	150	2175	2606	200422VR	00001872	2003180765		052104C
00002925	LO-BENTOMAT DN	150	2175	2601	200422VR	00001872	2003180765		052104C
00002926	LO-BENTOMAT DN	150	2175	2611	200422VR	00001872	2003180765		052104C
00002927	LO-BENTOMAT DN	150	2175	2620	200422VR	00001872	2003180765		052104C
00002928	LO-BENTOMAT DN	150	2175	2618	200422VR	00001872	2003180765		052104C
00002929	LO-BENTOMAT DN	150	2175	2616	200422VR	00001872	2003180765		052104C
00002930	LO-BENTOMAT DN	150	2175	2613	200420VR	00001597	2003180765		052104C
00002931	LO-BENTOMAT DN	150	2175	2617	200420VR	00001597	2003180765		052104C
00002932	LO-BENTOMAT DN	150	2175	2614	200420VR	00001597	2003180765		052104C
00002933	LO-BENTOMAT DN	150	2175	2620	200420VR	00001597	2003180791		052104C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1
6/03/04 11:58:09

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187941

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002734	LO-BENTOMAT DN	150	2175	2683	200421VR	00001705	2003180721		051404A
00002735	LO-BENTOMAT DN	150	2175	2684	200421VR	00001705	2003180721		051404A
00002777	LO-BENTOMAT DN	150	2175	2686	200412VR	00000952	2003180720		051404B
00002778	LO-BENTOMAT DN	150	2175	2710	200412VR	00000881	2003180720		051404B
00002779	LO-BENTOMAT DN	150	2175	2695	200412VR	00000881	2003180720		051404B
00002780	LO-BENTOMAT DN	150	2175	2696	200412VR	00000881	2003180720		051404B
LOT# 200423LO									
00002871	LO-BENTOMAT DN	150	2175	2691	200413VR	00001075	2003231522		052104B
00002872	LO-BENTOMAT DN	150	2175	2685	200413VR	00001075	2003231522		052104B
00002873	LO-BENTOMAT DN	150	2175	2700	200413VR	00001075	2003231522		052104B
00002874	LO-BENTOMAT DN	150	2175	2692	200422VR	00001875	2003231522		052104B
00002875	LO-BENTOMAT DN	150	2175	2695	200422VR	00001875	2003231522		052104B
00002876	LO-BENTOMAT DN	150	2175	2690	200422VR	00001875	2003231522		052104B
00002885	LO-BENTOMAT DN	150	2175	2700	200413VR	00001070	2003231523		052104B
00002896	LO-BENTOMAT DN	150	2175	2680	200422VR	00001865	2003180753		052104B
00002906	LO-BENTOMAT DN	150	2175	2700	200414VR	00001090	2003180758		052104B
00002915	LO-BENTOMAT DN	150	2175	2615	200422VR	00001810	2003180758		052104C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 10, 2004
PO: 9656-00
Order #: 187961

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on June 9, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

A Wholly Owned Subsidiary of AMCOL International Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187961
Ship Date:	9-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187961
ORDER DATE: 5/17/2004
SHIP DATE:. 6/09/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002756	150.0	14.5	2175.0	2644.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002868	150.0	14.5	2175.0	2620.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002870	150.0	14.5	2175.0	2680.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002881	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002882	150.0	14.5	2175.0	2680.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002883	150.0	14.5	2175.0	2693.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002884	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002894	150.0	14.5	2175.0	2675.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002895	150.0	14.5	2175.0	2685.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002904	150.0	14.5	2175.0	2701.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002905	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002913	150.0	14.5	2175.0	2621.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002914	150.0	14.5	2175.0	2618.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002921	150.0	14.5	2175.0	2612.0
LO-BENTOMAT DN		SFT	SF 200423LO	00002922	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN		SFT	SF 200423LO	00003006	150.0	14.5	2175.0	2610.0
ORDER TOTALS.....							34800.0	42543.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187961
Ship Date:	9-Jun

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187961
Ship Date:	9-Jun

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052104B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052104C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052104E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **SI Geosolutions**

PRODUCTION

Facility: **SI Corporation**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

	A	B	C	D	E	F	G	H
1					SI® Geosolutions			
2291	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2292	2003180763	2052354	1006612	HH65L	5/14/2004	6.7	179	225
2293	2003180767	2052354	1006612	HH65L	5/15/2004	6.6	170	
2294	2003180769	2052354	1006612	HH65L	5/15/2004	6.4	183	
2295	2003180771	2052354	1006612	HH65L	5/15/2004	6.4	156	
2296	2003180772	2052354	1006612	HH65L	5/15/2004	6.9	199	
2297	2003180773	2052354	1006612	HH65L	5/15/2004	6.7	193	
2298	2003180776	2052354	1006612	HH65L	5/15/2004	6.4	175	203
2299	2003180779	2052354	1006612	HH65L	5/15/2004	6.5	178	210
2300	2003180783	2052354	1006612	HH65L	5/15/2004	7.0	166	236
2301	2003180788	2052354	1006612	HH65L	5/15/2004	7.1	175	233
2302	2003180793	2055218	1006612	HH65L	5/17/2004	8.2	206	237
2303	2003180797	2055218	1006612	HH65L	5/17/2004	6.9	170	221
2304	2003180800	2055218	1006612	HH65L	5/17/2004	6.6	182	235
2305	2003180803	2055218	1006612	HH65L	5/17/2004	6.7	167	224
2306	2003180806	2055218	1006612	HH65L	5/17/2004	6.6	168	200
2307	2003180808	2055218	1006612	HH65L	5/17/2004	7.0	183	245
2308	2003180810	2055218	1006612	HH65L	5/17/2004	7.2	190	233
2309	2003180813	2055218	1006612	HH65L	5/17/2004	7.4	161	242
2310	2003180816	2055218	1006612	HH65L	5/17/2004	7.4	205	261
2311	2003180820	2055218	1006612	HH65L	5/17/2004	6.9	177	223
2312	2003180824	2055218	1006612	HH65L	5/17/2004	7.1	197	247
2313	2003180828	2055218	1006612	HH65L	5/18/2004	6.4	174	229
2314	2003180831	2055218	1006612	HH65L	5/18/2004	7.0	176	229
2315	2003180834	2055218	1006612	HH65L	5/18/2004	6.6	162	210
2316	2003180837	2055218	1006612	HH65L	5/18/2004	6.6	163	235
2317	2003180840	2055218	1006612	HH65L	5/18/2004	7.2	181	233
2318	2003180843	2055218	1006612	HH65L	5/18/2004	6.2	176	222
2319	2003180847	2055218	1006612	HH65L	5/18/2004	6.1	170	213
2320	2003180855	2055218	1006612	HH65L	5/18/2004	6.8	185	223
2321	2003180857	2055218	1006612	HH65L	5/18/2004	6.6	165	216
2322	2003180861	2055218	1006612		5/18/2004	7.0	163	216
2323	2003180864	2055218	1006612	HH65L	5/19/2004	6.4	164	188
2324	2003180867	2055218	1006612	HH65L	5/19/2004	6.8	166	224
2325	2003180870	2055218	1006612	HH65L	5/19/2004	6.6	168	222
2326	2003231117	2055218	1006612	HH65L	5/19/2004	6.5	177	230
2327	2003231534	2055218	1006612	HH65L	5/20/2004	6.9	160	235

	A	B	C	D	E	F	G	H
1					SI® Geosolutions			
2245	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2246	2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230
2247	2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212
2248	2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210
2249	2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214
2250	2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205
2251	2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211
2252	2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215
2253	2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231
2254	2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188
2255	2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169
2256	2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207
2257	2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214
2258	2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216
2259	2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187
2260	2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189
2261	2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218
2262	2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193
2263	2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193
2264	2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203
2265	2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190
2266	2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196
2267	2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215
2268	2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259
2269	2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220
2270	2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225
2271	2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209
2272	2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200
2273	2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221
2274	2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215
2275	2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195
2276	2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213
2277	2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193
2278	2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163
2279	2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222
2280	2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226
2281	2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241
2282	2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216
2283	2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213
2284	2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199
2285	2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222
2286	2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194
2287	2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213
2288	2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212
2289	2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235
2290	2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187961
Ship Date:	9-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT DN** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (**CETCO**)

QCGRTP3 QCRTP3 CETCO PAGE: 1
6/10/04 10:21:36 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187961

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	20041227R	000003964	7.1	41.8
LO-N/W-WHITE-DN	20041327R	000001070	6.6	65.9
LO-N/W-WHITE-DN	20041327R	000001075	6.6	65.9
LO-N/W-WHITE-DN	20041327R	000001076	7.0	59.4
LO-N/W-WHITE-DN	20041327R	000001599	6.8	79.7
LO-N/W-WHITE-DN	20042227R	000001857	7.0	56.8
LO-N/W-WHITE-DN	20042227R	000001865	7.0	96.9
LO-N/W-WHITE-DN	20042227R	000001872	7.0	98.9
LO-N/W-WHITE-DN	20042227R	000001875	7.0	98.9

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

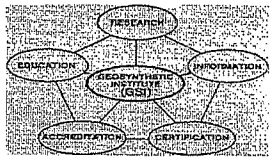
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187961
Ship Date:	9-Jun

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF1 QCT#TF1
6/10/04 10:21:37

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187961

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002756	LO-BENTOMAT DN	150	2175	2644	200412VR	00000964	2003180709		051404B
LOT# 200423LO									
00002868	LO-BENTOMAT DN	150	2175	2620	200413VR	00001075	2003231522		052104B
00002870	LO-BENTOMAT DN	150	2175	2680	200413VR	00001075	2003231522		052104B
00002881	LO-BENTOMAT DN	150	2175	2685	200422VR	00001875	2003231523		052104B
00002882	LO-BENTOMAT DN	150	2175	2680	200422VR	00001875	2003231523		052104B
00002883	LO-BENTOMAT DN	150	2175	2693	200413VR	00001070	2003231523		052104B
00002884	LO-BENTOMAT DN	150	2175	2695	200413VR	00001070	2003231523		052104B
00002894	LO-BENTOMAT DN	150	2175	2675	200422VR	00001865	2003180753		052104B
00002895	LO-BENTOMAT DN	150	2175	2685	200422VR	00001865	2003180753		052104B
00002904	LO-BENTOMAT DN	150	2175	2701	200420VR	00001599	2003180753		052104B
00002905	LO-BENTOMAT DN	150	2175	2699	200414VR	00001090	2003180753		052104B
00002913	LO-BENTOMAT DN	150	2175	2621	200414VR	00001090	2003180758		052104C
00002914	LO-BENTOMAT DN	150	2175	2618	200414VR	00001090	2003180758		052104C
00002921	LO-BENTOMAT DN	150	2175	2612	200422VR	00001872	2003180765		052104C
00002922	LO-BENTOMAT DN	150	2175	2625	200422VR	00001872	2003180765		052104C
00003006	LO-BENTOMAT DN	150	2175	2610	200422VR	00001857	2003180819		052104E

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#FT2 QCT#FT2
6/10/04 10:21:37

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187961

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 160lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200423LO	00003006	.97	280.30	51.10
LO-BENTOMAT DN	200423LO	00002922	.84*	281.80	39.60*
LO-BENTOMAT DN	200423LO	00002921	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002914	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002913	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002905	.98	281.80	34.70
LO-BENTOMAT DN	200423LO	00002904	.99*	281.80	34.70*
LO-BENTOMAT DN	200423LO	00002895	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002894	.85	281.80	27.80
LO-BENTOMAT DN	200423LO	00002884	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002883	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002882	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002881	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002870	.89	281.80	36.80
LO-BENTOMAT DN	200423LO	00002868	.89	281.80*	36.80*
LO-BENTOMAT DN	200421LO	00002756	.91	286.20	45.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 22, 2004
PO: 9656-00
Order #: 187927

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmens@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on May 21, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmens@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187927
Ship Date:	21-May

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187927
ORDER DATE: 5/17/2004
SHIP DATE:. 5/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002594	150.0	14.5	2175.0	2757.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002595	150.0	14.5	2175.0	2766.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002599	150.0	14.5	2175.0	2777.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002600	150.0	14.5	2175.0	2792.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002602	150.0	14.5	2175.0	2805.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002603	150.0	14.5	2175.0	2817.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002604	150.0	14.5	2175.0	2719.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002605	150.0	14.5	2175.0	2774.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002606	150.0	14.5	2175.0	2758.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002607	150.0	14.5	2175.0	2737.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002610	150.0	14.5	2175.0	2730.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002611	150.0	14.5	2175.0	2735.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002612	150.0	14.5	2175.0	2712.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002613	150.0	14.5	2175.0	2718.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002614	150.0	14.5	2175.0	2720.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002615	150.0	14.5	2175.0	2708.0
ORDER TOTALS.....							34800.0	44025.0
TOTAL ITEMS.....	16							

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187927
Ship Date:	21-May

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Sheri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187927
Ship Date:	21-May

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: AMERICAN COLLOID COMPANY

PRODUCTION

Facility: AMERICAN COLLOID COMPANY
92 HWY. 37
Lovell, WY 82431

Contact: Moses Briseno
Quality Assurance Coordinator
(800)-322-1160

Brand Name: CG 50

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2175	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSCR	TENSMA							
2176	2003006296	2051118	1006612	HH65L	4/15/2004	8.0	215	236							
2177	2003006299	2051118	1006612	HH65L	4/15/2004	6.8	182	180							
2178	2003006302	2051118	1006612	HH65L	4/15/2004	6.4	174	167							
2179	2003006305	2051118	1006612	HH65L	4/16/2004	6.7	193	191							
2180	2003006308	2051118	1006612	HH65L	4/16/2004	6.6	187	173							
2181	2003006311	2051118	1006612	HH65L	4/16/2004	7.7	201	202							
2182	2003006316	2051118	1006612	HH65L	4/16/2004	6.0	174	175							
2183	2003006319	2051118	1006612	HH65L	4/16/2004	6.5	202	204							
2184	2003006323	2051118	1006612	HH65L	4/16/2004	6.9	199	198							
2185	2003006328	2051118	1006612	HH65L	4/19/2004	7.3	205	195							
2186	2003006331	2051118	1006612	HH65L	4/19/2004	7.1	198	185							
2187	3003006334	2051118	1006612	HH65L	4/19/2004	6.3	185	169							
2188	2003006338	2051118	1006612	HH65L	4/19/2004	7.0	207	189							
2189	2003006340	2051118	1006612	HH65L	4/19/2004	6.6	194	205							
2190	2003006344	2051118	1006612	HH65L	4/19/2004	7.3	228	192							
2191	2003006348	2051118	1006612	HH65L	4/19/2004	7.4	210	179							
2192	2003006352	2051118	1006612	HH65L	4/19/2004	7.1	190	165							
2193	2003006355	2051118	1006612	HH65L	4/19/2004	6.8	192	182							
2194	2003006358	2051118	1006612	HH65L	4/19/2004	6.5	198	194							
2195	2003024397	2051118	1006612	HH65L	4/20/2004	6.7	215	180							
2196															
2197															
2198															

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION
Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187927

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLACK-DN-6OZ	052104NW1		6.4	295.4

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187927
Ship Date:	21-May

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT DN product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TF3 QCT#TF3
5/22/04 7:22:14

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187927

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200350VR	00003807	6.6	66.0
LO-N/W-WHITE-DN	200350VR	00003844	6.3	77.4
LO-N/W-WHITE-DN	200403VR	00000147	6.6	49.7
LO-N/W-WHITE-DN	200418VR	00001447	6.5	40.0

TOTAL PAGES 1

OCG#FT2 OCT#FT2
5/22/04 7:22:13

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187927

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002615	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002614	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002613	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002612	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002611	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002610	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002607	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002606	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002605	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002604	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002603	.89*	373.20	30.30*
LO-BENTOMAT DN	200421LO	00002602	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002600	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002599	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002595	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002594	.87	373.20	28.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40.000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

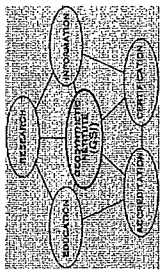
Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187927

Ship Date: 21-May

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Sherri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF1 QCT#TF1
5/22/04 7:22:13

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187927

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 20042	1LO								
00002594	LO-BENTOMAT DN	150	2175	2757	200418VR	00001447	052104NW1		051304C
00002595	LO-BENTOMAT DN	150	2175	2766	200418VR	00001447	052104NW1		051304C
00002599	LO-BENTOMAT DN	150	2175	2777	200418VR	00001447	2003006344		051304C
00002600	LO-BENTOMAT DN	150	2175	2792	200403VR	00000147	2003006344		051304C
00002602	LO-BENTOMAT DN	150	2175	2805	200403VR	00000147	2003006344		051304C
00002603	LO-BENTOMAT DN	150	2175	2817	200403VR	00000147	2003006344		051304C
00002604	LO-BENTOMAT DN	150	2175	2719	200403VR	00000147	2003006344		051304C
00002605	LO-BENTOMAT DN	150	2175	2774	200350VR	00003807	2003006344		051304C
00002606	LO-BENTOMAT DN	150	2175	2758	200350VR	00003807	2003006344		051304C
00002607	LO-BENTOMAT DN	150	2175	2737	200350VR	00003807	2003006344		051304C
00002610	LO-BENTOMAT DN	150	2175	2732	200350VR	00003807	2003006344		051304C
00002611	LO-BENTOMAT DN	150	2175	2735	200350VR	00003807	2003006301		051304C
00002612	LO-BENTOMAT DN	150	2175	2712	200350VR	00003807	2003006301		051304C
00002613	LO-BENTOMAT DN	150	2175	2718	200350VR	00003807	2003006301		051304C
00002614	LO-BENTOMAT DN	150	2175	2720	200350VR	00003807	2003006301		051304C
00002615	LO-BENTOMAT DN	150	2175	2708	200350VR	00003844	2003006301		051304C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 24, 2004
PO: 9656-00
Order #: 187928, 187931, 187933, 187992

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on May 22, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187928, 187931, 187933, 187992
Ship Date:	22-May

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187928
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002681	150.0	14.5	2175.0	2710.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002682	150.0	14.5	2175.0	2714.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002684	150.0	14.5	2175.0	2748.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002825	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002826	150.0	14.5	2175.0	2682.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002827	150.0	14.5	2175.0	2659.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002828	150.0	14.5	2175.0	2677.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002829	150.0	14.5	2175.0	2655.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002830	150.0	14.5	2175.0	2653.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002831	150.0	14.5	2175.0	2649.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002832	150.0	14.5	2175.0	2633.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002833	150.0	14.5	2175.0	2644.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002834	150.0	14.5	2175.0	2637.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002835	150.0	14.5	2175.0	2666.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002836	150.0	14.5	2175.0	2655.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002837	150.0	14.5	2175.0	2658.0
ORDER TOTALS.....							34800.0	42740.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187931
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002691	150.0	14.5	2175.0	2714.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002692	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002693	150.0	14.5	2175.0	2697.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002694	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002695	150.0	14.5	2175.0	2695.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002696	150.0	14.5	2175.0	2673.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002697	150.0	14.5	2175.0	2672.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002698	150.0	14.5	2175.0	2678.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002699	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002700	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002701	150.0	14.5	2175.0	2628.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002702	150.0	14.5	2175.0	2660.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002703	150.0	14.5	2175.0	2671.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002704	150.0	14.5	2175.0	2677.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002705	150.0	14.5	2175.0	2681.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002754	150.0	14.5	2175.0	2617.0
ORDER TOTALS.....							34800.0	42788.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187933
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002665	150.0	14.5	2175.0	2739.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002666	150.0	14.5	2175.0	2726.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002667	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002669	150.0	14.5	2175.0	2707.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002670	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002671	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002672	150.0	14.5	2175.0	2700.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002673	150.0	14.5	2175.0	2721.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002674	150.0	14.5	2175.0	2728.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002675	150.0	14.5	2175.0	2744.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002676	150.0	14.5	2175.0	2745.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002677	150.0	14.5	2175.0	2739.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002678	150.0	14.5	2175.0	2744.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002679	150.0	14.5	2175.0	2719.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002680	150.0	14.5	2175.0	2706.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002683	150.0	14.5	2175.0	2728.0
ORDER TOTALS.....							34800.0	43544.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187992
ORDER DATE: 5/17/2004
SHIP DATE:. 5/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF	200421LO	00002589	150.0	14.5	2175.0	2747.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002591	150.0	14.5	2175.0	2719.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002592	150.0	14.5	2175.0	2739.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002593	150.0	14.5	2175.0	2785.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002601	150.0	14.5	2175.0	2780.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002608	150.0	14.5	2175.0	2725.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002609	150.0	14.5	2175.0	2728.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002685	150.0	14.5	2175.0	2729.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002686	150.0	14.5	2175.0	2740.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002687	150.0	14.5	2175.0	2721.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002689	150.0	14.5	2175.0	2739.0
LO-BENTOMAT DN		SFT	SF	200421LO	00002690	150.0	14.5	2175.0	2732.0
ORDER TOTALS.....								26100.0	32884.0

TOTAL ITEMS..... 12

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187928, 187931, 187933, 187992
Ship Date:	22-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187928, 187931, 187933, 187992
Ship Date:	22-May

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **13-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **051304C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304E
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H
1					SI® Geosolutions			
1933	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
1934	2001917005	2033248	1006612	HH65L	10/14/2003	7.0	235	231
1935	2001917009	2033248	1006612	HH65L	10/14/2003	6.5	201	250
1936	2001917012	2033248	1006612	HH65L	10/14/2003	6.7	218	272
1937	2001917015	2033248	1006612	HH65L	10/14/2003	6.4	174	213
1938	2001917018	2033248	1006612	HH65L	10/14/2003	6.5	198	223
1939	2001917271	2033248	1006612	HH65L	10/15/2003	6.7	217	256
1940	2001917274	5033248	1006612	HH65L	10/15/2003	7.1	202	230
1941	2001917277	2033248	1006612	HH65L	10/15/2003	7.2	222	227
1942	2001917279	2033248	1006612	HH65L	10/15/2003	7.8	254	255
1943	2001917284	2033248	1006612	HH65L	10/15/2003	6.8	231	227
1944	2001917287	2033248	1006612	HH65L	10/15/2003	6.2	178	174
1945	2001917290	2033248	1006612	HH65L	10/15/2003	7.6	223	246
1946	2001917297	2033248	1006612	HH65L	10/15/2003	6.4	219	243
1947	2001925025	2033248	1006612	HH65L	10/15/2003	6.9	231	235
1948	2001925028	2033248	1006612	HH65L	10/15/2003	7.3	207	243
1949	2002037033	2034771	1006612	HH65L	10/31/2003	7.5	228	267
1950	2002037040	2034771	1006612	HH65L	10/31/2003	7.4	219	240
1951	2002037045	2034771	1006612	HH65L	10/31/2003	6.8	203	224
1952	2002037048	2034771	1006612	HH65L	10/31/2003	7.3	215	239
1953	2002037051	2034771	1006612	HH65L	10/31/2003	6.6	203	208
1954	2002037054	2034771	1006612	HH65L	10/31/2003	7.5	216	224
1955	2002037057	2034771	1006612	HH65L	11/1/2003	7.6	207	247
1956	2002037060	2034771	1006612	HH65L	11/1/2003	7.0	199	210
1957	2002037063	2034771	1006612	HH65L	11/1/2003	6.5	177	197
1958	2002037066	2034771	1006612	HH65L	11/1/2003	8.2	253	257
1959	2002037070	2034771	1006612	HH65L	11/1/2003	6.3	200	228
1960	2002037073	2034771	1006612	HH65L	11/1/2003	6.5	189	239
1961	2002037076	2034771	1006612	HH65L	11/1/2003	7.2	227	238
1962	2002037080	2034771	1006612	HH65L	11/1/2003	6.6	183	215
1963	2002045803	2036166	1006612	HH65L	11/3/2003	6.5	170	181
1964	2002045806	2036166	1006612	HH65L	11/3/2003	6.2	176	188
1965	2002045809	2036166	1006612	HH65L	11/3/2003	7.0	213	220
1966								
1967								
1968								
1969								
1970								
1971								
1972								
1973								
1974								
1975								
1976								
1977								
1978								

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION
Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
2245	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR							
2246	2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230							
2247	2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212							
2248	2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210							
2249	2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214							
2250	2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205							
2251	2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211							
2252	2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215							
2253	2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231							
2254	2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188							
2255	2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169							
2256	2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207							
2257	2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214							
2258	2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216							
2259	2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187							
2260	2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189							
2261	2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218							
2262	2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193							
2263	2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193							
2264	2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203							
2265	2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190							
2266	2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196							
2267	2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215							
2268	2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259							
2269	2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220							
2270	2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225							
2271	2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209							
2272	2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200							
2273	2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221							
2274	2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215							
2275	2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195							
2276	2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213							
2277	2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193							
2278	2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163							
2279	2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222							
2280	2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226							
2281	2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241							
2282	2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216							
2283	2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213							
2284	2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199							
2285	2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222							
2286	2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194							
2287	2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213							
2288	2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212							
2289	2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235							
2290	2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
2175	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSCR	TENSMA							
2176	2003006296	2051118	1006612	HH65L	4/15/2004	8.0	215	236							
2177	2003006299	2051118	1006612	HH65L	4/15/2004	6.8	182	180							
2178	2003006302	2051118	1006612	HH65L	4/15/2004	6.4	174	167							
2179	2003006305	2051118	1006612	HH65L	4/16/2004	6.7	193	191							
2180	2003006308	2051118	1006612	HH65L	4/16/2004	6.6	187	173							
2181	2003006311	2051118	1006612	HH65L	4/16/2004	7.7	201	202							
2182	2003006316	2051118	1006612	HH65L	4/16/2004	6.0	174	175							
2183	2003006319	2051118	1006612	HH65L	4/16/2004	6.5	202	204							
2184	2003006323	2051118	1006612	HH65L	4/16/2004	6.9	199	198							
2185	2003006328	2051118	1006612	HH65L	4/19/2004	7.3	205	195							
2186	2003006331	2051118	1006612	HH65L	4/19/2004	7.1	198	185							
2187	3003006334	2051118	1006612	HH65L	4/19/2004	6.3	185	169							
2188	2003006338	2051118	1006612	HH65L	4/19/2004	7.0	207	189							
2189	2003006340	2051118	1006612	HH65L	4/19/2004	6.6	194	205							
2190	2003006344	2051118	1006612	HH65L	4/19/2004	7.3	228	192							
2191	2003006348	2051118	1006612	HH65L	4/19/2004	7.4	210	179							
2192	2003006352	2051118	1006612	HH65L	4/19/2004	7.1	190	165							
2193	2003006355	2051118	1006612	HH65L	4/19/2004	6.8	192	182							
2194	2003006358	2051118	1006612	HH65L	4/19/2004	6.5	198	194							
2195	2003024397	2051118	1006612	HH65L	4/20/2004	6.7	215	180							
2196															
2197															
2198															

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187933

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLACK-DN-6OZ	052104NW1		6.4	295.4
LO-N/W-BLACK-DN-6OZ	052104NW2		6.3	196.9

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187928, 187931, 187933, 187992
Ship Date:	22-May

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT DN product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/23/04 16:58:01 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187931

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000859	6.7	38.6
LO-N/W-WHITE-DN	200411VR	00000873	6.6	49.0
LO-N/W-WHITE-DN	200412VR	00000883	6.6	28.4
LO-N/W-WHITE-DN	200412VR	00000964	7.1	41.8

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/23/04 16:58:30 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187928

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000860	6.7	38.6
LO-N/W-WHITE-DN	200411VR	00000878	7.2	52.0
LO-N/W-WHITE-DN	200413VR	00001086	6.6	67.1
LO-N/W-WHITE-DN	200420VR	00001686	6.9	80.9

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/23/04 16:57:02 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187992

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200350VR	00003807	6.6	66.0
LO-N/W-WHITE-DN	200403VR	00000147	6.6	49.7
LO-N/W-WHITE-DN	200409VR	00000634	6.7	47.6
LO-N/W-WHITE-DN	200411VR	00000860	6.7	38.6
LO-N/W-WHITE-DN	200412VR	00000883	6.6	28.4

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
5/23/04 16:57:32 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187933

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200411VR	00000858	6.7	38.6
LO-N/W-WHITE-DN	200411VR	00000860	6.7	38.6
LO-N/W-WHITE-DN	200411VR	00000867	6.7	43.4

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

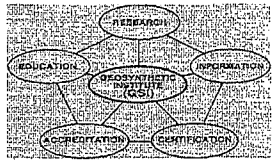
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187928, 187931, 187933, 187992
Ship Date:	22-May

CETCO hereby affirms and certifies that the BENTOMAT DN material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
5/23/04 16:58:01

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187931

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002754	.91	286.20	45.90
LO-BENTOMAT DN	200421LO	00002705	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002704	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002703	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002702	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002701	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002700	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002699	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002698	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002697	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002696	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002695	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002694	.79	286.20	45.30
LO-BENTOMAT DN	200421LO	00002693	.75*	286.20	45.30*
LO-BENTOMAT DN	200421LO	00002692	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002691	.90	288.20	35.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/23/04 16:58:30

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187928

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 160lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002837	.85*	303.20	38.40*
LO-BENTOMAT DN	200421LO	00002836	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002835	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002834	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002833	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002832	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002831	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002830	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002829	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002828	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002827	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002826	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002825	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002684	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002682	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002681	.90	286.20	35.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/23/04 16:57:01

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187992

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002690	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002689	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002687	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002686	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002685	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002609	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002608	.89	373.20	30.30
LO-BENTOMAT DN	200421LO	00002601	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002593	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002592	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002591	.87	373.20	28.90
LO-BENTOMAT DN	200421LO	00002589	.87	373.20	28.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/23/04 16:57:32

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187933

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002683	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002680	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002679	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002678	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002677	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002676	.90	286.20	35.00
LO-BENTOMAT DN	200421LO	00002675	.90*	286.20*	35.00*
LO-BENTOMAT DN	200421LO	00002674	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002673	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002672	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002671	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002670	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002669	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002667	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002666	.90	373.20	42.40
LO-BENTOMAT DN	200421LO	00002665	.90	373.20	42.40

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG3TF1 QCT#TF1
5/23/04 16:58:30

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187928

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002681	LO-BENTOMAT DN	150	2175	2710	200411VR	00000860	2003006342		051304E
00002682	LO-BENTOMAT DN	150	2175	2714	200411VR	00000860	2003006342		051304E
00002684	LO-BENTOMAT DN	150	2175	2748	200411VR	00000860	2003024395		051304E
00002825	LO-BENTOMAT DN	150	2175	2700	200413VR	00001086	2001925029		051404C
00002826	LO-BENTOMAT DN	150	2175	2682	200413VR	00001086	2001925029		051404C
00002827	LO-BENTOMAT DN	150	2175	2659	200413VR	00001086	2001925029		051404C
00002828	LO-BENTOMAT DN	150	2175	2677	200413VR	00001086	2001925029		051404C
00002829	LO-BENTOMAT DN	150	2175	2655	200420VR	00001686	2001925029		051404C
00002830	LO-BENTOMAT DN	150	2175	2653	200420VR	00001686	2001925029		051404C
00002831	LO-BENTOMAT DN	150	2175	2649	200420VR	00001686	2001925029		051404C
00002832	LO-BENTOMAT DN	150	2175	2633	200420VR	00001686	2001925029		051404C
00002833	LO-BENTOMAT DN	150	2175	2644	200420VR	00001686	2001925029		051404C
00002834	LO-BENTOMAT DN	150	2175	2637	200420VR	00001686	2001917275		051404C
00002835	LO-BENTOMAT DN	150	2175	2666	200420VR	00001686	2001917275		051404C
00002836	LO-BENTOMAT DN	150	2175	2655	200411VR	00000878	2001917275		051404C
00002837	LO-BENTOMAT DN	150	2175	2658	200411VR	00000878	2001917275		051404C

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/23/04 16:57:32 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187933

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002665	LO-BENTOMAT DN	150	2175	2739	200411VR	00000858	052104NM2		051304D
00002666	LO-BENTOMAT DN	150	2175	2726	200411VR	00000858	052104NM2		051304D
00002667	LO-BENTOMAT DN	150	2175	2700	200411VR	00000858	052104NM2		051304D
00002669	LO-BENTOMAT DN	150	2175	2707	200411VR	00000867	052104NM2		051304D
00002670	LO-BENTOMAT DN	150	2175	2699	200411VR	00000867	052104NM2		051304D
00002671	LO-BENTOMAT DN	150	2175	2699	200411VR	00000867	2003006342		051304D
00002672	LO-BENTOMAT DN	150	2175	2700	200411VR	00000867	2003006342		051304D
00002673	LO-BENTOMAT DN	150	2175	2721	200411VR	00000867	2003006342		051304E
00002674	LO-BENTOMAT DN	150	2175	2728	200411VR	00000867	2003006342		051304E
00002675	LO-BENTOMAT DN	150	2175	2744	200411VR	00000867	2003006342		051304E
00002676	LO-BENTOMAT DN	150	2175	2745	200411VR	00000867	2003006342		051304E
00002677	LO-BENTOMAT DN	150	2175	2739	200411VR	00000867	2003006342		051304E
00002678	LO-BENTOMAT DN	150	2175	2744	200411VR	00000860	2003006342		051304E
00002679	LO-BENTOMAT DN	150	2175	2719	200411VR	00000860	2003006342		051304E
00002680	LO-BENTOMAT DN	150	2175	2706	200411VR	00000860	2003006342		051304E
00002683	LO-BENTOMAT DN	150	2175	2728	200411VR	00000860	2003024395		051304E

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/23/04 16:58:01 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187931

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002691	LO-BENTOMAT DN	150	2175	2714	200412VR	00000883	2003024395		051304E
00002692	LO-BENTOMAT DN	150	2175	2700	200412VR	00000883	2003024395		051304E
00002693	LO-BENTOMAT DN	150	2175	2697	200412VR	00000883	2003024395		051304E
00002694	LO-BENTOMAT DN	150	2175	2700	200412VR	00000883	2003024395		051304E
00002695	LO-BENTOMAT DN	150	2175	2695	200412VR	00000883	2003024395		051304E
00002696	LO-BENTOMAT DN	150	2175	2673	200411VR	00000859	2003180712		051304E
00002697	LO-BENTOMAT DN	150	2175	2672	200411VR	00000859	2003180712		051304E
00002698	LO-BENTOMAT DN	150	2175	2678	200411VR	00000859	2003180712		051304E
00002699	LO-BENTOMAT DN	150	2175	2700	200411VR	00000859	2003180712		051304E
00002700	LO-BENTOMAT DN	150	2175	2625	200411VR	00000859	2003180712		051304E
00002701	LO-BENTOMAT DN	150	2175	2628	200411VR	00000859	2003180712		051404A
00002702	LO-BENTOMAT DN	150	2175	2660	200411VR	00000859	2003180712		051404A
00002703	LO-BENTOMAT DN	150	2175	2671	200411VR	00000859	2003180712		051404A
00002704	LO-BENTOMAT DN	150	2175	2677	200411VR	00000859	2003180712		051404A
00002705	LO-BENTOMAT DN	150	2175	2681	200411VR	00000873	2003180712		051404A
00002754	LO-BENTOMAT DN	150	2175	2617	200412VR	00000964	2003180709		051404B

TOTAL SQUARE FEET..... 34,800

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/23/04 16:57:01 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187992

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002589	LO-BENTOMAT DN	150	2175	2747	200409VR	00000634	052104NW1		051304C
00002591	LO-BENTOMAT DN	150	2175	2719	200409VR	00000634	052104NW1		051304C
00002592	LO-BENTOMAT DN	150	2175	2739	200409VR	00000634	052104NW1		051304C
00002593	LO-BENTOMAT DN	150	2175	2785	200409VR	00000634	052104NW1		051304C
00002601	LO-BENTOMAT DN	150	2175	2780	200403VR	00000147	2003006344		051304C
00002608	LO-BENTOMAT DN	150	2175	2725	200350VR	00003807	2003006344		051304C
00002609	LO-BENTOMAT DN	150	2175	2728	200350VR	00003807	2003006344		051304C
00002685	LO-BENTOMAT DN	150	2175	2729	200411VR	00000860	2003024395		051304E
00002686	LO-BENTOMAT DN	150	2175	2740	200411VR	00000860	2003024395		051304E
00002687	LO-BENTOMAT DN	150	2175	2721	200411VR	00000860	2003024395		051304E
00002689	LO-BENTOMAT DN	150	2175	2739	200412VR	00000883	2003024395		051304E
00002690	LO-BENTOMAT DN	150	2175	2732	200412VR	00000883	2003024395		051304E

TOTAL SQUARE FEET..... 26,100

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: May 26, 2004
PO: 9659-00
Order #: 188012, 188013, 188014

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on May 25, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: XCEL Energy Red Wing ASH
Becker MN 55308

CUSTOMER P.O.: 9659-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	XCEL Energy Red Wing ASH
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9659-00
Order Number:	188012, 188013, 188014
Ship Date:	25-May

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000188012
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ADD
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 50
XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
1 MILE SOUTH OF HWY 61
SCOTT THOMAS
REDWING MN 55066

PO: 9659-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002657	150.0	14.5	2175.0	2734.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002658	150.0	14.5	2175.0	2736.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002659	150.0	14.5	2175.0	2699.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002660	150.0	14.5	2175.0	2705.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002661	150.0	14.5	2175.0	2709.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002662	150.0	14.5	2175.0	2713.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002663	150.0	14.5	2175.0	2729.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002664	150.0	14.5	2175.0	2736.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002668	150.0	14.5	2175.0	2737.0
ORDER TOTALS.....							19575.0	24498.0

TOTAL ITEMS..... 9

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000188013
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ADD
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 50
XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
1 MILE SOUTH OF HWY 61
SCOTT THOMAS
REDWING MN 55066

PO: 9659-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200420LO	00002124	150.0	14.5	2175.0	2660.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002125	150.0	14.5	2175.0	2647.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002126	150.0	14.5	2175.0	2632.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002127	150.0	14.5	2175.0	2612.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002128	150.0	14.5	2175.0	2582.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002129	150.0	14.5	2175.0	2560.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002130	150.0	14.5	2175.0	2532.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002131	150.0	14.5	2175.0	2540.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002132	150.0	14.5	2175.0	2530.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002133	150.0	14.5	2175.0	2509.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002134	150.0	14.5	2175.0	2510.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002135	150.0	14.5	2175.0	2513.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002136	150.0	14.5	2175.0	2520.0
LO-BENTOMAT DN		SFT	SF 200420LO	00002137	150.0	14.5	2175.0	2500.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002590	150.0	14.5	2175.0	2746.0
ORDER TOTALS.....							32625.0	38593.0
TOTAL ITEMS.....	15							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000188014
ORDER DATE: 5/17/2004
SHIP DATE:. 5/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ADD
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 50
XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
1 MILE SOUTH OF HWY 61
SCOTT THOMAS
REDWING MN 55066

PO: 9659-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT	SF 200421LO	00002623	150.0	14.5	2175.0	2720.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002716	150.0	14.5	2175.0	2702.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002775	150.0	14.5	2175.0	2686.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002776	150.0	14.5	2175.0	2692.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002800	150.0	14.5	2175.0	2669.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002801	150.0	14.5	2175.0	2692.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002811	150.0	14.5	2175.0	2665.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002812	150.0	14.5	2175.0	2682.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002819	150.0	14.5	2175.0	2625.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002820	150.0	14.5	2175.0	2642.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002821	150.0	14.5	2175.0	2645.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002860	150.0	14.5	2175.0	2670.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002861	150.0	14.5	2175.0	2675.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002865	150.0	14.5	2175.0	2640.0
LO-BENTOMAT DN		SFT	SF 200421LO	00002866	150.0	14.5	2175.0	2697.0
ORDER TOTALS.....							32625.0	40102.0
TOTAL ITEMS.....	15							

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	XCEL Energy Red Wing ASH
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9659-00
Order Number:	188012, 188013, 188014
Ship Date:	25-May

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	XCEL Energy Red Wing ASH
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9659-00
Order Number:	188012, 188013, 188014
Ship Date:	25-May

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: AMERICAN COLLOID COMPANY

PRODUCTION
Facility:

AMERICAN COLLOID COMPANY
92 HWY. 37
Lovell, WY 82431

Contact:

Moses Briseno
Quality Assurance Coordinator
(800)-322-1160

Brand Name: CG 50

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 06-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050604B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 13-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051304D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

DATE: 14-May-04

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

DATE: 14-May-04

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2001917005	2033248	1006612	HH65L	10/14/2003	7.0	235	231
2001917009	2033248	1006612	HH65L	10/14/2003	6.5	201	250
2001917012	2033248	1006612	HH65L	10/14/2003	6.7	218	272
2001917015	2033248	1006612	HH65L	10/14/2003	6.4	174	213
2001917018	2033248	1006612	HH65L	10/14/2003	6.5	198	223
2001917271	2033248	1006612	HH65L	10/15/2003	6.7	217	256
2001917274	5033248	1006612	HH65L	10/15/2003	7.1	202	230
2001917277	2033248	1006612	HH65L	10/15/2003	7.2	222	227
2001917279	2033248	1006612	HH65L	10/15/2003	7.8	254	255
2001917284	2033248	1006612	HH65L	10/15/2003	6.8	231	227
2001917287	2033248	1006612	HH65L	10/15/2003	6.2	178	174
2001917290	2033248	1006612	HH65L	10/15/2003	7.6	223	246
2001917297	2033248	1006612	HH65L	10/15/2003	6.4	219	243
2001926025	2033248	1006612	HH65L	10/15/2003	6.9	231	235
2001926028	2033248	1006612	HH65L	10/15/2003	7.3	207	243
2002037033	2034771	1006612	HH65L	10/31/2003	7.5	228	267
2002037040	2034771	1006612	HH65L	10/31/2003	7.4	219	240
2002037045	2034771	1006612	HH65L	10/31/2003	6.8	203	224
2002037048	2034771	1006612	HH65L	10/31/2003	7.3	215	239
2002037051	2034771	1006612	HH65L	10/31/2003	6.6	203	208
2002037054	2034771	1006612	HH65L	10/31/2003	7.5	216	224
2002037057	2034771	1006612	HH65L	11/1/2003	7.6	207	247
2002037060	2034771	1006612	HH65L	11/1/2003	7.0	199	210
2002037063	2034771	1006612	HH65L	11/1/2003	6.5	177	197
2002037066	2034771	1006612	HH65L	11/1/2003	8.2	253	257
2002037070	2034771	1006612	HH65L	11/1/2003	6.3	200	228
2002037073	2034771	1006612	HH65L	11/1/2003	6.5	189	239
2002037076	2034771	1006612	HH65L	11/1/2003	7.2	227	238
2002037080	2034771	1006612	HH65L	11/1/2003	6.6	183	215
2002045803	2036166	1006612	HH65L	11/3/2003	6.5	170	181
2002045806	2036166	1006612	HH65L	11/3/2003	6.2	176	188
2002045809	2036166	1006612	HH65L	11/3/2003	7.0	213	220

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: SI Geosolutions

PRODUCTION
Facility: SI Corporation
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSCR	TENSMA
2003006296	2051118	1006612	HH65L	4/15/2004	8.0	215	236
2003006299	2051118	1006612	HH65L	4/15/2004	6.8	182	180
2003006302	2051118	1006612	HH65L	4/15/2004	6.4	174	167
2003006305	2051118	1006612	HH65L	4/16/2004	6.7	193	191
2003006308	2051118	1006612	HH65L	4/16/2004	6.6	187	173
2003006311	2051118	1006612	HH65L	4/16/2004	7.7	201	202
2003006316	2051118	1006612	HH65L	4/16/2004	6.0	174	175
2003006319	2051118	1006612	HH65L	4/16/2004	6.5	202	204
2003006323	2051118	1006612	HH65L	4/16/2004	6.9	199	198
2003006328	2051118	1006612	HH65L	4/19/2004	7.3	205	195
2003006331	2051118	1006612	HH65L	4/19/2004	7.1	198	185
3003006334	2051118	1006612	HH65L	4/19/2004	6.3	185	169
2003006338	2051118	1006612	HH65L	4/19/2004	7.0	207	189
2003006340	2051118	1006612	HH65L	4/19/2004	6.6	194	205
2003006344	2051118	1006612	HH65L	4/19/2004	7.3	228	192
2003006348	2051118	1006612	HH65L	4/19/2004	7.4	210	179
2003006352	2051118	1006612	HH65L	4/19/2004	7.1	190	165
2003006355	2051118	1006612	HH65L	4/19/2004	6.8	192	182
2003006358	2051118	1006612	HH65L	4/19/2004	6.5	198	194
2003024397	2051118	1006612	HH65L	4/20/2004	6.7	215	180

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2002390789	2040165	1006612	HH65L	12/29/2003	6.5	216	204
2002390790	2040165	1006612	HH65L	12/29/2003	6.3	177	196
2002390793	2040165	1006612	HH65L	12/29/2003	6.8	209	212
2002390797	2040165	1006612	HH65L	12/29/2003	7.1	186	246
2002390800	2040165	1006612	HH65L	12/29/2003	6.2	203	194
2002390804	2040165	1006612	HH65L	12/29/2003	6.2	198	200
2002390808	2040165	1006612	HH65L	12/29/2003	6.6	194	210
2002390812	2040165	1006612	HH65L	12/30/2003	6.5	212	232
2002390816	2040165	1006612	HH65L	12/30/2003	6.3	185	206
2002390819	2040165	1006612	HH65L	12/30/2003	6.1	195	193
2002390821	2040165	1006612	HH65L	12/30/2003	6.8	197	238
2002390824	2040165	1006612	HH65L	12/30/2003	6.4	204	187
2002390827	2040165	1006612	HH65L	12/30/2003	6.3	186	194
2002390831	2040165	1006612	HH65L	12/30/2003	6.4	194	181
2002390835	2040165	1006612	HH65L	12/30/2003	7.0	201	227
2002390839	2040165	1006612	HH65L	12/30/2003	6.4	206	209

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSIAL BENCH STREET
REDWING MN

LOVELL AMERICAN COLLOID

ORDER NUMBER: 0001288013

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-N/W-BLACK-DN-6OZ	052104NW1		6.4	295.4
LO-N/W-BLACK-DN-6OZ	052104NW2		6.3	196.9

TOTAL PAGES 1

SI® Geosolutions

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2245	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR							
2246	2002921285	2052354	1006612	HH65L	5/10/2004	7.1	204	230							
2247	2002921286	2052354	1006612	HH65L	5/10/2004	6.6	184	212							
2248	2003132896	2052354	1006612	HH65L	5/7/2004	6.8	193	210							
2249	2003132899	2052354	1006612	HH65L	5/7/2004	7.3	182	214							
2250	2003132901	2052354	1006612	HH65L	5/7/2004	7.3	194	205							
2251	2003132904	2052354	1006612	HH65L	5/7/2004	6.7	181	211							
2252	2003132907	2052354	1006612	HH65L	5/7/2004	6.9	169	215							
2253	2003132910	2052354	1006612	HH65L	5/7/2004	7.6	206	231							
2254	2003132913	2052354	1006612	HH65L	5/7/2004	6.3	175	188							
2255	2003132918	2052354	1006612	HH65L	5/10/2004	6.7	187	169							
2256	2003132972	2052354	1006612	HH65L	5/10/2004	6.4	161	207							
2257	2003132976	2052354	1006612	HH65L	5/10/2004	7.2	208	214							
2258	2003132979	2052354	1006612	HH65L	5/10/2004	6.4	187	216							
2259	2003132982	2052354	1006612	HH65L	5/10/2004	6.5	170	187							
2260	2003132990	2052354	1006612	HH65L	5/10/2004	6.2	162	189							
2261	2003132995	2052354	1006612	HH65L	5/11/2004	6.5	176	218							
2262	2003132998	2052354	1006612	HH65L	5/11/2004	6.3	164	193							
2263	2003133001	2052354	1006612	HH65L	5/11/2004	6.4	168	193							
2264	2003133005	2052354	1006612	HH65L	5/11/2004	6.7	197	203							
2265	2003133007	2052354	1006612	HH65L	5/11/2004	6.1	181	190							
2266	2003133011	2052354	1006612	HH65L	5/11/2004	6.2	162	196							
2267	2003133013	2052354	1006612	HH65L	5/11/2004	6.9	202	215							
2268	2003133018	2052354	1006612	HH65L	5/7/2004	8.2	228	259							
2269	2003138057	2055218	1006612	HH65L	5/18/2004	7.0	181	220							
2270	2003180689	2052354	1006612	HH65L	5/11/2004	7.2	220	225							
2271	2003180695	2052354	1006612	HH65L	5/12/2004	7.0	181	209							
2272	2003180697	2052354	1006612	HH65L	5/12/2004	6.4	191	200							
2273	2003180700	2052354	1006612	HH65L	5/12/2004	7.1	213	221							
2274	2003180705	2052354	1006612	HH65L	5/12/2004	6.6	180	215							
2275	2003180708	2052354	1006612	HH65L	5/12/2004	6.7	167	195							
2276	2003180716	2052354	1006612	HH65L	5/13/2004	7.3	230	213							
2277	2003180719	2052354	1006612	HH65L	5/13/2004	7.1	214	193							
2278	2003180722	2052354	1006612	HH65L	5/13/2004	6.4	166	163							
2279	2003180725	2052354	1006612	HH65L	5/13/2004	7.7	233	222							
2280	2003180728	2052354	1006612	HH65L	5/13/2004	7.1	204	226							
2281	2003180731	2052354	1006612	HH65L	5/13/2004	7.2	181	241							
2282	2003180734	2055610	1006612	HH65L	5/13/2004	6.7	172	216							
2283	2003180738	2052354	1006612	HH65L	5/13/2004	7.0	172	213							
2284	2003180740	2052354	1006612	HH65L	5/13/2004	6.7	164	199							
2285	2003180744	2052354	1006612	HH65L	5/13/2004	7.1	172	222							
2286	2003180748	2052354	1006612	HH65L	5/14/2004	6.7	161	194							
2287	2003180751	2052354	1006612	HH65L	5/14/2004	7.1	178	213							
2288	2003180754	2052354	1006612	HH65L	5/14/2004	6.6	161	212							
2289	2003180757	2052354	1006612	HH65L	5/14/2004	7.1	173	235							
2290	2003180760	2052354	1006612	HH65L	5/14/2004	7.0	171	234							

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	XCEL Energy Red Wing ASH
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9659-00
Order Number:	188012, 188013, 188014
Ship Date:	25-May

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT DN product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCS#FP3 QCTW7P3 PAGE: 1
5/26/04 14:32:59

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

O R D E R # 000188012

MATERIAL	LOT#	ROLL#	GEOTEXTILE GRAB STRENGTH
			6.0oz/sy mv 6.0 lbs marv
			ASTM D 5261 ASTM D 4632
ID-N/W-WHITE-DN	200352VR	000093917	6.8 78.3
ID-N/W-WHITE-DN	200411VR	000090858	6.7 38.6

TOTAL PAGES 1

QCG#TF3 QCT#TF3
5/26/04 14:31:48

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

O R D E R # 000188014

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200350VR	00003843	6.3	77.4
LO-N/W-WHITE-DN	200411VR	00000861	6.7	43.4
LO-N/W-WHITE-DN	200411VR	00000874	6.6	49.0
LO-N/W-WHITE-DN	200412VR	00000884	5.6	28.4
LO-N/W-WHITE-DN	200412VR	00000952	6.5	48.0
LO-N/W-WHITE-DN	200413VR	00001035	6.8	52.2
LO-N/W-WHITE-DN	200413VR	00001086	6.6	67.1
LO-N/W-WHITE-DN	200418VR	00001490	6.7	58.8

TOTAL PAGES 1

QCG#TF3 QCT#TF3
5/26/04 14:32:21

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

O R D E R # 000188013

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-DN	200409VR	00000634	6.7	47.6
LO-N/W-WHITE-DN	200412VR	00000910	6.9	41.0
LO-N/W-WHITE-DN	200417VR	00001402	6.6	71.4

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSIAL BENCH STREET
REDWING MN

ORDER NUMBER: 000188013

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	051404NW1		6.9	72.3

GEOSYNTHETIC CLAY LINER

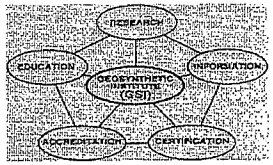
MANUFACTURING CERTIFICATION

Project Name:	XCEL Energy Red Wing ASH
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9659-00
Order Number:	188012, 188013, 188014
Ship Date:	25-May

CETCO hereby affirms and certifies that the **BENTOMAT DN** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	150 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QC#FTZ 10/4/04 14:32:59

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERG
DISPOSAL B
REDWING

O R D E R # 000188012

MATERIAL	LOT No.	ROLL No	BENTOMITE MASS/AREA 1 PSI 24 hrs ASTM D 5993	GRAB STRENGTH 150lbs MARV MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	20042110	00002668	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002664	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002663	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002662	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002661	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002659	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002658	.90	373.20	42.40
LO-BENTOMAT DN	20042110	00002657	.90*	373.20	42.40*

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/26/04 14:31:47

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERG
DISPOSAL B
REDWING

O R D E R # 000188014

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002866	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002865	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002861	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002860	.89	367.40	31.30
LO-BENTOMAT DN	200421LO	00002821	.96	303.20	36.20
LO-BENTOMAT DN	200421LO	00002820	.90	303.20	36.20
LO-BENTOMAT DN	200421LO	00002819	.90*	303.20	36.20*
LO-BENTOMAT DN	200421LO	00002812	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002811	.92	303.20	36.90
LO-BENTOMAT DN	200421LO	00002801	.92*	303.20	36.90*
LO-BENTOMAT DN	200421LO	00002800	.92	303.20	47.20
LO-BENTOMAT DN	200421LO	00002776	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002775	.87	303.20	49.80
LO-BENTOMAT DN	200421LO	00002716	.88	286.20	52.30
LO-BENTOMAT DN	200421LO	00002623	.85	373.20	37.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40.000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
5/26/04 14:32:21

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERG
DISPOSAL B
REDWING

O R D E R # 000188013

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT DN	200421LO	00002590	.87	373.20	28.90
LO-BENTOMAT DN	200420LO	00002137	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002136	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002135	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002134	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002133	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002132	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002131	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002130	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002129	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002128	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002127	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002126	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002125	.97	290.60	33.80
LO-BENTOMAT DN	200420LO	00002124	.97	290.60	33.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40.000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
5/26/04 14:32:58

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

ORDER NUMBER 000188012

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002657	LO-BENTOMAT DN	150	2175	2734	200352VR	00003917	2003006343		051304D
00002658	LO-BENTOMAT DN	150	2175	2736	200352VR	00003917	2003006343		051304D
00002659	LO-BENTOMAT DN	150	2175	2699	200352VR	00003917	2003006343		051304D
00002660	LO-BENTOMAT DN	150	2175	2705	200411VR	00000858	2003006343		051304D
00002661	LO-BENTOMAT DN	150	2175	2709	200411VR	00000858	2003006343		051304D
00002662	LO-BENTOMAT DN	150	2175	2713	200411VR	00000858	2003006343		051304D
00002663	LO-BENTOMAT DN	150	2175	2729	200411VR	00000858	2003006343		051304D
00002664	LO-BENTOMAT DN	150	2175	2736	200411VR	00000858	052104NW2		051304D
00002668	LO-BENTOMAT DN	150	2175	2737	200411VR	00000858	052104NW2		051304D

TOTAL SQUARE FEET..... 19,575

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/26/04 14:31:47 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

ORDER NUMBER 000188014

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200421LO									
00002623	LO-BENTOMAT DN	150	2175	2720	200350VR	00003843	2003024397		051304C
00002716	LO-BENTOMAT DN	150	2175	2702	200411VR	00000861	2001917015		051404A
00002775	LO-BENTOMAT DN	150	2175	2686	200412VR	00000952	2003180720		051404B
00002776	LO-BENTOMAT DN	150	2175	2692	200412VR	00000952	2003180720		051404B
00002800	LO-BENTOMAT DN	150	2175	2669	200418VR	00001490	2003006325		051404C
00002801	LO-BENTOMAT DN	150	2175	2692	200418VR	00001490	2003006325		051404C
00002811	LO-BENTOMAT DN	150	2175	2665	200411VR	00000874	2002037036		051404C
00002812	LO-BENTOMAT DN	150	2175	2682	200411VR	00000874	2002037036		051404C
00002819	LO-BENTOMAT DN	150	2175	2625	200411VR	00000874	2002037036		051404C
00002820	LO-BENTOMAT DN	150	2175	2642	200413VR	00001086	2001925029		051404C
00002821	LO-BENTOMAT DN	150	2175	2645	200413VR	00001086	2001925029		051404C
00002860	LO-BENTOMAT DN	150	2175	2670	200413VR	00001035	2002390820		051404D
00002861	LO-BENTOMAT DN	150	2175	2675	200413VR	00001035	2002390820		051404D
00002865	LO-BENTOMAT DN	150	2175	2640	200412VR	00000884	2002390820		051404D
00002866	LO-BENTOMAT DN	150	2175	2697	200412VR	00000884	2002390820		051404D

TOTAL SQUARE FEET..... 32,625

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
5/26/04 14:32:21 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: XCEL ENERGY RED WING ASH
DISPOSAL BENCH STREET
REDWING MN

ORDER NUMBER 000188013

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200420LO									
00002124	LO-BENTOMAT DN	150	2175	2660	051404NW1		2003024396		050604B
00002125	LO-BENTOMAT DN	150	2175	2647	051404NW1		2003024396		050604B
00002126	LO-BENTOMAT DN	150	2175	2632	051404NW1		2003006323		050604B
00002127	LO-BENTOMAT DN	150	2175	2612	200412VR	00000910	2003006323		050604B
00002128	LO-BENTOMAT DN	150	2175	2582	200412VR	00000910	2003006323		050604B
00002129	LO-BENTOMAT DN	150	2175	2560	200412VR	00000910	2003006323		050604B
00002130	LO-BENTOMAT DN	150	2175	2532	200412VR	00000910	2003006323		050604B
00002131	LO-BENTOMAT DN	150	2175	2540	200412VR	00000910	2003006323		050604B
00002132	LO-BENTOMAT DN	150	2175	2530	200412VR	00000910	2003006323		050604B
00002133	LO-BENTOMAT DN	150	2175	2509	200412VR	00000910	2003006323		050604B
00002134	LO-BENTOMAT DN	150	2175	2510	200412VR	00000910	2003006323		050604B
00002135	LO-BENTOMAT DN	150	2175	2513	200417VR	00001402	2003006323		050604B
00002136	LO-BENTOMAT DN	150	2175	2520	200417VR	00001402	2003006323		050604B
00002137	LO-BENTOMAT DN	150	2175	2500	200417VR	00001402	2003006331		050604B
LOT# 200421LO									
00002590	LO-BENTOMAT DN	150	2175	2746	200409VR	00000634	052104NW1		051304C

TOTAL SQUARE FEET..... 32,625

TOTAL PAGES 1

Bentomat ST

CETCO
LINING TECHNOLOGIES
800.527.9948 www.cetco.com

1500 W. Shure Dr. Arlington Heights, Illinois 60004 USA
Phone: +1-847-392-5800 • Fax: +1-847-506-6150
www.cetco.com

MEMO

To: Trevor Simmons

Re: Xcel Energy – Sherco Pond GCL

From: Bill Urchik

Fax: 847-506-6150
Ph: 800-527-9948

Company: CETCO

No. Pages: 1 – including cover

Date: June 8, 2004

Dear Trevor,

Please accept this memo as confirmation that CETCO will supply Bentomat ST which is reinforced, in lieu of the non-reinforced Claymax 200R for the remainder of the floor area of the Xcel Energy Sherco Pond. Site conditions have made installation of Claymax 200R very difficult with the Easy Roller system. This substitution is offered at no additional cost to GSI or Xcel Energy.

The Claymax 200R previously shipped to the facility should be installed with the spreader bar and core pipe per the current practice at the Xcel Energy Sherco Pond. When the Claymax 200R has been exhausted, installation of the Bentomat ST can commence with the Easy Roller system. CETCO estimates the Easy Roller system will allow GSI to significantly increase the rate of installation of the GCL as well as the geomembrane. Please refer to the attached certified property sheet for Bentomat ST. CETCO requests acceptance of Bentomat ST and would like to proceed with shipping.

Should you require further information, please do not hesitate to contact me at 1-800-527-9948 x 7939.

Best Regards,

WmUrchik

William Urchik
Project Engineer
CETCO
Ph: 800.527.9948x7939
Fx: 847.394.7839
bill.urchik@cetco.com

LINING TECHNOLOGIES
800.527.9948 www.cetco.com

1500 W. Shure Dr. Arlington Heights, Illinois 60004 USA
Phone: +1-847-392-5800 • Fax: +1-847-506-6150
www.cetco.com

MEMO

To: Trevor Simmons

From: Bill Urchik

Company: CETCO

No. Pages: 1 – including cover

Date: June 14, 2004

Re: Xcel Energy Sherco Pond

Fax: 847-506-6150
Ph: 800-527-9948

Dear Trevor,

Please accept this memo as confirmation that Bentomat ST has the same hydraulic conductivity of Claymax 200R. Both are certified to a hydraulic conductivity of 5x10-9 cm/sec.

Should you require further information, please do not hesitate to contact me at 1-800-527-9948 x 7939.

Best Regards,

William Urchik
Project Engineer
CETCO
Ph: 800.527.9948x7939
Fx: 847.394.7839
bill.urchik@cetco.com

CETCO LINING TECHNOLOGIES

Certified Properties

BENTOMAT® ST CERTIFIED PROPERTIES

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY $ft^2(m^2)$	REQUIRED VALUES
Bentonite Swell Index[1]	ASTM D 5890	1 per 50 tonnes	24 ml/2g min.
Bentonite Fluid Loss[1]	ASTM D 5891	1 per 50 tonnes	18 ml max.
Bentonite Mass/Area[2]	ASTM D 5993	40,000ft^2 (4,000m^2)	0.75 lb/ft^2 (3.6 kg/m^2) min
GCL Grab Strength[3]	ASTM D 4632 ASTM D 6768	200,000ft^2 (20,000m^2)	90 lbs (400 N) min 22.5 lbs/in (40 N/cm) min
GCL Peel Strength[3]	ASTM D 4632 ASTM D 6496	40,000ft^2 (4,000m^2)	15 lbs (65 N) min 2.5 lbs/in (4.4 N/cm) min
GCL Index Flux[4]	ASTM D 5887	Weekly	1 x 10^{-8} m^3/m^2/sec max
GCL Hydraulic Conductivity[4]	ASTM D 5887	Weekly	5 x 10^{-9} cm/sec max
GCL Hydrated Internal Shear Strength[5]	ASTM D 5321 ASTM D 6243	Periodic	500 psf (24 kPa) typ @ 200 psf 6,500 psf (311 kPa) typ @ 10,800 psf

Bentomat ST is a reinforced GCL consisting of a layer of sodium bentonite between a woven and a nonwoven geotextiles, which are needlepunched together.

Notes

[1] Bentonite property tests performed at a bentonite processing facility before shipment to CETCO's GCL production facilities.

[2] Bentonite mass/area reported at 0 percent moisture content.

[3] All tensile strength and peel strength testing is performed in the machine direction using 4 inch grips per modified ASTM D 4632. Results are reported as minimum average roll values unless otherwise indicated. Upon request, tensile strength can be reported per ASTM D 6768 and peel strength can be reported per ASTM D 6496.

[4] Index flux and permeability testing with deaired distilled/deionized water at 80 psi (551kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 925 gal/acre/day. This flux value is equivalent to a permeability of 5x10^{-9} cm/sec for typical GCL thickness. Actual flux values vary with field condition pressures. The last 20 weekly values prior the end of the production date of the supplied GCL may be provided.

[5] Peak values measured at 200 psf (10 kPa) and 10,800 psf (517 kPa) normal stress for a specimen hydrated for 48 hours. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.

CETCO® LINING TECHNOLOGIES

1500 W. Shure Drive Arlington Heights, IL 60004 USA 800.527.9948 Fax 847.577.5571
For the most up-to-date information please visit our website, www.cetco.com
A wholly owned subsidiary of AMCOL International

The information and date contained herein are believed to be accurate and reliable. CETCO makes no warranty of any kind and accepts no responsibility for the results obtained through application of this information.

Revised 01/04
TR 401-BMST

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY

1350 W. SHURE DRIVE
ARLINGTON HEIGHTS, IL 60004

PHONE: (847) 392-5800
FAX: (847) 506-6150

DETERMINATION OF THE COEFFICIENT OF FRICTION BY DIRECT SHEAR METHOD (ASTM D 5321)

Project Name: 2004 1st Quarter Periodic Shear

Project No. periodic

Requested by: Jim Olsta

Date: 6/29/2004

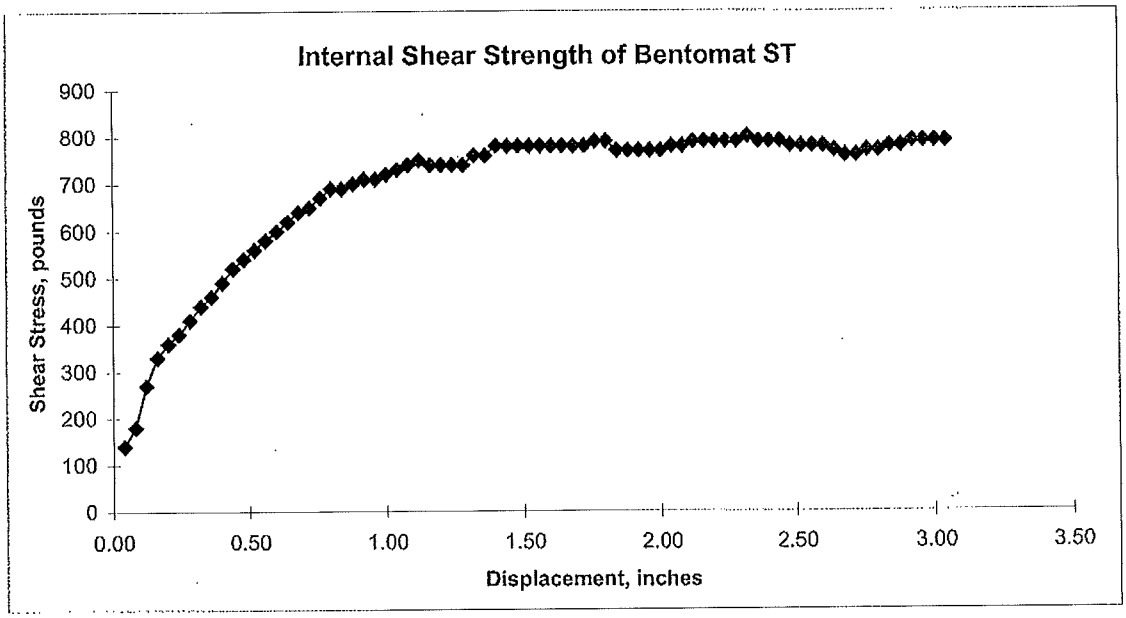
Analyst: N. Pietrowiak

TEST PARAMETERS:

Interface Tested:
Top Surface - Non-Woven side of Bentomat ST
Bottom Surface - Woven Side of Bentomat ST
Shear Rate, in/min: 0.04
Shape of Specimen: Square
Lot#: 200407LO Roll#: 1080
Hydration Time: 48 Hours @ Normal Load

TEST RESULTS:

Normal Stress,psf	Peak Stress,psf
200	800



The data and information contained herein is based upon accepted industry practice and standards. CETCO makes no warranty of any kind and accepts no responsibility for results obtained through application of this information.

File Name: 1st quarter

2004 WEEKLY QA DATA
BENTOMAT ST
Production Facility: Lovell, WY

Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)		Week	Lot/Roll #	Permeability (cm/sec)	Flux ($m^3/m^2/sec$)
1	No Production				27			
2	200402LO	1.7×10^{-9}	3.5×10^{-9}		28			
3	200403LO	2.0×10^{-9}	5.3×10^{-9}		29			
4	200404LO	3.1×10^{-9}	6.3×10^{-9}		30			
5	200405LO	1.5×10^{-9}	4.2×10^{-9}		31			
6	200406LO	4.4×10^{-9}	9.1×10^{-9}		32			
7	200407LO	3.0×10^{-9}	8.3×10^{-9}		33			
8	200408LO	2.0×10^{-9}	5.2×10^{-9}		34			
9	200409LO	2.0×10^{-9}	4.8×10^{-9}		35			
10	200410LO	1.8×10^{-9}	5.3×10^{-9}		36			
11	200411LO	3.3×10^{-9}	7.1×10^{-9}		37			
12	200412LO	3.0×10^{-9}	8.8×10^{-9}		38			
13	200413LO	3.1×10^{-9}	7.4×10^{-9}		39			
14	200414LO	2.8×10^{-9}	6.1×10^{-9}		40			
15	200415LO	3.7×10^{-9}	9.1×10^{-9}		41			
16	No Production				42			
17	No Production				43			
18	200418LO	2.4×10^{-9}	6.6×10^{-9}		44			
19	No Production				45			
20	200420LO	2.2×10^{-9}	5.7×10^{-9}		46			
21	200421LO	3.5×10^{-9}	7.9×10^{-9}		47			
22	200422LO	2.2×10^{-9}	5.8×10^{-9}		48			
23	200423LO	3.0×10^{-9}	6.8×10^{-9}		49			
24	200424LO	2.9×10^{-9}	6.9×10^{-9}		50			
25	200425LO	3.1×10^{-9}	8.9×10^{-9}		51			
26	200426LO	2.6×10^{-9}	6.1×10^{-9}		52			

All testing is performed according to ASTM D5887 using 5psi confining pressure and 2psi head pressure.

SI® Geosolutions

6/10/2004

Roger Wilke
American Colloid Cetco WY
PO Box 428
Lovell WY 82431
BOL: PO:

This is to Certify that Product 82TEX is a woven geotextile manufactured at one of the SI Corporations facilities that has achieved ISO-9002 certification for its systemic approach to quality will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PROPERTY	TEST METHOD	UNITS	ENGLISH	METRIC
Mass per Unit Area	ASTM D-5261	oz/sy (g/sm)	3.2	109
Thickness	ASTM D-5199	mils (mm)	16	.41
Tensile Strength (Grab)	ASTM D-4632	lbs (N)	135 x 135	601 x 601
Elongation	ASTM D-4632	%	15	15
Wide Width Tensile	ASTM-D4595	lbs/ft (kN/m)	x	x
Wide Width Elongation	ASTM-D4595	%	N/A	N/A
Puncture	ASTM D-4833	lbs (N)	70	312
Mullen Burst	ASTM D-3786	psi (kPa)	265	1827
Trapezoidal Tear	ASTM D-4533	lbs (N)	45 x 45	200 x 200
UV Resistance	ASTM-D4355	%	90	90
Apparent Opening Size (AOS)	ASTM-D4751	US Std. Sieve (mm)	N/A	N/A
Permittivity	ASTM-D4491	1/sec	.08	.08
Permeability	ASTM-D4491	cm/sec	0.004	0.004
Water Flow Rate	ASTM-D4491	gpm/ft² (l/min/m²)	6	244

Toni Ruppert
Ringgold Quality Lab
Quality Manager

Seller makes no warranty expressed or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet SI Corporation current published specifications, and the Customer gives notice to SI Corporation before installing the product, then SI Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 8, 2004
PO: 9656-00
Order #: 187962, 187963

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on June 7, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187962, 187963
Ship Date:	7-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187962
ORDER DATE: 5/17/2004
SHIP DATE:. 6/07/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200407LO	00001317	150.0	15.0	2250.0	2631.0
LO-BENTOMAT ST		SFT	SF 200421LO	00003188	150.0	15.0	2250.0	2590.0
LO-BENTOMAT ST		SFT	SF 200423LO	00003877	150.0	15.0	2250.0	2548.0
LO-BENTOMAT ST		SFT	SF 200423LO	00003893	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003995	150.0	15.0	2250.0	2554.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004004	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004008	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004009	150.0	15.0	2250.0	2556.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004010	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004011	150.0	15.0	2250.0	2559.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004014	150.0	15.0	2250.0	2548.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004015	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004016	150.0	15.0	2250.0	2557.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004021	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004023	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004024	150.0	15.0	2250.0	2548.0
ORDER TOTALS.....							36000.0	40957.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187963
ORDER DATE: 5/17/2004
SHIP DATE:. 6/07/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200423LO	00003878	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200423LO	00003905	150.0	15.0	2250.0	2572.0
LO-BENTOMAT ST		SFT	SF 200423LO	00003906	150.0	15.0	2250.0	2581.0
LO-BENTOMAT ST		SFT	SF 200423LO	00003907	150.0	15.0	2250.0	2563.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003969	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003978	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003987	150.0	15.0	2250.0	2552.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003988	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003989	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003990	150.0	15.0	2250.0	2540.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003991	150.0	15.0	2250.0	2548.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003992	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003993	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003994	150.0	15.0	2250.0	2557.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003996	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT	SF 200424LO	00003997	150.0	15.0	2250.0	2556.0
ORDER TOTALS.....							36000.0	40899.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187962, 187963
Ship Date:	7-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187962, 187963
Ship Date:	7-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **04-Feb-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **020404B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.4**
Moisture	ASTM D 2216	12.0 % (MAX)	**8.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **17-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **051704A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.6**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **24-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052404H**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **25-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052504A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **26-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052604A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **26-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052604B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001390622	2024014	1002581	82TEX	7/23/2003	3.6	153	157	24	21	83	105	327
2001390624	2024014	1002581	82TEX	7/26/2003	3.5	159	147	22	19	87	132	297
2001390625	2024014	1002581	82TEX	7/28/2003	3.6	153	150	23	19	77	133	413
2001390626	2024014	1002581	82TEX	7/30/2003	3.2	153	139	22	18	84	72	323
2001390669	2024009	1002581	82TEX	7/28/2003	3.6	145	149	21	17	63	75	427
2001390670	2024009	1002581	82TEX	7/31/2003	3.6	142	150	22	16	82	94	327
2001390676	2024009	1002581	82TEX	7/26/2003	3.6	141	135	21	18	100	82	277
2001390844	2024762	1002581	82TEX	7/21/2003	3.6	157	147	24	19	86	197	350
2001390845	2024762	1002581	82TEX	7/23/2003	3.5	156	140	23	19	79	108	320
2001390846	2024762	1002581	82TEX	7/25/2003	3.6	161	137	24	19	86	89	317
2001391080	2024010	1002581	82TEX	7/22/2003	3.7	148	145	22	17	73	118	307
2001391081	2024010	1002581	82TEX	7/24/2003	3.6	146	142	21	19	76	144	320
2001391082	2024010	1002581	82TEX	7/26/2003	3.6	148	153	21	17	64	108	320
2001391091	2024008	1002581	82TEX	7/22/2003	3.7	150	154	24	17	70	152	313
2001391092	2024008	1002581	82TEX	7/24/2003	3.6	149	143	22	17	72	90	340
2001391093	2024008	1002581	82TEX	7/26/2003	3.2	142	160	21	18	68	89	317
2001392784	2024963	1002581	82TEX	7/23/2003	3.7	142	147	24	17	80	106	330
2001392785	2024963	1002581	82TEX	7/27/2003	3.4	148	159	23	19	81	123	320
2001392787	2024963	1002581	82TEX	7/25/2003	3.6	155	153	22	17	88	92	337
2001403350	2024013	1002581	82TEX	7/28/2003	3.6	143	145	22	18	74	138	420
2001403351	2024013	1002581	82TEX	7/26/2003	3.6	147	139	21	17	76	94	320
2001425016	2024761	1002581	82TEX	7/27/2003	3.4	139	143	19	16	77	74	267
2001425169	2024761	1002581	82TEX	7/29/2003	3.7	147	145	21	17	72	88	440
2001427385	2024897	1002581	82TEX	7/30/2003	3.2	141	136	19	18	81	81	322
2001432036	2024147	1002581	82TEX	7/29/2003	3.5	145	144	20	17	57	75	437
2001439183	2024760	1002581	82TEX	7/31/2003	3.5	154	153	23	18	85	117	313
2001441226	2024143	1002581	82TEX	7/31/2003	3.5	137	138	20	20	71	92	307

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002246422	2038787	1002581	82TEX	12/9/2003	3.6	154	159	24	21	76	111	318
2002274599	2037953	1002581	82TEX	12/8/2003	3.7	144	157	23	17	81	135	288
2002274600	2037953	1002581	82TEX	12/11/2003	3.7	148	158	24	19	86	93	335
2002275171	2037951	1002581	82TEX	12/8/2003	3.6	156	154	26	20	81	111	295
2002275172	2037951	1002581	82TEX	12/11/2003	3.7	157	162	24	19	88	136	303
2002275173	2037951	1002581	82TEX	12/14/2003	3.4	163	153	26	20	94	106	303
2002276016	2037952	1002581	82TEX	12/12/2003	3.5	154	147	26	19	86	96	338
2002276017	2037952	1002581	82TEX	12/14/2003	3.6	149	158	24	18	79	108	282
2002276025	2037952	1002581	82TEX	12/9/2003	3.2	150	138	24	19	84	85	298
2002317467	2038786	1002581	82TEX	12/14/2003	3.6	151	153	25	20	87	146	283
2002317468	2038786	1002581	82TEX	12/16/2003	3.4	155	148	26	21	82	121	273
2002317469	2038786	1002581	82TEX	12/19/2003	3.6	152	146	25	19	81	149	292
2002364345	2039467	1002581	82TEX	12/19/2003	3.6	152	147	25	18	69	61	297
2002364347	2039467	1002581	82TEX	12/22/2003	3.7	156	150	25	21	82	96	310
2002364348	2039467	1002581	82TEX	12/24/2003	3.6	154	150	24	19	78	128	288
2002378684	2040228	1002581	82TEX	12/23/2003	3.8	154	148	25	20	79	81	310

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342
2002083026	2033346	1002581	82TEX	11/15/2003	3.2	161	148	25	20	96	99	307
2002134885	2034251	1002581	82TEX	11/21/2003	3.5	148	144	26	21	84	81	293
2002134887	2034251	1002581	82TEX	11/26/2003	3.6	159	147	25	18	94	131	300
2002134891	2034251	1002581	82 TEX	12/4/2003	3.6	158	150	22	18	85	72	293
2002151844	2036317	1002581	82TEX	11/20/2003	3.7	153	149	24	19	81	125	280
2002151845	2036317	1002581	82TEX	11/22/2003	3.6	166	146	23	19	83	89	330
2002151846	2036317	1002581	82TEX	11/24/2003	3.3	165	137	25	20	84	95	297
2002151857	2036318	1002581	82TEX	11/20/2003	3.4	156	143	25	18	74	106	310
2002151858	2036318	1002581	82TEX	11/25/2003	3.6	150	143	24	16	85	118	320
2002151865	2036318	1002581	82TEX	11/23/2003	3.6	157	142	24	20	78	87	335
2002188845	2036316	1002581	82TEX	11/28/2003	3.6	157	158	21	18	63	103	318
2002188846	2036316	1002581	82TEX	11/25/2003	3.6	164	152	25	19	87	116	300
2002188847	2036316	1002581	82 TEX	11/30/2003	3.5	163	154	24	19	78	133	300
2002193991	2037887	1002581	82 TEX	11/30/2003	3.5	165	148	26	19	84	189	297
2002193992	2037887	1002581	82TEX	12/3/2003	3.7	152	171	22	21	86	143	318
2002193998	2037887	1002581	82TEX	11/25/2003	3.5	158	152	24	19	85	178	300
2002246420	2038787	1002581	82 TEX	12/5/2003	3.4	135	138	29	25	91	119	297
2002246421	2038787	1002581	82TEX	12/7/2003	3.6	149	155	25	20	85	101	340
2002274598	2037953	1002581	82TEX	12/7/2003	3.5	146	139	25	19	74	75	313

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187962

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002408620		3.3	169.8
LO-WOVEN-ST	2002611436		3.4	168.2

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187962, 187963
Ship Date:	7-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT ST** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (**CETCO**)

QCG#TF3 QCT#TF3
6/08/04 14:33:23

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187963

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200413VR	00001068	6.7	42.7
LO-N/W-WHITE-ST	200420VR	00001602	6.7	60.7
LO-N/W-WHITE-ST	200423VR	00001935	6.4	60.5
LO-N/W-WHITE-ST	200423VR	00001949	7.2	100.5
LO-N/W-WHITE-ST	200423VR	00001973	7.0	119.5
LO-N/W-WHITE-ST	200423VR	00001979	7.0	119.5

TOTAL PAGES 1

QCG#TF3 QCT#TF3
6/08/04 14:34:14

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187962

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200404VR	00000218	6.6	76.7
LO-N/W-WHITE-ST	200413VR	00001034	6.7	48.2
LO-N/W-WHITE-ST	200419VR	00001550	7.0	71.3
LO-N/W-WHITE-ST	200422VR	00001857	7.0	56.8
LO-N/W-WHITE-ST	200423VR	00001928	6.7	89.3
LO-N/W-WHITE-ST	200423VR	00001950	7.2	100.5
LO-N/W-WHITE-ST	200423VR	00001979	7.0	119.5

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187962, 187963
Ship Date:	7-Jun

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 6/08/04 QCT#FT2 14:33:22

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187963

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200424LO	00003997	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00003996	.78*	247.00	41.00*
LO-BENTOMAT ST	200424LO	00003994	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003993	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003992	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003991	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003990	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003989	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003988	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003987	.89	247.00	36.50
LO-BENTOMAT ST	200424LO	00003978	.85	247.00	39.70
LO-BENTOMAT ST	200424LO	00003969	.85	247.00	39.70
LO-BENTOMAT ST	200423LO	00003907	.88	242.00	42.30
LO-BENTOMAT ST	200423LO	00003906	.88	242.00	42.30
LO-BENTOMAT ST	200423LO	00003905	.88	242.00	42.30
LO-BENTOMAT ST	200423LO	00003878	.91	242.00	49.80

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 6/08/04 QCT#FT2 14:34:14

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187962

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200424LO	00004024	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004023	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004021	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004016	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004015	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004014	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004011	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00004010	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00004009	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00004008	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00004004	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00003995	.89	247.00	36.50
LO-BENTOMAT ST	200423LO	00003893	.91	242.00	49.80
LO-BENTOMAT ST	200423LO	00003877	.91	242.00*	49.80*
LO-BENTOMAT ST	200421LO	00003188	.96	188.20	25.40
LO-BENTOMAT ST	200407LO	00001317	.80	308.30	41.80

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/08/04 14:34:14

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187962

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200407LO									
00001317	LO-BENTOMAT ST	150	2250	2631	200404VR	00000218	2002408620		020404B
LOT# 200421LO									
00003188	LO-BENTOMAT ST	150	2250	2590	200413VR	00001034	2001390673		051704A
LOT# 200423LO									
00003877	LO-BENTOMAT ST	150	2250	2548	200422VR	00001857	2002611443		052404H
00003893	LO-BENTOMAT ST	150	2250	2560	200419VR	00001550	2002611443		052404H
LOT# 200424LO									
00003995	LO-BENTOMAT ST	150	2250	2554	200423VR	00001979	2002274602		052604A
00004004	LO-BENTOMAT ST	150	2250	2553	200423VR	00001928	2002274602		052604B
00004008	LO-BENTOMAT ST	150	2250	2551	200423VR	00001928	2002274602		052604B
00004009	LO-BENTOMAT ST	150	2250	2556	200423VR	00001928	2002274602		052604B
00004010	LO-BENTOMAT ST	150	2250	2550	200423VR	00001928	2002274602		052604B
00004011	LO-BENTOMAT ST	150	2250	2559	200423VR	00001928	2002274602		052604B
00004014	LO-BENTOMAT ST	150	2250	2548	200423VR	00001950	2002274600		052604B
00004015	LO-BENTOMAT ST	150	2250	2551	200423VR	00001950	2002274600		052604B
00004016	LO-BENTOMAT ST	150	2250	2557	200423VR	00001950	2002274600		052604B
00004021	LO-BENTOMAT ST	150	2250	2551	200423VR	00001950	2002274600		052604B
00004023	LO-BENTOMAT ST	150	2250	2550	200423VR	00001950	2002274600		052604B
00004024	LO-BENTOMAT ST	150	2250	2548	200423VR	00001950	2002274600		052604B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
6/08/04 14:33:22

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187963

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200423LO									
00003878	LO-BENTOMAT ST	150	2250	2550	200420VR	00001602	2002611443		052404H
00003905	LO-BENTOMAT ST	150	2250	2572	200413VR	00001068	2002611443		052404H
00003906	LO-BENTOMAT ST	150	2250	2581	200413VR	00001068	2002611443		052504A
00003907	LO-BENTOMAT ST	150	2250	2563	200413VR	00001068	2002611443		052504A
LOT# 200424LO									
00003969	LO-BENTOMAT ST	150	2250	2553	200423VR	00001949	2002246425		052604A
00003978	LO-BENTOMAT ST	150	2250	2551	200423VR	00001973	2002246425		052604A
00003987	LO-BENTOMAT ST	150	2250	2552	200423VR	00001935	2002274602		052604A
00003988	LO-BENTOMAT ST	150	2250	2553	200423VR	00001935	2002274602		052604A
00003989	LO-BENTOMAT ST	150	2250	2560	200423VR	00001935	2002274602		052604A
00003990	LO-BENTOMAT ST	150	2250	2540	200423VR	00001935	2002274602		052604A
00003991	LO-BENTOMAT ST	150	2250	2548	200423VR	00001935	2002274602		052604A
00003992	LO-BENTOMAT ST	150	2250	2550	200423VR	00001935	2002274602		052604A
00003993	LO-BENTOMAT ST	150	2250	2553	200423VR	00001935	2002274602		052604A
00003994	LO-BENTOMAT ST	150	2250	2557	200423VR	00001935	2002274602		052604A
00003996	LO-BENTOMAT ST	150	2250	2560	200423VR	00001979	2002274602		052604A
00003997	LO-BENTOMAT ST	150	2250	2556	200423VR	00001979	2002274602		052604A

TOTAL SQUARE FEET..... 36,000

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 21, 2004
PO: 9656-00
Order #: 187964

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on June 18, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187964
Ship Date:	18-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187964
ORDER DATE: 5/17/2004
SHIP DATE:. 6/18/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200425LO	00004765	150.0	15.0	2250.0	2651.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004766	150.0	15.0	2250.0	2653.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004768	150.0	15.0	2250.0	2643.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004769	150.0	15.0	2250.0	2633.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004770	150.0	15.0	2250.0	2634.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004771	150.0	15.0	2250.0	2644.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004785	150.0	15.0	2250.0	2645.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004786	150.0	15.0	2250.0	2640.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004787	150.0	15.0	2250.0	2643.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004788	150.0	15.0	2250.0	2639.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004805	150.0	15.0	2250.0	2643.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004822	150.0	15.0	2250.0	2647.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004836	150.0	15.0	2250.0	2642.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004851	150.0	15.0	2250.0	2639.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004863	150.0	15.0	2250.0	2590.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004910	150.0	15.0	2250.0	2600.0
ORDER TOTALS.....							36000.0	42186.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187964
Ship Date:	18-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Steve B. Wilkerson
Plant Manager
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187964
Ship Date:	18-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.



Steve B. Wilkerson
Plant Manager
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 02-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060204H
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.7
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 02-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060204I
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 02-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060204J
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060304A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 03-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060304B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.3**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001484597	2025072	1002581	82 TEX	8/7/2003	3.7	155	138	22	19	70	71	370
2001484600	2025072	1002581	82 TEX	8/12/2003	3.7	164	161	23	18	86	161	342
2001484601	2025072	1002581	82 TEX	8/9/2003	3.6	158	149	22	18	76	110	333
2001484829	2025074	1002581	82 TEX	8/12/2003	3.4	146	141	20	18	78	88	280
2001484830	2025074	1002581	82 TEX	8/15/2003	3.5	145	135	21	16	74	80	267
2001484837	2025074	1002581	82 TEX	8/10/2003	3.2	143	137	22	16	77	75	300
2001484843	2024763	1002581	82 TEX	8/13/2003	3.5	155	138	23	16	98	90	312
2001484851	2024763	1002581	82 TEX	8/14/2003	3.2	158	170	22	18	70	77	313
2001484852	2024763	1002581	82 TEX	8/10/2003	3.7	159	143	26	20	92	89	273
2001498705	2025852	1002581	82 TEX	8/9/2003	3.7	137	159	23	18	76	122	330
2001509877	2026848	1002581	82 TEX	8/9/2003	3.5	149	161	22	19	79	170	340
2001509878	2026848	1002581	82 TEX	8/11/2003	3.7	146	148	24	18	100	100	330
2001509879	2026848	1002581	82 TEX	8/13/2003	3.4	148	139	19	18	75	91	283
2001510058	2025077	1002581	82 TEX	8/10/2003	3.7	150	143	23	19	74	102	307
2001510060	2025077	1002581	82 TEX	8/13/2003	3.5	141	148	22	19	66	93	327
2001510066	2025077	1002581	82 TEX	8/9/2003	3.6	138	143	24	16	93	95	313
2001510558	2024962	1002581	82 TEX	8/10/2003	3.4	138	137	22	18	76	93	273
2001510559	2024962	1002581	82 TEX	8/12/2003	3.5	148	141	22	18	64	78	337
2001510560	2024962	1002581	82 TEX	8/15/2003	3.6	157	150	24	16	70	90	303
2001520487	2026760	1002581	82 TEX	8/15/2003	3.9	141	165	20	16	78	129	370
2001536628	2026381	1002581	82 TEX	8/17/2003	3.3	137	137	19	15	65	67	313

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION

Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342
2002083026	2033346	1002581	82TEX	11/15/2003	3.2	161	148	25	20	96	99	307
2002134885	2034251	1002581	82TEX	11/21/2003	3.5	148	144	26	21	84	81	293
2002134887	2034251	1002581	82TEX	11/26/2003	3.6	159	147	25	18	94	131	300
2002134891	2034251	1002581	82 TEX	12/4/2003	3.6	158	150	22	18	85	72	293
2002151844	2036317	1002581	82TEX	11/20/2003	3.7	153	149	24	19	81	125	280
2002151845	2036317	1002581	82TEX	11/22/2003	3.6	166	146	23	19	83	89	330
2002151846	2036317	1002581	82TEX	11/24/2003	3.3	165	137	25	20	84	95	297
2002151857	2036318	1002581	82TEX	11/20/2003	3.4	156	143	25	18	74	106	310
2002151858	2036318	1002581	82TEX	11/25/2003	3.6	150	143	24	16	85	118	320
2002151865	2036318	1002581	82TEX	11/23/2003	3.6	157	142	24	20	78	87	335
2002188845	2036316	1002581	82TEX	11/28/2003	3.6	157	158	21	18	63	103	318
2002188846	2036316	1002581	82TEX	11/25/2003	3.6	164	152	25	19	87	116	300
2002188847	2036316	1002581	82 TEX	11/30/2003	3.5	163	154	24	19	78	133	300
2002193991	2037887	1002581	82 TEX	11/30/2003	3.5	165	148	26	19	84	189	297
2002193992	2037887	1002581	82TEX	12/3/2003	3.7	152	171	22	21	86	143	318
2002193998	2037887	1002581	82TEX	11/25/2003	3.5	158	152	24	19	85	178	300
2002246420	2038787	1002581	82 TEX	12/5/2003	3.4	135	138	29	25	91	119	297
2002246421	2038787	1002581	82TEX	12/7/2003	3.6	149	155	25	20	85	101	340
2002274598	2037953	1002581	82TEX	12/7/2003	3.5	146	139	25	19	74	75	313

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333
2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313
2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313
2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312
2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320
2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322
2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340
2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300
2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287
2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303
2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300
2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323
2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267
2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290
2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287
2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360
2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317
2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292
2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297
2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327
2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323
2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310
2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307
2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310
2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297
2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325
2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273
2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277
2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307
2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293
2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290
2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323
2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310
2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303
2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297
2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187964

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002636654		3.3	169.7

TOTAL PAGES 1

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
1597													
1598	2002246422	2038787	1002581	82TEX	12/9/2003	3.6	154	159	24	21	76	111	318
1599	2002274599	2037953	1002581	82TEX	12/8/2003	3.7	144	157	23	17	81	135	288
1600	2002274600	2037953	1002581	82TEX	12/11/2003	3.7	148	158	24	19	86	93	335
1601	2002275171	2037951	1002581	82TEX	12/8/2003	3.6	156	154	26	20	81	111	295
1602	2002275172	2037951	1002581	82TEX	12/11/2003	3.7	157	162	24	19	88	136	303
1603	2002275173	2037951	1002581	82TEX	12/14/2003	3.4	163	153	26	20	94	106	303
1604	2002276016	2037952	1002581	82TEX	12/12/2003	3.5	154	147	26	19	86	96	338
1605	2002276017	2037952	1002581	82TEX	12/14/2003	3.6	149	158	24	18	79	108	282
1606	2002276025	2037952	1002581	82TEX	12/9/2003	3.2	150	138	24	19	84	85	298
1607	2002317467	2038786	1002581	82TEX	12/14/2003	3.6	151	153	25	20	87	146	283
1608	2002317468	2038786	1002581	82TEX	12/16/2003	3.4	155	148	26	21	82	121	273
1609	2002317469	2038786	1002581	82TEX	12/19/2003	3.6	152	146	25	19	81	149	292
1610	2002364345	2039467	1002581	82TEX	12/19/2003	3.6	152	147	25	18	69	61	297
1611	2002364347	2039467	1002581	82TEX	12/22/2003	3.7	156	150	25	21	82	96	310
1612	2002364348	2039467	1002581	82TEX	12/24/2003	3.6	154	150	24	19	78	128	288
1613	2002378684	2040228	1002581	82TEX	12/23/2003	3.8	154	148	25	20	79	81	310
1614													
1615													
1616													
1617													
1618													
1619													

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

QCG#TF3 QCT#TF3
6/21/04 12:13:20

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187964

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200412VR	00000922	6.7	26.3
LO-N/W-WHITE-ST	200420VR	00001573	6.4	96.8
LO-N/W-WHITE-ST	200421VR	00001754	7.1	69.0
LO-N/W-WHITE-ST	200422VR	00001823	6.6	48.8
LO-N/W-WHITE-ST	200422VR	00001848	6.4	48.4
LO-N/W-WHITE-ST	200422VR	00001852	6.4	48.4
LO-N/W-WHITE-ST	200424VR	00002007	6.5	62.6
LO-N/W-WHITE-ST	200424VR	00002021	6.8	63.8
LO-N/W-WHITE-ST	200424VR	00002042	6.7	62.9
LO-N/W-WHITE-ST	200424VR	00002053	7.0	67.9

TOTAL PAGES 1

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187964

Ship Date: 18-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Steve B. Wilkerson
Plant Manager
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

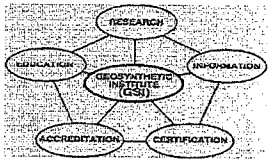
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187964
Ship Date:	18-Jun

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	**15 lbs**
Bentonite Free Swell	ASTM D 5890	**24 mL / 2g MIN.**
Bentonite Fluid Loss	ASTM D 5891	**18.0 mL (MAX)**
Bentonite Mass / Area	ASTM D 5993	*** .75 lb/sq.ft. (Min.)**
Grab Strength	ASTM D 4632	**90 lbs.**
Permeability	ASTM D 5887	**5 x 10 (-9) cm/sec. (Max)**
Index Flux	ASTM D 5887	**1.0 x 10 (-8) m(3)/m(2)/sec.**

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Steve B. Wilkerson
Plant Manager
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 6/21/04 QCT#FT2 12:13:20

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187964

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00004910	.87	231.50	28.50
LO-BENTOMAT ST	200425LO	00004863	.90	227.80	28.40
LO-BENTOMAT ST	200425LO	00004851	.81	227.80	29.20
LO-BENTOMAT ST	200425LO	00004836	.81	227.80	29.20
LO-BENTOMAT ST	200425LO	00004822	.81	227.80	29.20
LO-BENTOMAT ST	200425LO	00004805	.87	227.80	29.90
LO-BENTOMAT ST	200425LO	00004788	.90	227.80	27.50
LO-BENTOMAT ST	200425LO	00004787	.90*	227.80*	27.50*
LO-BENTOMAT ST	200425LO	00004786	.92	271.40	30.00
LO-BENTOMAT ST	200425LO	00004785	.92	271.40	30.00
LO-BENTOMAT ST	200425LO	00004771	.92	271.40	30.00
LO-BENTOMAT ST	200425LO	00004770	.92*	271.40	30.00*
LO-BENTOMAT ST	200425LO	00004769	.82	271.40	29.30
LO-BENTOMAT ST	200425LO	00004768	.82	271.40	29.30
LO-BENTOMAT ST	200425LO	00004766	.82	271.40	29.30
LO-BENTOMAT ST	200425LO	00004765	.82	271.40	29.30

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCI#TF1
6/21/04 12:13:20

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187964

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200423LO									
00004765	LO-BENTOMAT ST	150	2250	2651	200412VR	00000922	2002317468		060204H
00004766	LO-BENTOMAT ST	150	2250	2653	200412VR	00000922	2002317468		060204H
00004768	LO-BENTOMAT ST	150	2250	2643	200422VR	00001852	2002317468		060204H
00004769	LO-BENTOMAT ST	150	2250	2633	200422VR	00001852	2002317468		060204H
00004770	LO-BENTOMAT ST	150	2250	2634	200422VR	00001852	2002317468		060204H
00004771	LO-BENTOMAT ST	150	2250	2644	200422VR	00001852	2002317468		060204H
00004785	LO-BENTOMAT ST	150	2250	2645	200424VR	00002042	2001510562		060204I
00004786	LO-BENTOMAT ST	150	2250	2640	200424VR	00002042	2001510562		060204I
00004787	LO-BENTOMAT ST	150	2250	2643	200422VR	00001823	2001564813		060204I
00004788	LO-BENTOMAT ST	150	2250	2639	200422VR	00001823	2001564813		060204I
00004805	LO-BENTOMAT ST	150	2250	2643	200420VR	00001573	2001564813		060204I
00004822	LO-BENTOMAT ST	150	2250	2647	200422VR	00001848	2002636654		060204J
00004836	LO-BENTOMAT ST	150	2250	2642	200424VR	00002021	2002636654		060204J
00004851	LO-BENTOMAT ST	150	2250	2639	200421VR	00001754	2001484832		060204J
00004863	LO-BENTOMAT ST	150	2250	2590	200424VR	00002053	2001484832		060304A
00004910	LO-BENTOMAT ST	150	2250	2600	200424VR	00002007	2002188846		060304B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 22, 2004
PO: 9656-00
Order #: 187965, 187966, 187968, 187969

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on June 21, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187965, 187966, 187968, 187969
Ship Date:	21-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

ORDER NO:.. 000187965
ORDER DATE: 5/17/2004
SHIP DATE:. 6/21/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200425LO	00005136	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005146	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005147	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005148	150.0	15.0	2250.0	2666.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005149	150.0	15.0	2250.0	2676.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005150	150.0	15.0	2250.0	2687.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005163	150.0	15.0	2250.0	2672.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005164	150.0	15.0	2250.0	2684.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005165	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005167	150.0	15.0	2250.0	2628.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005168	150.0	15.0	2250.0	2635.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005183	150.0	15.0	2250.0	2648.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005200	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005201	150.0	15.0	2250.0	2679.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005213	150.0	15.0	2250.0	2656.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005214	150.0	15.0	2250.0	2644.0
ORDER TOTALS.....							36000.0	42585.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187966
ORDER DATE: 5/17/2004
SHIP DATE:. 6/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200425LO	00005169	150.0	15.0	2250.0	2649.0
LO-BENTOMAT ST		SFT SF	200425LO	00005170	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT SF	200425LO	00005184	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT SF	200425LO	00005185	150.0	15.0	2250.0	2672.0
LO-BENTOMAT ST		SFT SF	200425LO	00005186	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT SF	200425LO	00005187	150.0	15.0	2250.0	2674.0
LO-BENTOMAT ST		SFT SF	200425LO	00005188	150.0	15.0	2250.0	2688.0
LO-BENTOMAT ST		SFT SF	200425LO	00005189	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT SF	200425LO	00005203	150.0	15.0	2250.0	2678.0
LO-BENTOMAT ST		SFT SF	200425LO	00005205	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT SF	200425LO	00005215	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT SF	200425LO	00005216	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT SF	200425LO	00005217	150.0	15.0	2250.0	2672.0
LO-BENTOMAT ST		SFT SF	200425LO	00005218	150.0	15.0	2250.0	2666.0
LO-BENTOMAT ST		SFT SF	200425LO	00005220	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT SF	200426LO	00005230	150.0	15.0	2250.0	2690.0
ORDER TOTALS.....							36000.0	42759.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187968
ORDER DATE: 5/17/2004
SHIP DATE:. 6/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200425LO	00005175	150.0	15.0	2250.0	2695.0
LO-BENTOMAT ST		SFT SF	200425LO	00005190	150.0	15.0	2250.0	2655.0
LO-BENTOMAT ST		SFT SF	200425LO	00005191	150.0	15.0	2250.0	2691.0
LO-BENTOMAT ST		SFT SF	200425LO	00005192	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT SF	200425LO	00005194	150.0	15.0	2250.0	2669.0
LO-BENTOMAT ST		SFT SF	200425LO	00005195	150.0	15.0	2250.0	2675.0
LO-BENTOMAT ST		SFT SF	200425LO	00005204	150.0	15.0	2250.0	2667.0
LO-BENTOMAT ST		SFT SF	200425LO	00005206	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT SF	200425LO	00005207	150.0	15.0	2250.0	2695.0
LO-BENTOMAT ST		SFT SF	200425LO	00005208	150.0	15.0	2250.0	2686.0
LO-BENTOMAT ST		SFT SF	200425LO	00005209	150.0	15.0	2250.0	2679.0
LO-BENTOMAT ST		SFT SF	200425LO	00005221	150.0	15.0	2250.0	2675.0
LO-BENTOMAT ST		SFT SF	200425LO	00005222	150.0	15.0	2250.0	2680.0
LO-BENTOMAT ST		SFT SF	200425LO	00005223	150.0	15.0	2250.0	2677.0
LO-BENTOMAT ST		SFT SF	200425LO	00005224	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT SF	200425LO	00005226	150.0	15.0	2250.0	2687.0
ORDER TOTALS.....							36000.0	42872.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187969
ORDER DATE: 5/17/2004
SHIP DATE:. 6/21/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200424LO	00004250	150.0	15.0	2250.0	2515.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004253	150.0	15.0	2250.0	2510.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004256	150.0	15.0	2250.0	2433.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004258	150.0	15.0	2250.0	2428.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004259	150.0	15.0	2250.0	2534.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004264	150.0	15.0	2250.0	2471.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004267	150.0	15.0	2250.0	2455.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004281	150.0	15.0	2250.0	2417.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004282	150.0	15.0	2250.0	2449.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004292	150.0	15.0	2250.0	2442.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004301	150.0	15.0	2250.0	2431.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005128	150.0	15.0	2250.0	2620.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005129	150.0	15.0	2250.0	2630.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005130	150.0	15.0	2250.0	2625.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005131	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005133	150.0	15.0	2250.0	2605.0
ORDER TOTALS.....							36000.0	40175.0
TOTAL ITEMS.....	16							

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187965, 187966, 187968, 187969
Ship Date:	21-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187965, 187966, 187968, 187969
Ship Date:	21-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **28-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052804A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 28-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052804B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 09-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060904B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 09-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060904B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 09-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060904C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 10-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061004A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	10.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION

Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

SI Geosolutions

6/10/2004

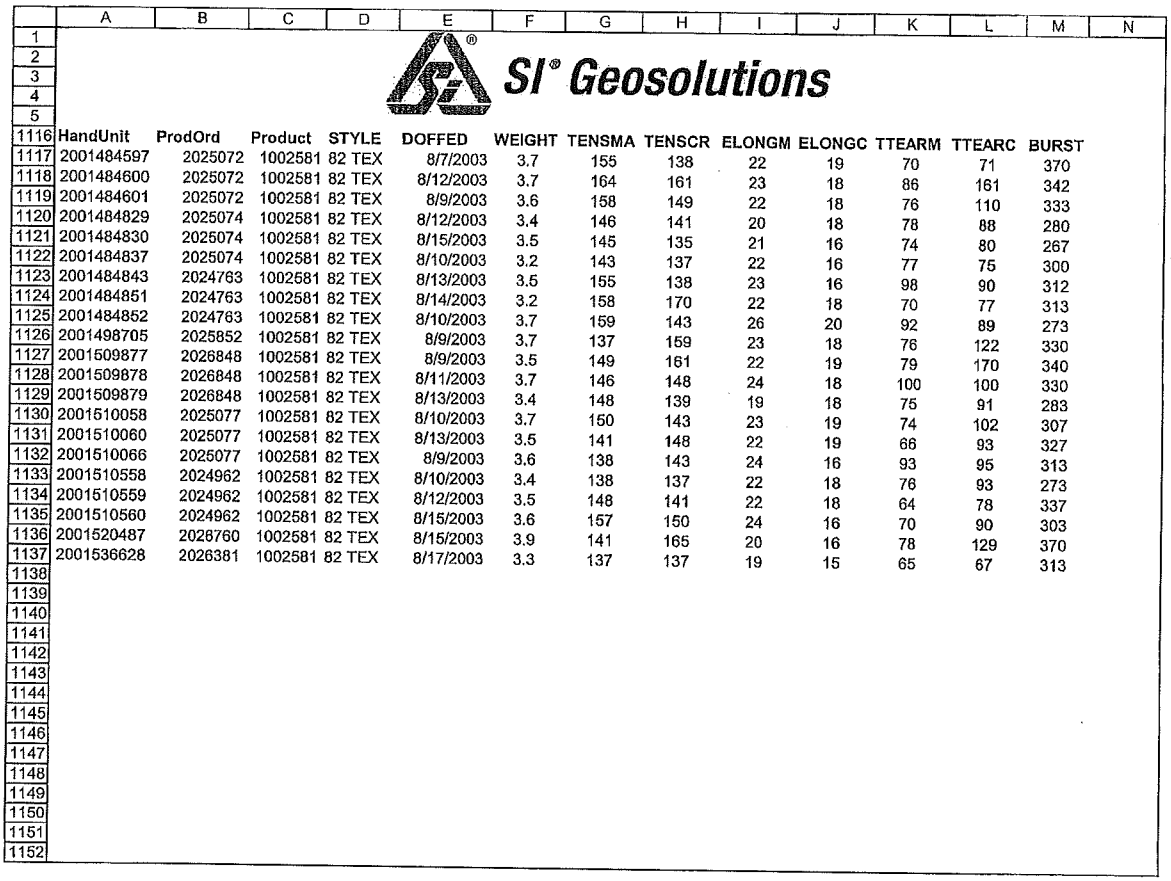
Roger Wilke
American Colloid Cetco WY
PO Box 428
Lovell WY 82431
BOL: PO:

This is to Certify that Product 82TEX is a woven geotextile manufactured at one of the SI Corporations facilities that has achieved ISO-9002 certification for its systemic approach to quality will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PROPERTY	TEST METHOD	UNITS	ENGLISH	METRIC
Mass per Unit Area	ASTM D-5261	oz/sy (g/sm)	3.2	109
Thickness	ASTM D-5199	mils (mm)	16	.41
Tensile Strength (Grab)	ASTM D-4632	lbs (N)	135 x 135	601 x 601
Elongation	ASTM D-4632	%	15	15
Wide Width Tensile	ASTM-D4595	lbs/ft (kN/m)	x	x
Wide Width Elongation	ASTM-D4595	%	N/A	N/A
Puncture	ASTM D-4833	lbs (N)	70	312
Mullen Burst	ASTM D-3786	psi (kPa)	265	1827
Trapezoidal Tear	ASTM D-4533	lbs (N)	45 x 45	200 x 200
UV Resistance	ASTM-D4355	%	90	90
Apparent Opening Size (AOS)	ASTM-D4751	US Std. Sieve (mm)	N/A	N/A
Permittivity	ASTM-D4491	1/sec	.08	.08
Permeability	ASTM-D4491	cm/sec	0.004	0.004
Water Flow Rate	ASTM-D4491	gpm/ft² (l/min/m²)	6	244

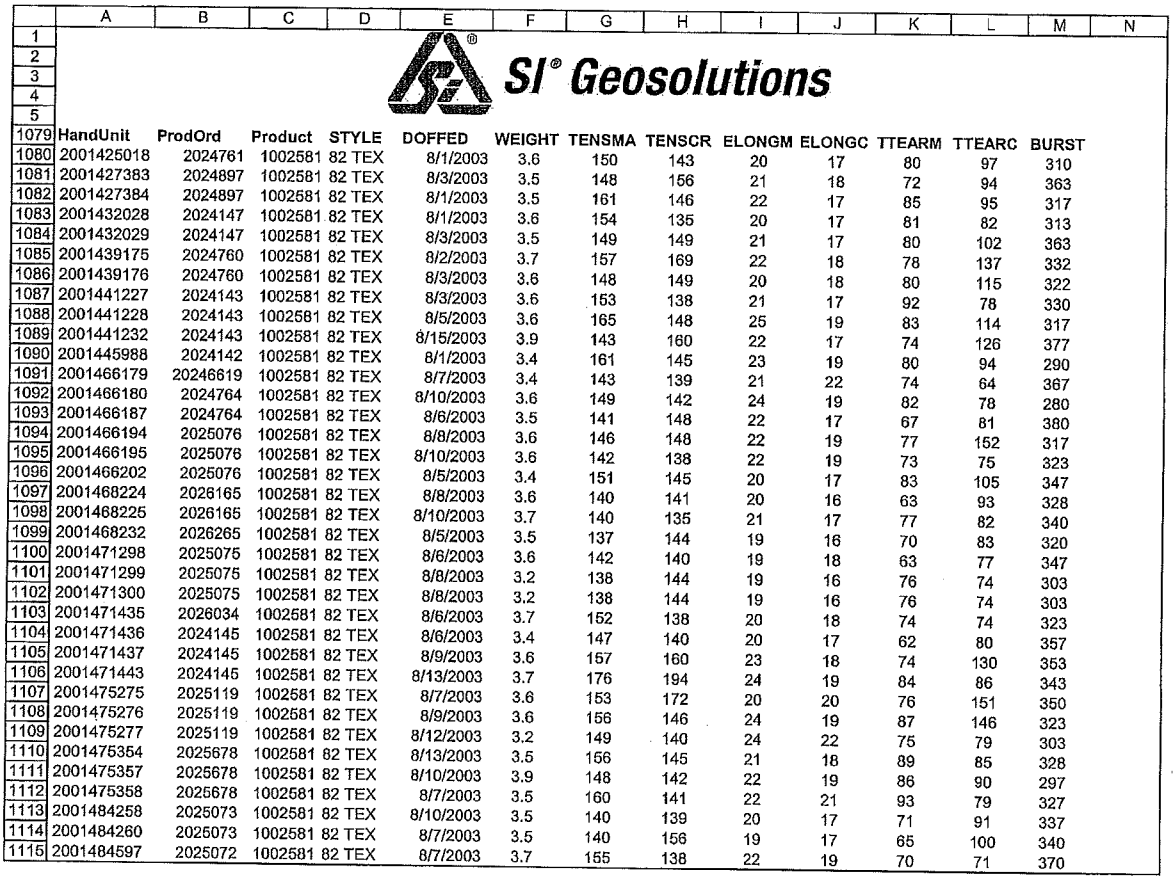
Toni Ruppert
Ringgold Quality Lab
Quality Manager

Seller makes no warranty expressed or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IF IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet SI Corporation current published specifications, and the Customer gives notice to SI Corporation before installing the product, then SI Corporation will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001484597	2025072	1002581	82 TEX	8/7/2003	3.7	155	138	22	19	70	71	370
2001484600	2025072	1002581	82 TEX	8/12/2003	3.7	164	161	23	18	86	161	342
2001484601	2025072	1002581	82 TEX	8/9/2003	3.6	158	149	22	18	76	110	333
2001484829	2025074	1002581	82 TEX	8/12/2003	3.4	146	141	20	18	78	88	280
2001484830	2025074	1002581	82 TEX	8/15/2003	3.5	145	135	21	16	74	80	267
2001484837	2025074	1002581	82 TEX	8/10/2003	3.2	143	137	22	16	77	75	300
2001484843	2024763	1002581	82 TEX	8/13/2003	3.5	155	138	23	16	98	90	312
2001484851	2024763	1002581	82 TEX	8/14/2003	3.2	158	170	22	18	70	77	313
2001484852	2024763	1002581	82 TEX	8/10/2003	3.7	159	143	26	20	92	89	273
2001498705	2025852	1002581	82 TEX	8/9/2003	3.7	137	159	23	18	76	122	330
2001509877	2026848	1002581	82 TEX	8/9/2003	3.5	149	161	22	19	79	170	340
2001509878	2026848	1002581	82 TEX	8/11/2003	3.7	146	148	24	18	100	100	330
2001509879	2026848	1002581	82 TEX	8/13/2003	3.4	148	139	19	18	75	91	283
2001510058	2025077	1002581	82 TEX	8/10/2003	3.7	150	143	23	19	74	102	307
2001510060	2025077	1002581	82 TEX	8/13/2003	3.5	141	148	22	19	66	93	327
2001510066	2025077	1002581	82 TEX	8/9/2003	3.6	138	143	24	16	93	95	313
2001510558	2024962	1002581	82 TEX	8/10/2003	3.4	138	137	22	18	76	93	273
2001510559	2024962	1002581	82 TEX	8/12/2003	3.5	148	141	22	18	64	78	337
2001510560	2024962	1002581	82 TEX	8/15/2003	3.6	157	150	24	16	70	90	303
2001520487	2026760	1002581	82 TEX	8/15/2003	3.9	141	165	20	16	78	129	370
2001536628	2026381	1002581	82 TEX	8/17/2003	3.3	137	137	19	15	65	67	313



SI® Geosolutions

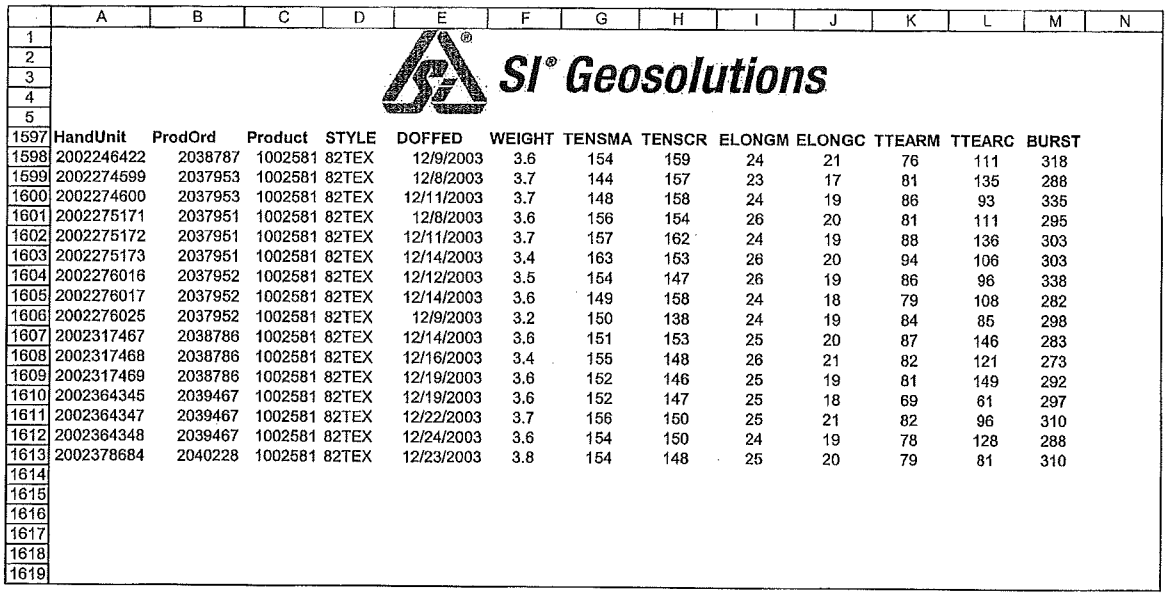
HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001425018	2024761	1002581	82 TEX	8/1/2003	3.6	150	143	20	17	80	97	310
2001427383	2024897	1002581	82 TEX	8/3/2003	3.5	148	156	21	18	72	94	363
2001427384	2024897	1002581	82 TEX	8/1/2003	3.5	161	146	22	17	85	95	317
2001432028	2024147	1002581	82 TEX	8/1/2003	3.6	154	135	20	17	81	82	313
2001432029	2024147	1002581	82 TEX	8/3/2003	3.5	149	149	21	17	80	102	363
2001439175	2024760	1002581	82 TEX	8/2/2003	3.7	157	169	22	18	78	137	332
2001439176	2024760	1002581	82 TEX	8/3/2003	3.6	148	149	20	18	80	115	322
2001441227	2024143	1002581	82 TEX	8/3/2003	3.6	153	138	21	17	92	78	330
2001441228	2024143	1002581	82 TEX	8/5/2003	3.6	165	148	25	19	83	114	317
2001441232	2024143	1002581	82 TEX	8/15/2003	3.9	143	160	22	17	74	126	377
2001445988	2024142	1002581	82 TEX	8/1/2003	3.4	161	145	23	19	80	94	290
2001466179	20246619	1002581	82 TEX	8/7/2003	3.4	143	139	21	22	74	64	367
2001466180	2024764	1002581	82 TEX	8/10/2003	3.6	149	142	24	19	82	78	280
2001466187	2024764	1002581	82 TEX	8/6/2003	3.5	141	148	22	17	67	81	380
2001466194	2025076	1002581	82 TEX	8/8/2003	3.6	146	148	22	19	77	152	317
2001466195	2025076	1002581	82 TEX	8/10/2003	3.6	142	138	22	19	73	75	323
2001466202	2025076	1002581	82 TEX	8/5/2003	3.4	151	145	20	17	83	105	347
2001468224	2026165	1002581	82 TEX	8/8/2003	3.6	140	141	20	16	63	93	328
2001468225	2026165	1002581	82 TEX	8/10/2003	3.7	140	135	21	17	77	82	340
2001468232	2026265	1002581	82 TEX	8/5/2003	3.5	137	144	19	16	70	83	320
2001471298	2025075	1002581	82 TEX	8/6/2003	3.6	142	140	19	18	63	77	347
2001471299	2025075	1002581	82 TEX	8/8/2003	3.2	138	144	19	16	76	74	303
2001471300	2025075	1002581	82 TEX	8/8/2003	3.2	138	144	19	16	76	74	303
2001471435	2026034	1002581	82 TEX	8/6/2003	3.7	152	138	20	18	74	74	323
2001471436	2024145	1002581	82 TEX	8/6/2003	3.4	147	140	20	17	62	80	357
2001471437	2024145	1002581	82 TEX	8/9/2003	3.6	157	160	23	18	74	130	353
2001471443	2024145	1002581	82 TEX	8/13/2003	3.7	176	194	24	19	84	86	343
2001475275	2025119	1002581	82 TEX	8/7/2003	3.6	153	172	20	20	76	151	350
2001475276	2025119	1002581	82 TEX	8/9/2003	3.6	156	146	24	19	87	146	323
2001475277	2025119	1002581	82 TEX	8/12/2003	3.2	149	140	24	22	75	79	303
2001475354	2025678	1002581	82 TEX	8/13/2003	3.5	156	145	21	18	89	85	328
2001475357	2025678	1002581	82 TEX	8/10/2003	3.9	148	142	22	19	86	90	297
2001475358	2025678	1002581	82 TEX	8/7/2003	3.5	160	141	22	21	93	79	327
2001484258	2025073	1002581	82 TEX	8/10/2003	3.5	140	139	20	17	71	91	337
2001484260	2025073	1002581	82 TEX	8/7/2003	3.5	140	156	19	17	65	100	340
2001484597	2025072	1002581	82 TEX	8/7/2003	3.7	155	138	22	19	70	71	370

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644385	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315

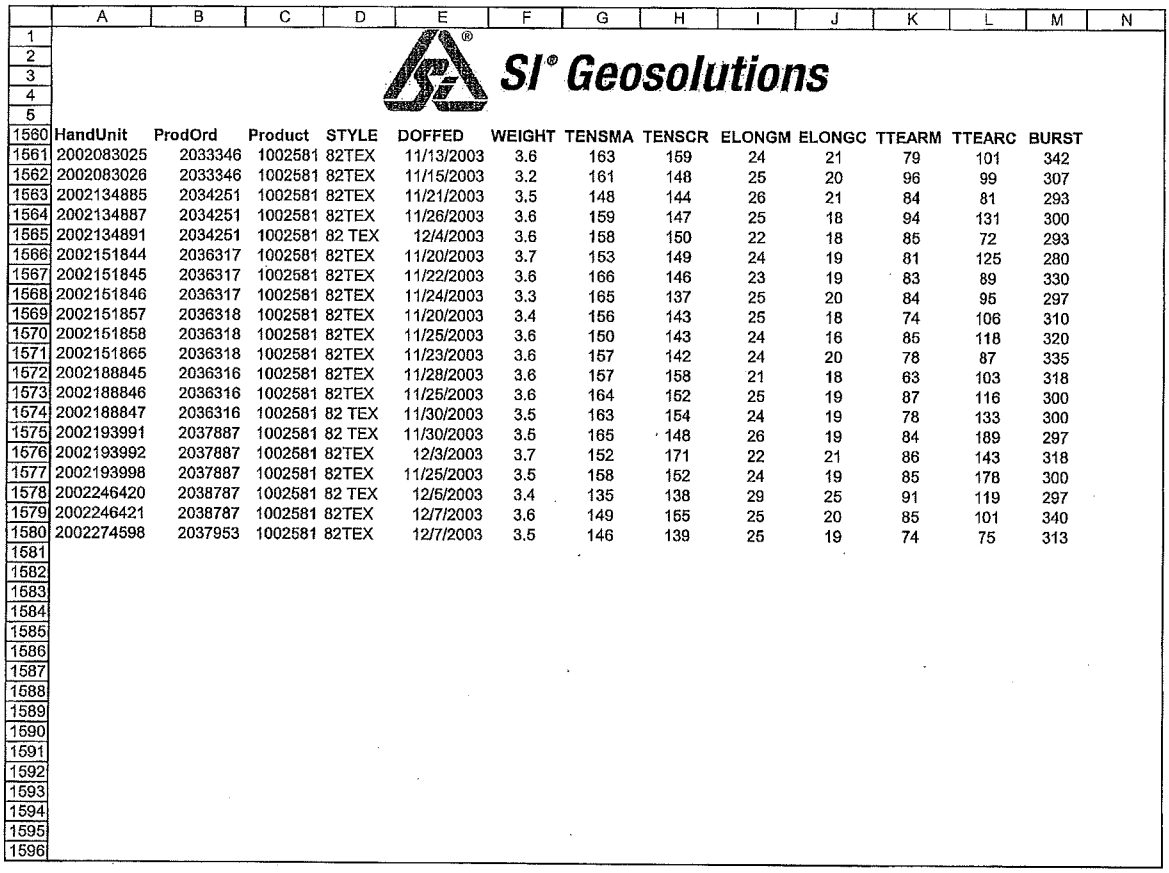
SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333
2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313
2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313
2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312
2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320
2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322
2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340
2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300
2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287
2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303
2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300
2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323
2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267
2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290
2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287
2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360
2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317
2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292
2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297
2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327
2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323
2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310
2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307
2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310
2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297
2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325
2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273
2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277
2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307
2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293
2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290
2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323
2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310
2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303
2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297
2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002246422	2038787	1002581	82TEX	12/9/2003	3.6	154	159	24	21	76	111	318
2002274599	2037953	1002581	82TEX	12/8/2003	3.7	144	157	23	17	81	135	288
2002274600	2037953	1002581	82TEX	12/11/2003	3.7	148	158	24	19	86	93	335
2002275171	2037951	1002581	82TEX	12/8/2003	3.6	156	154	26	20	81	111	295
2002275172	2037951	1002581	82TEX	12/11/2003	3.7	157	162	24	19	88	136	303
2002275173	2037951	1002581	82TEX	12/14/2003	3.4	163	153	26	20	94	106	303
2002276016	2037952	1002581	82TEX	12/12/2003	3.5	154	147	26	19	86	96	338
2002276017	2037952	1002581	82TEX	12/14/2003	3.6	149	158	24	18	79	108	282
2002276025	2037952	1002581	82TEX	12/9/2003	3.2	150	138	24	19	84	85	298
2002317467	2038786	1002581	82TEX	12/14/2003	3.6	151	153	25	20	87	146	283
2002317468	2038786	1002581	82TEX	12/16/2003	3.4	155	148	26	21	82	121	273
2002317469	2038786	1002581	82TEX	12/19/2003	3.6	152	146	25	19	81	149	292
2002364345	2039467	1002581	82TEX	12/19/2003	3.6	152	147	25	18	69	61	297
2002364347	2039467	1002581	82TEX	12/22/2003	3.7	156	150	25	21	82	96	310
2002364348	2039467	1002581	82TEX	12/24/2003	3.6	154	150	24	19	78	128	288
2002378684	2040228	1002581	82TEX	12/23/2003	3.8	154	148	25	20	79	81	310



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342
2002083026	2033346	1002581	82TEX	11/15/2003	3.2	161	148	25	20	96	99	307
2002134885	2034251	1002581	82TEX	11/21/2003	3.5	148	144	26	21	84	81	293
2002134887	2034251	1002581	82TEX	11/26/2003	3.6	159	147	25	18	94	131	300
2002134891	2034251	1002581	82 TEX	12/4/2003	3.6	158	150	22	18	85	72	293
2002151844	2036317	1002581	82TEX	11/20/2003	3.7	153	149	24	19	81	125	280
2002151845	2036317	1002581	82TEX	11/22/2003	3.6	166	146	23	19	83	89	330
2002151846	2036317	1002581	82TEX	11/24/2003	3.3	165	137	25	20	84	95	297
2002151857	2036318	1002581	82TEX	11/20/2003	3.4	156	143	25	18	74	106	310
2002151858	2036318	1002581	82TEX	11/25/2003	3.6	150	143	24	16	85	118	320
2002151865	2036318	1002581	82TEX	11/23/2003	3.6	157	142	24	20	78	87	335
2002188845	2036316	1002581	82TEX	11/28/2003	3.6	157	158	21	18	63	103	318
2002188846	2036316	1002581	82TEX	11/25/2003	3.6	164	152	25	19	87	116	300
2002188847	2036316	1002581	82 TEX	11/30/2003	3.5	163	154	24	19	78	133	300
2002193991	2037887	1002581	82 TEX	11/30/2003	3.5	165	148	26	19	84	189	297
2002193992	2037887	1002581	82TEX	12/3/2003	3.7	152	171	22	21	86	143	318
2002193998	2037887	1002581	82TEX	11/25/2003	3.5	158	152	24	19	85	178	300
2002246420	2038787	1002581	82 TEX	12/5/2003	3.4	135	138	29	25	91	119	297
2002246421	2038787	1002581	82TEX	12/7/2003	3.6	149	155	25	20	85	101	340
2002274598	2037953	1002581	82TEX	12/7/2003	3.5	146	139	25	19	74	75	313

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**Colloid Environmental Technologies Co.**
PRODUCTION FACILITY:	**CETCO** **102 Conners Road** **Villa Rica, GA 30180**
CONTACT:	Debbie Bivins 404-459-4995
BRAND NAME:	Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187965, 187966, 187968, 187969
Ship Date:	21-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCS8TF3 QCT8TF3
6/22/04 12:25:07

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 00018796S

MATERIAL	LOT#	ROLL#	GEOTEXTILE 5.0oz/sy nw ASTM D 5261	GRAB STRENGTH 6.0 lbs mARV ASTM D 4632
LO-H/N-WHITE-ST	200412VR	00000921	6.7	36.3
LO-H/N-WHITE-ST	200425VR	00002077	7.1	81.4
LO-H/N-WHITE-ST	200425VR	00002083	6.5	91.9
LO-H/N-WHITE-ST	200425VR	00002087	6.5	91.9
LO-H/N-WHITE-ST	200425VR	00002088	6.5	91.9
LO-H/N-WHITE-ST	200425VR	00002093	6.2	46.1

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187969

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	061904NWF		6.3	72.9
LO-N/W-WHITE-ST	061904NWG		6.8	62.7
LO-N/W-WHITE-ST	061904NWI		6.2	72.1
LO-N/W-WHITE-ST	200421VR	00001726	6.5	57.7
LO-N/W-WHITE-ST	200421VR	00001728	6.9	80.0
LO-N/W-WHITE-ST	200421VR	00001735	6.5	60.7
LO-N/W-WHITE-ST	200421VR	00001750	7.1	69.0
LO-N/W-WHITE-ST	200422VR	00001888	6.6	69.6
LO-N/W-WHITE-ST	200423VR	00001918	6.9	68.8

TOTAL PAGES 1

QCG4TF3 6/22/04 QCT4TF3 12:24:50

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187966

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200412VR	00000921	6.7	26.3
LO-N/W-WHITE-ST	200425VR	00002079	7.1	98.6
LO-N/W-WHITE-ST	200425VR	00002082	7.1	98.5
LO-N/W-WHITE-ST	200425VR	00002083	6.5	91.9
LO-N/W-WHITE-ST	200425VR	00002085	6.5	91.9
LO-N/W-WHITE-ST	200425VR	00002090	6.2	46.1

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TP3 QCT#TP3
6/22/04 12:24:34

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187968

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200425VR	00002079	7.1	98.6
LO-N/W-WHITE-ST	200425VR	00002082	7.1	98.6
LO-N/W-WHITE-ST	200425VR	00002087	6.5	91.9
LO-N/W-WHITE-ST	200425VR	00002088	6.5	91.9
LO-N/W-WHITE-ST	200425VR	00002090	6.2	46.1

TOTAL PAGES 1

QCG#FT2 QCT#FT2
6/22/04 12:25:06

CETCO

GCL QUALITY DATA

SHIP TO: GSI
SHERCO GEN
BECKER

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

O R D E R # 000187965

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005214	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005213	.81*	195.80	26.20*
LO-BENTOMAT ST	200425LO	00005201	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005200	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005183	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005168	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005167	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005165	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005164	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005163	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005150	.85	264.40	30.70
LO-BENTOMAT ST	200425LO	00005149	.85	264.40	30.70
LO-BENTOMAT ST	200425LO	00005148	.85	264.40	30.70
LO-BENTOMAT ST	200425LO	00005147	.85	264.40	30.70
LO-BENTOMAT ST	200425LO	00005146	.85	264.40	30.70
LO-BENTOMAT ST	200425LO	00005136	.86	264.40	23.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

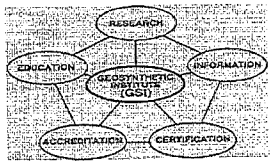
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187965, 187966, 187968, 187969
Ship Date:	21-Jun

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 6/22/04 QCT#FT2 12:24:33

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187968

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005226	.81	195.80	25.20
LO-BENTOMAT ST	200425LO	00005224	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005223	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005222	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005221	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005209	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005208	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005207	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005206	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005204	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005195	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005194	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005192	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005191	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005190	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005175	.84	195.80	33.00

NOTE:
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Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 6/22/04 QCT#FT2 12:24:50

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187966

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200426LO	00005230	.83	204.70	27.30
LO-BENTOMAT ST	200425LO	00005220	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005218	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005217	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005216	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005215	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005205	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005203	.94	195.80	24.50
LO-BENTOMAT ST	200425LO	00005189	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005188	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005187	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005186	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005185	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005184	.88	195.80	37.30
LO-BENTOMAT ST	200425LO	00005170	.84	195.80	33.00
LO-BENTOMAT ST	200425LO	00005169	.84	195.80	33.00

NOTE:
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Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 QCT#FT2
6/22/04 12:24:16

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SIERCO GEN
BECKER

O R D E R # 000187969

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005133	.86	264.40	23.60
LO-BENTOMAT ST	200425LO	00005131	.86	264.40	23.60
LO-BENTOMAT ST	200425LO	00005130	.86	264.40	23.60
LO-BENTOMAT ST	200425LO	00005129	.86	264.40	23.60
LO-BENTOMAT ST	200425LO	00005128	.86*	264.40	23.60*
LO-BENTOMAT ST	200424LO	00004301	.85	232.90	47.80
LO-BENTOMAT ST	200424LO	00004292	.85	232.90	48.40
LO-BENTOMAT ST	200424LO	00004282	.85*	232.90	48.40*
LO-BENTOMAT ST	200424LO	00004281	.86	232.90	43.10
LO-BENTOMAT ST	200424LO	00004267	.86	232.90	43.10
LO-BENTOMAT ST	200424LO	00004264	.84	232.90	47.00
LO-BENTOMAT ST	200424LO	00004259	.84	232.90	47.00
LO-BENTOMAT ST	200424LO	00004258	.84	232.90	47.00
LO-BENTOMAT ST	200424LO	00004256	.84	232.90	47.00
LO-BENTOMAT ST	200424LO	00004253	.84	232.90	47.00
LO-BENTOMAT ST	200424LO	00004250	.84	232.90	47.00

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/22/04 12:24:50

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187966

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200425LO									
00005169	LO-BENTOMAT ST	150	2250	2649	200412VR	00000921	2001471303		060904C
00005170	LO-BENTOMAT ST	150	2250	2671	200412VR	00000921	2002151864		060904C
00005184	LO-BENTOMAT ST	150	2250	2659	200425VR	00002079	2002151864		060904C
00005185	LO-BENTOMAT ST	150	2250	2672	200425VR	00002079	2002151864		060904C
00005186	LO-BENTOMAT ST	150	2250	2689	200425VR	00002079	2002151864		060904C
00005187	LO-BENTOMAT ST	150	2250	2674	200425VR	00002079	2002151864		060904C
00005188	LO-BENTOMAT ST	150	2250	2688	200425VR	00002079	2002151864		060904C
00005189	LO-BENTOMAT ST	150	2250	2671	200425VR	00002079	2002151864		060904C
00005203	LO-BENTOMAT ST	150	2250	2678	200425VR	00002082	2002275174		061004A
00005205	LO-BENTOMAT ST	150	2250	2659	200425VR	00002082	2002275174		061004A
00005215	LO-BENTOMAT ST	150	2250	2659	200425VR	00002083	2001536632		061004A
00005216	LO-BENTOMAT ST	150	2250	2681	200425VR	00002083	2001536632		061004A
00005217	LO-BENTOMAT ST	150	2250	2672	200425VR	00002083	2001536632		061004A
00005218	LO-BENTOMAT ST	150	2250	2666	200425VR	00002083	2001536632		061004A
00005220	LO-BENTOMAT ST	150	2250	2681	200425VR	00002090	2001536632		061004A
LOT# 200426LO									
00005230	LO-BENTOMAT ST	150	2250	2690	200425VR	00002085	2001536632		061004A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
6/22/04 12:25:06

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187965

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200425LO									
00005136	LO-BENTOMAT ST	150	2250	2600	061904NWI		2001471303		060904B
00005146	LO-BENTOMAT ST	150	2250	2681	200424VR	00002073	2001471303		060904B
00005147	LO-BENTOMAT ST	150	2250	2659	200424VR	00002073	2001471303		060904B
00005148	LO-BENTOMAT ST	150	2250	2666	200424VR	00002073	2001471303		060904B
00005149	LO-BENTOMAT ST	150	2250	2676	200424VR	00002073	2001471303		060904B
00005150	LO-BENTOMAT ST	150	2250	2687	200424VR	00002073	2001471303		060904B
00005163	LO-BENTOMAT ST	150	2250	2672	200425VR	00002093	2001471303		060904C
00005164	LO-BENTOMAT ST	150	2250	2684	200425VR	00002093	2001471303		060904C
00005165	LO-BENTOMAT ST	150	2250	2689	200425VR	00002093	2001471303		060904C
00005167	LO-BENTOMAT ST	150	2250	2628	200412VR	00000921	2001471303		060904C
00005168	LO-BENTOMAT ST	150	2250	2635	200412VR	00000921	2001471303		060904C
00005183	LO-BENTOMAT ST	150	2250	2648	200425VR	00002087	2002151864		060904C
00005200	LO-BENTOMAT ST	150	2250	2681	200425VR	00002088	2002275174		061004A
00005201	LO-BENTOMAT ST	150	2250	2679	200425VR	00002088	2002275174		061004A
00005213	LO-BENTOMAT ST	150	2250	2656	200425VR	00002083	2002275174		061004A
00005214	LO-BENTOMAT ST	150	2250	2644	200425VR	00002083	2002275174		061004A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187969

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200424LO									
00004250	LO-BENTOMAT ST	150	2250	2515	200423VR	00001918	2001604173		052804A
00004253	LO-BENTOMAT ST	150	2250	2510	200423VR	00001918	2001604173		052804A
00004256	LO-BENTOMAT ST	150	2250	2433	200421VR	00001735	2001604173		052804A
00004258	LO-BENTOMAT ST	150	2250	2428	200421VR	00001735	2001604173		052804A
00004259	LO-BENTOMAT ST	150	2250	2534	200421VR	00001735	2001604173		052804A
00004264	LO-BENTOMAT ST	150	2250	2471	200421VR	00001726	2001604173		052804A
00004267	LO-BENTOMAT ST	150	2250	2455	200421VR	00001726	2001604173		052804A
00004281	LO-BENTOMAT ST	150	2250	2417	200422VR	00001888	2001579940		052804B
00004282	LO-BENTOMAT ST	150	2250	2449	200422VR	00001888	2001579940		052804B
00004292	LO-BENTOMAT ST	150	2250	2442	200421VR	00001750	2001579940		052804B
00004301	LO-BENTOMAT ST	150	2250	2431	200421VR	00001728	2001510064		052804B
LOT# 200425LO									
00005128	LO-BENTOMAT ST	150	2250	2620	061904NWF		2001471303		060904B
00005129	LO-BENTOMAT ST	150	2250	2630	061904NWF		2001471303		060904B
00005130	LO-BENTOMAT ST	150	2250	2625	061904NWF		2001471303		060904B
00005131	LO-BENTOMAT ST	150	2250	2610	061904NWF		2001471303		060904B
00005133	LO-BENTOMAT ST	150	2250	2605	061904NWG		2001471303		060904B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187968

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200425LO									
00005175	LO-BENTOMAT ST	150	2250	2695	200425VR	00002087	2002151864		060904C
00005190	LO-BENTOMAT ST	150	2250	2655	200425VR	00002079	2002151864		060904C
00005191	LO-BENTOMAT ST	150	2250	2691	200425VR	00002079	2002275174		060904C
00005192	LO-BENTOMAT ST	150	2250	2681	200425VR	00002079	2002275174		060904C
00005194	LO-BENTOMAT ST	150	2250	2669	200425VR	00002088	2002275174		060904C
00005195	LO-BENTOMAT ST	150	2250	2675	200425VR	00002088	2002275174		060904C
00005204	LO-BENTOMAT ST	150	2250	2667	200425VR	00002082	2002275174		061004A
00005206	LO-BENTOMAT ST	150	2250	2671	200425VR	00002082	2002275174		061004A
00005207	LO-BENTOMAT ST	150	2250	2695	200425VR	00002082	2002275174		061004A
00005208	LO-BENTOMAT ST	150	2250	2686	200425VR	00002082	2002275174		061004A
00005209	LO-BENTOMAT ST	150	2250	2679	200425VR	00002082	2002275174		061004A
00005221	LO-BENTOMAT ST	150	2250	2675	200425VR	00002090	2001536632		061004A
00005222	LO-BENTOMAT ST	150	2250	2680	200425VR	00002090	2001536632		061004A
00005223	LO-BENTOMAT ST	150	2250	2677	200425VR	00002090	2001536632		061004A
00005224	LO-BENTOMAT ST	150	2250	2689	200425VR	00002090	2001536632		061004A
00005226	LO-BENTOMAT ST	150	2250	2687	200425VR	00002090	2001536632		061004A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 23, 2004
PO: 9656-00
Order #: 187967, 187970, 187971, 187972

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on June 22, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187967, 187970, 187971, 187972
Ship Date:	22-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

ORDER NO:.. 000187967
ORDER DATE: 5/17/2004
SHIP DATE:. 6/22/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200404LO	00000466	150.0	15.0	2250.0	2685.0
LO-BENTOMAT ST		SFT SF	200407LO	00001037	150.0	15.0	2250.0	2705.0
LO-BENTOMAT ST		SFT SF	200407LO	00001041	150.0	15.0	2250.0	2713.0
LO-BENTOMAT ST		SFT SF	200407LO	00001042	150.0	15.0	2250.0	2700.0
LO-BENTOMAT ST		SFT SF	200407LO	00001047	150.0	15.0	2250.0	2711.0
LO-BENTOMAT ST		SFT SF	200407LO	00001112	150.0	15.0	2250.0	2669.0
LO-BENTOMAT ST		SFT SF	200407LO	00001214	150.0	15.0	2250.0	2731.0
LO-BENTOMAT ST		SFT SF	200407LO	00001241	150.0	15.0	2250.0	2657.0
LO-BENTOMAT ST		SFT SF	200424LO	00004025	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT SF	200424LO	00004026	150.0	15.0	2250.0	2558.0
LO-BENTOMAT ST		SFT SF	200424LO	00004031	150.0	15.0	2250.0	2559.0
LO-BENTOMAT ST		SFT SF	200424LO	00004067	150.0	15.0	2250.0	2591.0
LO-BENTOMAT ST		SFT SF	200424LO	00004068	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT SF	200424LO	00004083	150.0	15.0	2250.0	2597.0
LO-BENTOMAT ST		SFT SF	200424LO	00004269	150.0	15.0	2250.0	2439.0
ORDER TOTALS.....							33750.0	39468.0

TOTAL ITEMS..... 15

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187970
ORDER DATE: 5/17/2004
SHIP DATE:. 6/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200402LO	00000120	150.0	15.0	2250.0	2799.0
LO-BENTOMAT ST	SFT SF	200402LO	00000201	150.0	15.0	2250.0	2727.0
LO-BENTOMAT ST	SFT SF	200405LO	00000645	150.0	15.0	2250.0	2672.0
LO-BENTOMAT ST	SFT SF	200407LO	00001154	150.0	15.0	2250.0	2674.0
LO-BENTOMAT ST	SFT SF	200407LO	00001240	150.0	15.0	2250.0	2679.0
LO-BENTOMAT ST	SFT SF	200407LO	00001310	150.0	15.0	2250.0	2650.0
LO-BENTOMAT ST	SFT SF	200407LO	00001339	150.0	15.0	2250.0	2657.0
LO-BENTOMAT ST	SFT SF	200407LO	00001340	150.0	15.0	2250.0	2651.0
LO-BENTOMAT ST	SFT SF	200420LO	00002946	150.0	15.0	2250.0	2585.0
LO-BENTOMAT ST	SFT SF	200420LO	00002949	150.0	15.0	2250.0	2687.0
LO-BENTOMAT ST	SFT SF	200424LO	00004027	150.0	15.0	2250.0	2554.0
LO-BENTOMAT ST	SFT SF	200424LO	00004029	150.0	15.0	2250.0	2556.0
LO-BENTOMAT ST	SFT SF	200424LO	00004032	150.0	15.0	2250.0	2546.0
LO-BENTOMAT ST	SFT SF	200424LO	00004270	150.0	15.0	2250.0	2426.0
LO-BENTOMAT ST	SFT SF	200424LO	00004271	150.0	15.0	2250.0	2416.0
LO-BENTOMAT ST	SFT SF	200424LO	00004283	150.0	15.0	2250.0	2427.0
						========	========
ORDER TOTALS.....						36000.0	41706.0
TOTAL ITEMS.....	16						

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187971
ORDER DATE: 5/17/2004
SHIP DATE:. 6/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200402LO	00000266	150.0	15.0	2250.0	2712.0
LO-BENTOMAT ST	SFT SF	200421LO	00003161	150.0	15.0	2250.0	2713.0
LO-BENTOMAT ST	SFT SF	200423LO	00003910	150.0	15.0	2250.0	2582.0
LO-BENTOMAT ST	SFT SF	200424LO	00004007	150.0	15.0	2250.0	2541.0
LO-BENTOMAT ST	SFT SF	200424LO	00004012	150.0	15.0	2250.0	2554.0
LO-BENTOMAT ST	SFT SF	200424LO	00004019	150.0	15.0	2250.0	2559.0
LO-BENTOMAT ST	SFT SF	200424LO	00004020	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST	SFT SF	200424LO	00004036	150.0	15.0	2250.0	2552.0
LO-BENTOMAT ST	SFT SF	200424LO	00004037	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST	SFT SF	200424LO	00004038	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST	SFT SF	200424LO	00004040	150.0	15.0	2250.0	2570.0
LO-BENTOMAT ST	SFT SF	200424LO	00004041	150.0	15.0	2250.0	2572.0
LO-BENTOMAT ST	SFT SF	200424LO	00004042	150.0	15.0	2250.0	2570.0
LO-BENTOMAT ST	SFT SF	200424LO	00004052	150.0	15.0	2250.0	2568.0
LO-BENTOMAT ST	SFT SF	200425LO	00005219	150.0	15.0	2250.0	2657.0
LO BENTOMAT ST	SFT SF	200425LO	00005228	150.0	15.0	2250.0	2687.0
						========	========
ORDER TOTALS.....						36000.0	41491.0
TOTAL ITEMS.....	16						

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187972
ORDER DATE: 5/17/2004
SHIP DATE:. 6/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200407LO	00001186	150.0	15.0	2250.0	2736.0
LO-BENTOMAT ST		SFT	SF 200407LO	00001215	150.0	15.0	2250.0	2713.0
LO-BENTOMAT ST		SFT	SF 200407LO	00001222	150.0	15.0	2250.0	2707.0
LO-BENTOMAT ST		SFT	SF 200407LO	00001291	150.0	15.0	2250.0	2668.0
LO-BENTOMAT ST		SFT	SF 200421LO	00003167	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200421LO	00003169	150.0	15.0	2250.0	2584.0
LO-BENTOMAT ST		SFT	SF 200421LO	00003170	150.0	15.0	2250.0	2578.0
LO-BENTOMAT ST		SFT	SF 200421LO	00003178	150.0	15.0	2250.0	2602.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004013	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004017	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004018	150.0	15.0	2250.0	2563.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004022	150.0	15.0	2250.0	2556.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004028	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004033	150.0	15.0	2250.0	2552.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004034	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004035	150.0	15.0	2250.0	2555.0
ORDER TOTALS.....							36000.0	41634.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187967, 187970, 187971, 187972
Ship Date:	22-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187967, 187970, 187971, 187972
Ship Date:	22-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **28-Dec-03**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **122803B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.1**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**11.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **30-Dec-03**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **123003B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **06-Jan-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **010604A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 12-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 011204B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 16-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 011604C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	8.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 26-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 012604D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 28-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 012804B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.1
Moisture	ASTM D 2216	12.0 % (MAX)	10.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 29-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 012904C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.1
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 29-Jan-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 012904D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.1
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 02-Feb-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 020204B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 02-Feb-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 020204D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 04-Feb-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 020404A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 04-Feb-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 020404B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 04-Feb-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 020404C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 05-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 050504A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.2
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 14-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051404H
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	9.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 17-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 051704A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **25-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052504A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **26-May-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **052604B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 26-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052604C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	11.2
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	13.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 28-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052804A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 28-May-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 052804B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.4

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 10-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061004A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.0
Moisture	ASTM D 2216	12.0 % (MAX)	10.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

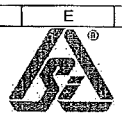
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION Facility:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Randy Johnson
Brand Name:	82 Tex.



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001425018	2024761	1002581	82 TEX	8/1/2003	3.6	150	143	20	17	80	97	310
2001427383	2024897	1002581	82 TEX	8/3/2003	3.5	148	156	21	18	72	94	363
2001427384	2024897	1002581	82 TEX	8/1/2003	3.5	161	146	22	17	85	95	317
2001432028	2024147	1002581	82 TEX	8/1/2003	3.6	154	135	20	17	81	82	313
2001432029	2024147	1002581	82 TEX	8/3/2003	3.5	149	149	21	17	80	102	363
2001439175	2024760	1002581	82 TEX	8/2/2003	3.7	157	169	22	18	78	137	332
2001439176	2024760	1002581	82 TEX	8/3/2003	3.6	148	149	20	18	80	115	322
2001441227	2024143	1002581	82 TEX	8/3/2003	3.6	153	138	21	17	92	78	330
2001441228	2024143	1002581	82 TEX	8/5/2003	3.6	165	148	25	19	83	114	317
2001441232	2024143	1002581	82 TEX	8/15/2003	3.9	143	160	22	17	74	126	377
2001445988	2024142	1002581	82 TEX	8/1/2003	3.4	161	145	23	19	80	94	290
2001466179	20246619	1002581	82 TEX	8/7/2003	3.4	143	139	21	22	74	64	367
2001466180	2024764	1002581	82 TEX	8/10/2003	3.6	149	142	24	19	82	78	280
2001466187	2024764	1002581	82 TEX	8/6/2003	3.5	141	148	22	17	67	81	380
2001466194	2025076	1002581	82 TEX	8/8/2003	3.6	146	148	22	19	77	152	317
2001466195	2025076	1002581	82 TEX	8/10/2003	3.6	142	138	22	19	73	75	323
2001466202	2025076	1002581	82 TEX	8/5/2003	3.4	151	145	20	17	83	105	347
2001468224	2026165	1002581	82 TEX	8/8/2003	3.6	140	141	20	16	63	93	328
2001468225	2026165	1002581	82 TEX	8/10/2003	3.7	140	135	21	17	77	82	340
2001468232	2026265	1002581	82 TEX	8/5/2003	3.5	137	144	19	16	70	83	320
2001471298	2025075	1002581	82 TEX	8/6/2003	3.6	142	140	19	18	63	77	347
2001471299	2025075	1002581	82 TEX	8/8/2003	3.2	138	144	19	16	76	74	303
2001471300	2025075	1002581	82 TEX	8/8/2003	3.2	138	144	19	16	76	74	303
2001471435	2026034	1002581	82 TEX	8/6/2003	3.7	152	138	20	18	74	74	323
2001471436	2024145	1002581	82 TEX	8/6/2003	3.4	147	140	20	17	62	80	357
2001471437	2024145	1002581	82 TEX	8/9/2003	3.6	157	160	23	18	74	130	353
2001471443	2024145	1002581	82 TEX	8/13/2003	3.7	176	194	24	19	84	86	343
2001475275	2025119	1002581	82 TEX	8/7/2003	3.6	153	172	20	20	76	151	350
2001475276	2025119	1002581	82 TEX	8/9/2003	3.6	156	146	24	19	87	146	323
2001475277	2025119	1002581	82 TEX	8/12/2003	3.2	149	140	24	22	75	79	303
2001475354	2025678	1002581	82 TEX	8/13/2003	3.5	156	145	21	18	89	85	328
2001475357	2025678	1002581	82 TEX	8/10/2003	3.9	148	142	22	19	86	90	297
2001475358	2025678	1002581	82 TEX	8/7/2003	3.5	160	141	22	21	93	79	327
2001484258	2025073	1002581	82 TEX	8/10/2003	3.5	140	139	20	17	71	91	337
2001484260	2025073	1002581	82 TEX	8/7/2003	3.5	140	156	19	17	65	100	340
2001484597	2025072	1002581	82 TEX	8/7/2003	3.7	155	138	22	19	70	71	370



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001390622	2024014	1002581	82TEX	7/23/2003	3.6	153	157	24	21	83	105	327
2001390624	2024014	1002581	82TEX	7/26/2003	3.5	159	147	22	19	87	132	297
2001390625	2024014	1002581	82TEX	7/28/2003	3.6	153	150	23	19	77	133	413
2001390626	2024014	1002581	82TEX	7/30/2003	3.2	153	139	22	18	84	72	323
2001390669	2024009	1002581	82TEX	7/28/2003	3.6	145	149	21	17	63	75	427
2001390670	2024009	1002581	82TEX	7/31/2003	3.6	142	150	22	16	82	94	327
2001390676	2024009	1002581	82TEX	7/26/2003	3.6	141	135	21	18	100	82	277
2001390844	2024762	1002581	82TEX	7/21/2003	3.6	157	147	24	19	86	197	350
2001390845	2024762	1002581	82TEX	7/23/2003	3.5	156	140	23	19	79	108	320
2001390846	2024762	1002581	82TEX	7/25/2003	3.6	161	137	24	19	86	89	317
2001391080	2024010	1002581	82TEX	7/22/2003	3.7	148	145	22	17	73	118	307
2001391081	2024010	1002581	82TEX	7/24/2003	3.6	146	142	21	19	76	144	320
2001391082	2024010	1002581	82TEX	7/26/2003	3.6	148	153	21	17	64	108	320
2001391091	2024008	1002581	82TEX	7/22/2003	3.7	150	154	24	17	70	152	313
2001391092	2024008	1002581	82TEX	7/24/2003	3.6	149	143	22	17	72	90	340
2001391093	2024008	1002581	82TEX	7/26/2003	3.2	142	160	21	18	68	89	317
2001392784	2024963	1002581	82TEX	7/23/2003	3.7	142	147	24	17	80	106	330
2001392785	2024963	1002581	82TEX	7/27/2003	3.4	148	159	23	19	81	123	320
2001392787	2024963	1002581	82TEX	7/25/2003	3.6	155	153	22	17	88	92	337
2001403350	2024013	1002581	82TEX	7/28/2003	3.6	143	145	22	18	74	138	420
2001403351	2024013	1002581	82TEX	7/26/2003	3.6	147	139	21	17	76	94	320
2001425016	2024761	1002581	82TEX	7/27/2003	3.4	139	143	19	16	77	74	267
2001425169	2024761	1002581	82TEX	7/29/2003	3.7	147	145	21	17	72	88	440
2001427385	2024897	1002581	82TEX	7/30/2003	3.2	141	136	19	18	81	81	322
2001432036	2024147	1002581	82TEX	7/29/2003	3.5	145	144	20	17	57	75	437
2001439183	2024760	1002581	82TEX	7/31/2003	3.5	154	153	23	18	85	117	313
2001441226	2024143	1002581	82TEX	7/31/2003	3.5	137	138	20	20	71	92	307

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644385	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315

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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333
2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313
2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313
2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312
2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320
2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322
2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340
2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300
2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287
2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303
2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300
2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323
2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267
2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290
2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287
2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360
2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317
2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292
2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297
2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327
2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323
2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310
2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307
2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310
2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297
2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325
2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273
2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277
2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307
2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293
2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290
2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323
2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310
2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303
2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297
2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267

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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001741804	2029690	1002581	82TEX	10/1/2003	3.5	159	149	22	18	70	102	333
2001756545	2028831	1002581	82TEX	9/28/2003	3.6	160	158	20	16	69	89	330
2001758204	2029689	1002581	82TEX	9/25/2003	3.7	157	154	22	17	67	86	340
2001786178	2029692	1002581	82TEX	10/4/2003	3.4	161	147	23	19	62	70	320
2001786180	2029692	1002581	82TEX	10/2/2003	3.6	161	156	25	19	54	77	370
2001786181	2029692	1002581	82TEX	9/29/2003	3.2	156	142	21	17	65	75	340
2001786182	2029692	1002581	82TEX	9/27/2003	3.5	163	149	25	17	58	74	357
2001786291	2030466	1002581	82TEX	9/27/2003	3.5	150	153	23	19	58	85	347
2001786292	2030466	1002581	82TEX	9/29/2003	3.5	153	162	20	16	62	72	310
2001786293	2030466	1002581	82TEX	9/30/2003	3.4	169	156	25	18	69	85	328
2001811817	2030481	1002581	82TEX	10/2/2003	3.4	148	143	20	17	79	86	337
2001814524	2030481	1002581	82TEX	9/29/2003	3.5	157	156	23	17	70	84	303
2001814525	2030481	1002581	82TEX	9/27/2003	3.5	154	136	20	16	67	107	307
2001819099	2030468	1002581	82TEX	9/30/2003	3.6	155	152	22	18	75	116	323
2001819100	2030468	1002581	82TEX	10/4/2003	3.3	164	135	26	19	70	77	333
2001819109	2030468	1002581	82TEX	10/2/2003	3.6	164	160	25	19	69	82	343
2001826156	2030475	1002581	82TEX	10/2/2003	3.3	172	151	23	19	89	101	307
2001826157	2030475	1002581	82TEX	10/4/2003	3.3	170	166	23	20	76	99	367
2001826164	2030475	1002581	82TEX	9/30/2003	3.7	164	157	26	20	84	116	320
2001835461	2030470	1002581	82TEX	10/4/2003	3.5	146	138	22	18	68	71	333
2001835462	2030470	1002581	82TEX	10/6/2003	3.5	152	146	19	16	74	80	303
2001836319	2030470	1002581	82TEX	10/3/2003	3.8	145	172	22	19	79	111	363
2001836327	2030465	1002581	82TEX	10/4/2003	3.6	160	146	22	16	63	71	353
2001836328	2030465	1002581	82TEX	10/7/2003	3.6	160	157	23	21	75	56	352
2001839554	2030483	1002581	82TEX	10/4/2003	3.5	166	160	22	19	74	91	363
2001839555	2030483	1002581	82TEX	10/6/2003	3.5	170	157	23	19	72	94	317
2001858813	2030482	1002581	82TEX	10/4/2003	3.4	155	146	21	18	74	95	330
2001858814	2030482	1002581	82TEX	10/7/2003	3.5	169	145	25	18	69	84	338

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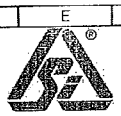
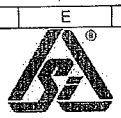
HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001730613	2028839	1002581	82TEX	9/19/2003	3.5	175	167	25	19	73	103	340
2001730638	2028836	1002581	82TEX	9/19/2003	3.5	169	157	22	18	61	81	347
2001730650	2028837	1002581	82TEX	9/19/2003	3.5	156	143	20	17	68	92	330
2001741069	2028842	1002581	82TEX	9/19/2003	3.6	165	158	26	18	78	88	333
2001741070	2028842	1002581	82TEX	9/21/2003	3.5	167	149	21	18	69	92	317
2001741799	2029690	1002581	82TEX	9/19/2003	3.4	173	155	27	20	76	88	268
2001741800	2029690	1002581	82TEX	9/21/2003	3.4	175	154	26	20	77	94	348
2001756542	2028831	1002581	82TEX	9/19/2003	3.4	139	141	21	17	58	59	267
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001757153	2029691	1002581	82TEX	9/20/2003	3.3	155	139	21	17	83	99	360
2001757154	2029691	1002581	82TEX	9/23/2003	3.6	156	153	26	19	67	97	323
2001758202	2029689	1002581	82TEX	9/24/2003	3.4	149	140	22	18	57	70	328
2001758203	2029689	1002581	82TEX	9/21/2003	3.3	146	136	20	16	72	92	297



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001836329	2030465	1002581	82TEX	10/09/03	3.6	170	155	25	18	64	70	357
2001836330	2030465	1002581	82TEX	10/11/03	3.7	166	189	23	20	76	112	347
2001858815	2030482	1002581	82TEX	10/09/03	3.3	164	142	26	19	79	89	333
2001881363	2030474	1002581	82TEX	10/09/03	3.6	152	159	20	16	68	102	330
2001881364	2030474	1002581	82TEX	10/12/03	3.5	161	149	23	18	72	82	357
2001881365	2030474	1002581	82TEX	10/14/03	3.5	160	153	24	18	74	83	300
2001900949	2031846	1002581	82TEX	10/14/03	3.4	150	145	22	18	69	76	340
2001900950	2031846	1002581	82TEX	10/13/03	3.5	149	152	21	19	63	80	360
2001900951	2031846	1002581	82TEX	10/10/03	4.5	166	164	23	18	74	95	320
2001914847	2032601	1002581	82TEX	10/14/03	3.7	137	140	19	17	63	79	333
2001914849	2032601	1002581	82TEX	10/18/03	3.5	159	151	25	19	71	77	327
2001914850	2032601	1002581	82TEX	10/21/03	3.6	143	145	17	16	72	64	270
2001920360	2032600	1002581	82TEX	10/18/03	3.6	163	174	23	20	74	99	358
2001920361	2032600	1002581	82TEX	10/20/03	3.5	168	158	25	19	74	98	333
2001920469	2032600	1002581	82TEX	10/15/03	3.5	167	159	22	18	78	89	320
2001938397	2032602	1002581	82TEX	10/17/03	3.4	148	140	21	18	80	93	307
2001938398	2032602	1002581	82TEX	10/20/03	3.5	156	154	23	20	65	96	307
2001938399	2032602	1002581	82TEX	10/22/03	3.6	168	168	25	20	68	104	340
2001938401	2032602	1002581	82TEX	10/24/03	3.5	160	158	25	19	80	95	328
2001938407	2032603	1002581	82TEX	10/20/03	3.4	162	151	24	19	73	79	297
2001938408	2032603	1002581	82TEX	10/22/03	3.4	161	153	23	19	70	85	333
2001938409	2032603	1002581	82TEX	10/24/03	3.7	165	166	23	18	74	93	303
2001938410	2032603	1002581	82TEX	10/26/03	3.7	164	168	20	17	78	103	323
2001950437	2033345	1002581	82TEX	10/24/03	3.3	166	148	25	19	77	92	305
2001950438	2033345	1002581	82TEX	10/26/03	3.5	162	161	26	20	74	105	355
2001950439	2033345	1002581	82TEX	10/28/03	3.5	170	161	26	20	75	101	335



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001647177	2027101	1002581	82TEX	9/15/2003	3.4	157	150	24	19	81	91	303
2001656378	2028191	1002581	82TEX	9/11/2003	3.6	153	142	22	17	73	80	320
2001662745	2028195	1002581	82TEX	9/11/2003	3.4	158	163	23	16	77	87	310
2001662747	2028195	1002581	82TEX	9/13/2003	3.6	150	153	23	18	71	80	323
2001676615	2028836	1002581	82TEX	9/10/2003	3.6	162	140	24	18	75	77	287
2001677781	2028838	1002581	82TEX	9/10/2003	3.5	142	136	19	18	76	82	320
2001677782	2028838	1002581	82TEX	9/12/2003	3.6	172	158	23	17	88	135	337
2001678454	2028833	1002581	82TEX	9/14/2003	3.6	155	140	23	17	71	70	332
2001678455	2028833	1002581	82TEX	9/11/2003	3.6	144	155	20	16	69	97	337
2001684525	2028840	1002581	82TEX	9/11/2003	3.6	164	155	24	18	80	107	297
2001684526	2028840	1002581	82TEX	9/13/2003	3.7	159	164	22	20	74	101	343
2001684527	2028840	1002581	82TEX	9/15/2003	3.5	165	163	22	18	74	92	343
2001696391	2028841	1002581	82TEX	9/11/2003	3.6	161	142	24	15	81	75	280
2001696392	2028841	1002581	82TEX	9/14/2003	3.7	163	141	26	15	85	99	317
2001696393	2028841	1002581	82TEX	9/17/2003	3.4	164	143	27	15	77	78	273
2001698698	2028844	1002581	82TEX	9/12/2003	3.5	157	158	22	17	82	138	317
2001698699	2028844	1002581	82TEX	9/15/2003	3.5	156	135	24	17	64	67	318
2001698700	2028844	1002581	82TEX	9/17/2003	3.6	146	146	20	17	73	85	333
2001700943	2028832	1002581	82TEX	9/15/2003	3.6	155	155	21	17	66	96	310
2001700947	2028832	1002581	82TEX	9/13/2003	3.6	148	150	22	16	74	95	327
2001703297	2028830	1002581	82TEX	9/13/2003	3.4	167	165	26	20	76	118	322
2001703298	2028830	1002581	82TEX	9/15/2003	3.6	166	141	24	16	68	91	328
2001703305	2028830	1002581	82TEX	9/11/2003	3.8	171	153	25	19	81	104	322
2001714197	2028829	1002581	82TEX	9/11/2003	3.5	147	149	22	17	79	105	307
2001714198	2028829	1002581	82TEX	9/12/2003	3.6	159	166	22	16	70	94	337
2001714199	2028829	1002581	82TEX	9/15/2003	3.5	172	144	25	17	74	73	343
2001724728	2028834	1002581	82TEX	9/15/2003	3.6	180	153	27	17	88	130	320
2001724730	2028834	1002581	82TEX	9/14/2003	3.6	170	151	27	17	87	61	352
2001730620	2028839	1002581	82TEX	9/15/2003	3.5	166	169	23	20	77	101	327
2001730637	2028836	1002581	82TEX	9/17/2003	3.4	162	173	24	21	67	79	353
2001730646	2028836	1002581	82TEX	9/15/2003	3.7	156	165	21	18	61	73	330
2001730647	2028837	1002581	82TEX	9/15/2003	3.6	149	150	21	16	65	102	320
2001730649	2028837	1002581	82TEX	9/17/2003	3.6	162	166	25	17	66	95	347
2001741078	2028842	1002581	82TEX	9/17/2003	3.3	146	139	22	19	76	88	297
2001741798	2029690	1002581	82TEX	9/17/2003	3.4	174	165	25	19	90	99	317

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342
2002083026	2033346	1002581	82TEX	11/15/2003	3.2	161	148	25	20	96	99	307
2002134885	2034251	1002581	82TEX	11/21/2003	3.5	148	144	26	21	84	81	293
2002134887	2034251	1002581	82TEX	11/26/2003	3.6	159	147	25	18	94	131	300
2002134891	2034251	1002581	82 TEX	12/4/2003	3.6	158	150	22	18	85	72	293
2002151844	2036317	1002581	82TEX	11/20/2003	3.7	153	149	24	19	81	125	280
2002151845	2036317	1002581	82TEX	11/22/2003	3.6	166	146	23	19	83	89	330
2002151846	2036317	1002581	82TEX	11/24/2003	3.3	165	137	25	20	84	95	297
2002151857	2036318	1002581	82TEX	11/20/2003	3.4	156	143	25	18	74	106	310
2002151858	2036318	1002581	82TEX	11/25/2003	3.6	150	143	24	16	85	118	320
2002151865	2036318	1002581	82TEX	11/23/2003	3.6	157	142	24	20	78	87	335
2002188845	2036316	1002581	82TEX	11/28/2003	3.6	157	158	21	18	63	103	318
2002188846	2036316	1002581	82TEX	11/25/2003	3.6	164	152	25	19	87	116	300
2002188847	2036316	1002581	82 TEX	11/30/2003	3.5	163	154	24	19	78	133	300
2002193991	2037887	1002581	82 TEX	11/30/2003	3.5	165	148	26	19	84	189	297
2002193992	2037887	1002581	82TEX	12/3/2003	3.7	152	171	22	21	86	143	318
2002193998	2037887	1002581	82TEX	11/25/2003	3.5	158	152	24	19	85	178	300
2002246420	2038787	1002581	82 TEX	12/5/2003	3.4	135	138	29	25	91	119	297
2002246421	2038787	1002581	82TEX	12/7/2003	3.6	149	155	25	20	85	101	340
2002274598	2037953	1002581	82TEX	12/7/2003	3.5	146	139	25	19	74	75	313

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002005990	2034252	1002581	82TEX	11/1/2003	3.4	144	136	19	17	70	75	313
2002040387	2034249	1002581	82TEX	11/1/2003	3.5	151	158	20	17	74	96	310
2002005991	2034252	1002581	82TEX	11/2/2003	3.6	155	145	24	17	74	104	330
2002044301	2034250	1002581	82TEX	11/3/2003	3.5	164	143	25	18	89	95	363
2002044374	2034253	1002581	82TEX	11/3/2003	3.4	150	143	22	18	77	86	347
2002040388	2034249	1002581	82TEX	11/3/2003	3.7	158	149	22	17	90	111	330
2002005992	2034252	1002581	82TEX	11/4/2003	3.7	150	154	24	18	70	95	362
2002044304	2034250	1002581	82TEX	11/5/2003	4.2	163	142	26	18	78	96	350
2002044316	2034253	1002581	82TEX	11/5/2003	3.6	150	149	23	19	58	85	350
2002040389	2034249	1002581	82TEX	11/5/2003	3.4	159	142	23	18	85	93	343

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187697

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002423522		3.5	167.8
LO-WOVEN-ST	2002839415		3.2	167.8
LO-WOVEN-ST	2002493153		3.3	169.5
LO-WOVEN-ST	2002406944		3.5	168.2
LO-WOVEN-ST	2002445716		3.4	168.4

TOTAL PAGES 1

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
1598	2002246422	2038787	1002581	82TEX	12/9/2003	3.6	154	159	24	21	76	111	318
1599	2002274599	2037953	1002581	82TEX	12/8/2003	3.7	144	157	23	17	81	135	288
1600	2002274600	2037953	1002581	82TEX	12/11/2003	3.7	148	158	24	19	86	93	335
1601	2002275171	2037951	1002581	82TEX	12/8/2003	3.6	156	154	26	20	81	111	295
1602	2002275172	2037951	1002581	82TEX	12/11/2003	3.7	157	162	24	19	88	136	303
1603	2002275173	2037951	1002581	82TEX	12/14/2003	3.4	163	153	26	20	94	106	303
1604	2002276016	2037952	1002581	82TEX	12/12/2003	3.5	154	147	26	19	86	96	338
1605	2002276017	2037952	1002581	82TEX	12/14/2003	3.6	149	158	24	18	79	108	282
1606	2002276025	2037952	1002581	82TEX	12/9/2003	3.2	150	138	24	19	84	85	298
1607	2002317467	2038786	1002581	82TEX	12/14/2003	3.6	151	153	25	20	87	146	283
1608	2002317468	2038786	1002581	82TEX	12/16/2003	3.4	155	148	26	21	82	121	273
1609	2002317469	2038786	1002581	82TEX	12/19/2003	3.6	162	146	25	19	81	149	292
1610	2002364345	2039467	1002581	82TEX	12/19/2003	3.6	152	147	25	18	69	61	297
1611	2002364347	2039467	1002581	82TEX	12/22/2003	3.7	156	150	25	21	82	96	310
1612	2002364348	2039467	1002581	82TEX	12/24/2003	3.6	154	150	24	19	78	128	288
1613	2002378684	2040228	1002581	82TEX	12/23/2003	3.8	154	148	25	20	79	81	310

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187967, 187970, 187971, 187972
Ship Date:	22-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TP3 QCT#TP3
6/23/04 13:14:36

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187967

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200351VR	00003868	7.1	58.9
LO-N/W-WHITE-ST	200351VR	00003903	6.6	57.1
LO-N/W-WHITE-ST	200402VR	00000051	6.5	85.5
LO-N/W-WHITE-ST	200403VR	00000169	6.9	76.9
LO-N/W-WHITE-ST	200403VR	00000177	6.7	131.5
LO-N/W-WHITE-ST	200403VR	00000180	6.8	71.1
LO-N/W-WHITE-ST	200404VR	00000209	6.8	53.5
LO-N/W-WHITE-ST	200421VR	00001726	6.5	57.7
LO-N/W-WHITE-ST	200422VR	00001859	7.0	56.8
LO-N/W-WHITE-ST	200423VR	00001926	6.9	68.8
LO-N/W-WHITE-ST	200423VR	00001934	6.4	60.5
LO-N/W-WHITE-ST	200423VR	00001965	6.7	67.4

TOTAL PAGES 1

QCG#TF3 QCT#TF3
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CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187971

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200348VR	00003638	6.6	57.0
LO-N/W-WHITE-ST	200411VR	00000869	6.6	49.0
LO-N/W-WHITE-ST	200413VR	00001068	6.7	42.7
LO-N/W-WHITE-ST	200420VR	00001578	7.3	80.8
LO-N/W-WHITE-ST	200422VR	00001869	6.7	83.9
LO-N/W-WHITE-ST	200423VR	00001928	6.7	89.3
LO-N/W-WHITE-ST	200423VR	00001934	6.4	60.5
LO-N/W-WHITE-ST	200423VR	00001950	7.2	100.5
LO-N/W-WHITE-ST	200425VR	00002085	6.5	91.9
LO-N/W-WHITE-ST	200425VR	00002090	6.2	46.1

TOTAL PAGES 1

QCG#TF3 QCT#TF3
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CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187970

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200347VR	00003557	6.4	58.9
LO-N/W-WHITE-ST	200347VR	00003566	6.6	82.2
LO-N/W-WHITE-ST	200348VR	00003666	6.5	59.1
LO-N/W-WHITE-ST	200402VR	00000013	6.5	44.3
LO-N/W-WHITE-ST	200403VR	00000152	6.7	58.1
LO-N/W-WHITE-ST	200403VR	00000169	6.9	76.8
LO-N/W-WHITE-ST	200407VR	00000458	6.8	65.9
LO-N/W-WHITE-ST	200417VR	00001365	6.7	54.1
LO-N/W-WHITE-ST	200419VR	00001560	6.9	62.6
LO-N/W-WHITE-ST	200421VR	00001726	6.5	57.7
LO-N/W-WHITE-ST	200422VR	00001888	6.6	69.6
LO-N/W-WHITE-ST	200423VR	00001926	6.9	68.8
LO-N/W-WHITE-ST	200423VR	00001934	6.4	60.5

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TF3 QCT#TF3
6/23/04 13:12:56

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187972

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200402VR	00000008	5.7	58.1
LO-N/W-WHITE-ST	200403VR	00000148	5.6	49.7
LO-N/W-WHITE-ST	200403VR	00000170	5.9	76.9
LO-N/W-WHITE-ST	200403VR	00000177	5.7	131.5
LO-N/W-WHITE-ST	200420VR	00001631	5.6	45.4
LO-N/W-WHITE-ST	200421VR	00001706	6.3	75.3
LO-N/W-WHITE-ST	200423VR	00001926	6.9	68.8
LO-N/W-WHITE-ST	200423VR	00001934	6.4	60.5
LO-N/W-WHITE-ST	200423VR	00001950	7.2	100.5

TOTAL PAGES 1

QCG#FT2 6/23/04 QCT#FT2 13:14:35

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187967

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200424LO	00004269	.85	232.90	43.10
LO-BENTOMAT ST	200424LO	00004083	.86	284.20	25.70
LO-BENTOMAT ST	200424LO	00004068	.87	284.20	29.00
LO-BENTOMAT ST	200424LO	00004067	.87	284.20	29.00
LO-BENTOMAT ST	200424LO	00004031	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004026	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004025	.81	247.00	31.90
LO-BENTOMAT ST	200407LO	00001241	.92	195.70	43.10
LO-BENTOMAT ST	200407LO	00001214	.89	195.70	42.90
LO-BENTOMAT ST	200407LO	00001112	.82	273.40	36.50
LO-BENTOMAT ST	200407LO	00001047	.90	273.40	36.50
LO-BENTOMAT ST	200407LO	00001042	.90	273.40	35.20
LO-BENTOMAT ST	200407LO	00001041	.90	273.40	35.20
LO-BENTOMAT ST	200407LO	00001037	.90	273.40	35.20
LO-BENTOMAT ST	200404LO	00000466	.82	265.20	31.50

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

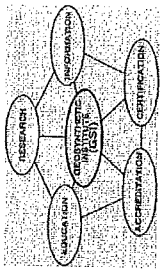
MANUFACTURING CERTIFICATION

Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187967, 187970, 187971, 187972
Ship Date: 22-Jun

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 6/23/04 QCT#FT2 13:13:24

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187971

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005228	.81	195.80	26.20
LO-BENTOMAT ST	200425LO	00005219	.81	195.80	26.20
LO-BENTOMAT ST	200424LO	00004052	.87	224.20	31.90
LO-BENTOMAT ST	200424LO	00004042	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004041	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004040	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004038	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004037	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004036	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004020	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004019	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004012	.78	247.00	41.00
LO-BENTOMAT ST	200424LO	00004007	.78	247.00	41.00
LO-BENTOMAT ST	200423LO	00003910	.88	242.00	42.30
LO-BENTOMAT ST	200421LO	00003161	.89*	188.20*	39.10*
LO-BENTOMAT ST	200402LO	00000266	.82	217.50	40.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40.000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40.000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 6/23/04 QCT#FT2 13:13:50

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187970

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200424LO	00004283	.85	232.90	48.40
LO-BENTOMAT ST	200424LO	00004271	.86	232.90	43.10
LO-BENTOMAT ST	200424LO	00004270	.86	232.90	43.10
LO-BENTOMAT ST	200424LO	00004032	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004029	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004027	.81	247.00	31.90
LO-BENTOMAT ST	200420LO	00002949	.90	218.90	28.50
LO-BENTOMAT ST	200420LO	00002946	.90	218.90	28.50
LO-BENTOMAT ST	200407LO	00001340	.83	308.30	34.10
LO-BENTOMAT ST	200407LO	00001339	.83	308.30	34.10
LO-BENTOMAT ST	200407LO	00001310	.80	308.30	41.80
LO-BENTOMAT ST	200407LO	00001240	.92*	195.70	43.10*
LO-BENTOMAT ST	200407LO	00001154	.88	249.70	40.00
LO-BENTOMAT ST	200405LO	00000645	.89	278.90	39.60
LO-BENTOMAT ST	200402LO	00000201	.95	217.50	40.90
LO-BENTOMAT ST	200402LO	00000120	.95*	290.80	18.60*

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

Roger Wilkerson

From: Hutsell, Scott [shutsell@golder.com]
Sent: Tuesday, June 22, 2004 6:33 AM
To: Roger Wilkerson; hamiltont@repsrvnj.com
Cc: Mark McGrath; Lansing Project Filing
Subject: 043-8956 RE: MQA for Republic Countrywide LF

Hello Roger,

Thank you for the certification packages.

According to your spec sheet, Cetco performs Hydraulic Conductivity and Index Flux testing on a weekly basis. I realize that you may or may not have tested material that you have shipped to Countywide to meet this requirement, nevertheless, I need you to send me documentation that you have performed this testing for the weeks of June 14 and June 21.

Thank you,

Scott

Scott G. Hutsell, P.E.
Golder Associates Inc.
15851 South US 27, Suite 50
Lansing, MI 48906
(517) 482-2262
(f) (517) 482-2460
shutsell@golder.com

From: Roger Wilkerson [mailto:roger.wilkerson@cetco.com]
Sent: Monday, June 21, 2004 4:16 PM
To: hamiltont@repsrvnj.com
Cc: Hutsell, Scott; Mark McGrath
Subject: MQA for Republic Countrywide LF

Todd,

Attached are the MQA packages that left Lovell June 17, 18, & 19

Thank you,
Roger B. Wilkerson
Quality Assurance
CETCO - Lovell, Wyoming

6/22/2004

QCG#FT2 6/23/04 QCT#FT2 13:12:56

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187972

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 15 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200424LO	00004035	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004034	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004033	.88	247.00	37.40
LO-BENTOMAT ST	200424LO	00004028	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004022	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004018	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004017	.81	247.00	31.90
LO-BENTOMAT ST	200424LO	00004013	.81*	247.00	31.90*
LO-BENTOMAT ST	200421LO	00003178	.96*	188.20	25.40*
LO-BENTOMAT ST	200421LO	00003170	.89	188.20	39.10
LO-BENTOMAT ST	200421LO	00003169	.89	188.20	39.10
LO-BENTOMAT ST	200421LO	00003167	.89	188.20	39.10
LO-BENTOMAT ST	200407LO	00001291	.85*	195.70	38.70*
LO-BENTOMAT ST	200407LO	00001222	.89	195.70	42.90
LO-BENTOMAT ST	200407LO	00001215	.89	195.70	42.90
LO-BENTOMAT ST	200407LO	00001186	.85	249.70	36.20

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/23/04 13:14:35

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187967

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200404LO									
00000466	LO-BENTOMAT ST	150	2250	2685	200351VR	00003868	2001950439		011204B
LOT# 200407LO									
00001037	LO-BENTOMAT ST	150	2250	2705	200403VR	00000180	2001684528		012604D
00001041	LO-BENTOMAT ST	150	2250	2713	200404VR	00000209	2002151862		012604D
00001042	LO-BENTOMAT ST	150	2250	2700	200404VR	00000209	2002151862		012604D
00001047	LO-BENTOMAT ST	150	2250	2711	200351VR	00003903	2002151862		012604D
00001112	LO-BENTOMAT ST	150	2250	2669	200402VR	00000051	2002406945		012804B
00001214	LO-BENTOMAT ST	150	2250	2731	200403VR	00000177	2002445716		020204B
00001241	LO-BENTOMAT ST	150	2250	2657	200403VR	00000169	2002151859		020204D
LOT# 200424LO									
00004025	LO-BENTOMAT ST	150	2250	2353	200423VR	00001926	2002274600		052604B
00004026	LO-BENTOMAT ST	150	2250	2358	200423VR	00001926	2002274600		052604B
00004031	LO-BENTOMAT ST	150	2250	2359	200423VR	00001934	2002274600		052604B
00004067	LO-BENTOMAT ST	150	2250	2391	200423VR	00001965	2002151846		052604C
00004068	LO-BENTOMAT ST	150	2250	2600	200423VR	00001965	2002151846		052604C
00004083	LO-BENTOMAT ST	150	2250	2597	200422VR	00001859	2002151846		052604C
00004269	LO-BENTOMAT ST	150	2250	2439	200421VR	00001726	2001604173		052804A

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
6/23/04 13:13:24

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187971

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200402LO									
00000266	LO-BENTOMAT ST	150	2250	2712	200348VR	00003638	2001620738		010604A
LOT# 200421LO									
00003161	LO-BENTOMAT ST	150	2250	2713	200411VR	00000869	2001466195		051404H
LOT# 200423LO									
00003910	LO-BENTOMAT ST	150	2250	2582	200413VR	00001068	2002493155		052504A
LOT# 200424LO									
00004007	LO-BENTOMAT ST	150	2250	2541	200423VR	00001928	2002274602		052604B
00004012	LO-BENTOMAT ST	150	2250	2554	200423VR	00001928	2002274602		052604B
00004019	LO-BENTOMAT ST	150	2250	2559	200423VR	00001950	2002274600		052604B
00004020	LO-BENTOMAT ST	150	2250	2553	200423VR	00001950	2002274600		052604B
00004036	LO-BENTOMAT ST	150	2250	2552	200423VR	00001934	2002274600		052604B
00004037	LO-BENTOMAT ST	150	2250	2550	200423VR	00001934	2002246426		052604B
00004038	LO-BENTOMAT ST	150	2250	2551	200423VR	00001934	2002246426		052604B
00004040	LO-BENTOMAT ST	150	2250	2570	200422VR	00001869	2002246426		052604B
00004041	LO-BENTOMAT ST	150	2250	2572	200422VR	00001869	2002246426		052604B
00004042	LO-BENTOMAT ST	150	2250	2570	200422VR	00001869	2002246426		052604B
00004052	LO-BENTOMAT ST	150	2250	2568	200420VR	00001578	2002246426		052604C
LOT# 200425LO									
00005219	LO-BENTOMAT ST	150	2250	2657	200425VR	00002090	2001536632		061004A
00005228	LO-BENTOMAT ST	150	2250	2687	200425VR	00002085	2001536632		061004A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
6/23/04 13:13:50

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187970

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200402LO									
00000120	LO-BENTOMAT ST	150	2250	2799	200348VR	00003666	2001835464		122803B
00000201	LO-BENTOMAT ST	150	2250	2727	200347VR	00003557	2001601979		123003B
LOT# 200405LO									
00000645	LO-BENTOMAT ST	150	2250	2572	200402VR	00000013	2002044369		011604C
LOT# 200407LO									
00001154	LO-BENTOMAT ST	150	2250	2574	200347VR	00003566	2001730655		012904C
00001240	LO-BENTOMAT ST	150	2250	2579	200403VR	00000169	2002151859		020204D
00001310	LO-BENTOMAT ST	150	2250	2550	200403VR	00000152	2002423522		020404B
00001339	LO-BENTOMAT ST	150	2250	2557	200407VR	00000458	2002276017		020404C
00001340	LO-BENTOMAT ST	150	2250	2551	200407VR	00000458	2002276017		020404C
LOT# 200420LO									
00002946	LO-BENTOMAT ST	150	2250	2585	200417VR	00001365	2002839415		050504A
00002949	LO-BENTOMAT ST	150	2250	2587	200419VR	00001560	2002839415		050504A
LOT# 200424LO									
00004027	LO-BENTOMAT ST	150	2250	2554	200423VR	00001926	2002274600		052604B
00004029	LO-BENTOMAT ST	150	2250	2556	200423VR	00001926	2002274600		052604B
00004032	LO-BENTOMAT ST	150	2250	2546	200423VR	00001934	2002274600		052604B
00004270	LO-BENTOMAT ST	150	2250	2426	200421VR	00001726	2001604173		052804A
00004271	LO-BENTOMAT ST	150	2250	2416	200421VR	00001726	2001604173		052804A
00004283	LO-BENTOMAT ST	150	2250	2427	200422VR	00001888	2001579940		052804B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1 CETCO PAGE: 1
6/23/04 13:12:55 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187972

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200407LO									
00001186	LO-BENTOMAT ST	150	2250	2736	200403VR	00000148	2001730655		012904D
00001215	LO-BENTOMAT ST	150	2250	2713	200403VR	00000177	2002445716		020204B
00001222	LO-BENTOMAT ST	150	2250	2707	200403VR	00000170	2002445716		020204B
00001291	LO-BENTOMAT ST	150	2250	2668	200402VR	00000008	2002423522		020404A
LOT# 200421LO									
00003167	LO-BENTOMAT ST	150	2250	2600	200421VR	00001706	2001466195		051404H
00003169	LO-BENTOMAT ST	150	2250	2584	200421VR	00001706	2001390673		051404H
00003170	LO-BENTOMAT ST	150	2250	2578	200421VR	00001706	2001390673		051404H
00003178	LO-BENTOMAT ST	150	2250	2602	200420VR	00001631	2001390673		051704A
LOT# 200424LO									
00004013	LO-BENTOMAT ST	150	2250	2550	200423VR	00001950	2002274600		052604B
00004017	LO-BENTOMAT ST	150	2250	2560	200423VR	00001950	2002274600		052604B
00004018	LO-BENTOMAT ST	150	2250	2563	200423VR	00001950	2002274600		052604B
00004022	LO-BENTOMAT ST	150	2250	2556	200423VR	00001926	2002274600		052604B
00004028	LO-BENTOMAT ST	150	2250	2550	200423VR	00001926	2002274600		052604B
00004033	LO-BENTOMAT ST	150	2250	2552	200423VR	00001934	2002274600		052604B
00004034	LO-BENTOMAT ST	150	2250	2560	200423VR	00001934	2002274600		052604B
00004035	LO-BENTOMAT ST	150	2250	2555	200423VR	00001934	2002274600		052604B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 24, 2004
PO: 9656-00
Order #: 187973, 187974

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on June 23, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187973, 187974
Ship Date:	23-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187973
ORDER DATE: 5/17/2004
SHIP DATE:. 6/23/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200425LO	00005061	150.0	15.0	2250.0	2619.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005062	150.0	15.0	2250.0	2625.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005063	150.0	15.0	2250.0	2630.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005064	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005065	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005072	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005077	150.0	15.0	2250.0	2625.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005078	150.0	15.0	2250.0	2617.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005079	150.0	15.0	2250.0	2609.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005080	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005081	150.0	15.0	2250.0	2615.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005082	150.0	15.0	2250.0	2605.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005083	150.0	15.0	2250.0	2616.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005084	150.0	15.0	2250.0	2620.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005085	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005086	150.0	15.0	2250.0	2612.0
ORDER TOTALS.....							36000.0	41823.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187974
ORDER DATE: 5/17/2004
SHIP DATE:. 6/23/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200425LO	00005070	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005076	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005087	150.0	15.0	2250.0	2600.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005088	150.0	15.0	2250.0	2607.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005090	150.0	15.0	2250.0	2604.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005091	150.0	15.0	2250.0	2615.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005093	150.0	15.0	2250.0	2605.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005094	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005095	150.0	15.0	2250.0	2605.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005100	150.0	15.0	2250.0	2601.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005102	150.0	15.0	2250.0	2603.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005103	150.0	15.0	2250.0	2608.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005108	150.0	15.0	2250.0	2599.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005109	150.0	15.0	2250.0	2604.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005110	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005116	150.0	15.0	2250.0	2613.0
ORDER TOTALS.....							36000.0	41694.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187973, 187974
Ship Date:	23-Jun

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187973, 187974
Ship Date:	23-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **08-Jun-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **060804D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 09-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060904A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 09-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060904B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION Facility:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Randy Johnson
Brand Name:	82 Tex.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
968	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
969	2001251508	2021405	1002581	82TEX	7/3/2003	3.55		149.38	151.12	20.05	17.98	63.55	74.40	370.00
970	2001251509	2021405	1002581	82TEX	7/5/2003	3.59		149.55	147.82	19.63	17.82	63.40	67.65	380.00
971	2001292883	2021403	1002581	82TEX	7/5/2003	3.56		155.38	151.75	21.18	17.07	68.25	93.50	310.00
972	2001292884	2021403	1002581	82TEX	7/3/2003	3.63		143.28	148.10	19.63	16.85	68.00	83.75	300.00
973	2001299385	2019871	1002581	82TEX	7/5/2003	3.52		165.05	154.33	21.60	18.75	76.40	83.10	383.33
974	2001300223	2021413	1002581	82TEX	7/6/2003	3.50		157.83	138.62	20.85	19.83	82.50	76.40	350.00
975	2001300308	2021409	1002581	82TEX	7/6/2003	3.52		153.43	140.33	20.08	38.03	59.20	93.05	346.67
976	2001307465	2021407	1002581	82TEX	7/6/2003	3.52		161.15	140.17	21.13	18.22	69.35	94.70	326.67
977	2001307525	2021421	1002581	82TEX	7/4/2003	3.61		160.73	150.33	20.73	17.33	83.95	122.65	313.33
978	2001307526	2021421	1002581	82TEX	7/6/2003	3.49		161.90	143.15	21.95	17.92	80.80	90.35	340.00
979	2001310078	2021415	1002581	82TEX	7/5/2003	3.40		152.40	138.55	20.65	16.62	64.60	68.80	313.33
980	2001310741	2021419	1002581	82TEX	7/6/2003	3.74		152.15	152.72	20.15	17.57	76.15	112.70	303.33
981														
982														
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SI® Geosolutions

6/10/2004

Roger Wilke
American Colloid Cetco WY
PO Box 428
Lovell WY 82431
BOL: PO:

This is to Certify that Product 82TEX is a woven geotextile manufactured at one of the SI Corporations facilities that has achieved ISO-9002 certification for its systemic approach to quality will meet the following certifiable minimum average values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PROPERTY	TEST METHOD	UNITS	ENGLISH	METRIC
Mass per Unit Area	ASTM D-5261	oz/sy (g/sm)	3.2	109
Thickness	ASTM D-5199	mils (mm)	16	.41
Tensile Strength (Grab)	ASTM D-4632	lbs (N)	135 x 135	601 x 601
Elongation	ASTM D-4632	%	15	15
Wide Width Tensile	ASTM-D4595	lbs/ft (kN/m)	x	x
Wide Width Elongation	ASTM-D4595	%	N/A	N/A
Puncture	ASTM D-4833	lbs (N)	70	312
Mullen Burst	ASTM D-3786	psi (kPa)	265	1827
Trapezoidal Tear	ASTM D-4533	lbs (N)	45 x 45	200 x 200
UV Resistance	ASTM-D4355	%	90	90
Apparent Opening Size (AOS)	ASTM-D4751	US Std. Sieve (mm)	N/A	N/A
Permittivity	ASTM-D4491	1/sec	.08	.08
Permeability	ASTM-D4491	cm/sec	0.004	0.004
Water Flow Rate	ASTM-D4491	gpm/ft² (l/min/m²)	6	244

Toni Ruppert
Ringgold Quality Lab
Quality Manager

Seller makes no warranty expressed or implied concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specification stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are based on tests believed to be reliable, but no guarantee of the results of such uses or applications is made by Seller. Buyer shall determine the suitability of said product for its intended uses and assumes all risks and liability in connection therewith. Seller's sole obligation shall be to replace such product which is proved not to conform to this warranty. Seller shall not be liable for consequential damages. Buyer shall notify Seller promptly of any claim hereunder and shall give Seller opportunity to inspect the product involved. Seller reserves the right to change or withdraw this product at any time without notice to SI Corporation before installing the product, then SI Corporation will replace like product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002044305	2034250	1002581	82TEX	11/7/2003	3.6	158	151	25	18	85	121	330
2002044317	2034253	1002581	82TEX	11/7/2003	3.4	157	148	24	16	71	90	333
2002083024	2033346	1002581	82TEX	11/10/2003	3.6	157	145	22	21	79	128	383
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Thantex Specialties, Inc.**

PRODUCTION

Facility: **Thantex**
94 Glenn Bridge Road
Arden, NC. 28704

Contact: Furman Drake, 828-687-0940

Brand Name:

THANTEX

Bill of Lading No. **0063415**

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000060712A	25-Nov-03	6.60	0.133	157.3	152.0	95.1	153.6	85.1	50
ROLL000060717A	25-Nov-03	6.32	0.129	172.8	151.8	87.8	157.8	74.7	49
ROLL000060728A	26-Nov-03	6.28	0.125	151.9	125.8	85.8	164.9	81.2	50

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
1703	HandUnit	DOFFED	ProdOrd	Product	STYLE	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1704	2001899305	10/9/2003	2033949	1004557	650	7.7	178	116	161	117	126	44	62	290	
1705	2001899311	10/9/2003	2033949	1004557	650	6.9	170	79	80	130	128	38	35	207	
1706	2001899317	10/10/2003	2033949	1004557	650	7.7	183	94	101	135	132	39	41	234	
1707	2001899324	10/10/2003	2033949	1004557	650	7.4	176	97	116	125	147	39	56	239	
1708	2001901212	10/10/2003	2033949	1004557	650	7.3	170	85	109	127	141	33	39	251	
1709	2001901215	10/10/2003	2033949	1004557	650	7.9	192	96	111	150	139	37	48	253	
1710	2001901269	10/10/2003	2033949	1004557	650	7.5	181	79	85	118	134	47	47	296	
1711	2001901275	10/10/2003	2033949	1004557	650	7.2	167	84	98	116	121	36	36	227	
1712	2001901280	10/10/2003	2033949	1004557	650	7.3	170	75	89	122	133	33	43	239	
1713	2001901285	10/11/2003	2033949	1004557	650	7.8	191	99	95	128	140	40	33	233	
1714	2001901291	10/11/2003	2033949	1004557	650	6.9	172	83	101	124	136	37	44	241	
1715	2001901297	10/11/2003	2033949	1004557	650	7.2	176	79	81	116	141	30	35	237	
1716	2001901299	10/11/2003	2033949	1004557	650	7.9	184	98	138	129	144	44	40	251	
1717	2001901305	10/11/2003	2033949	1004557	650	6.4	163	73	93	123	131	35	33	202	
1718	2001901307	10/13/2003	2033949	1004557	650	6.0	163	56	64	137	144	26	27	239	
1719	2001901309	10/13/2003	2033949	1004557	650	6.4	168	69	65	134	141	27	21	234	
1720	2001985762	10/24/2003	2035570	1004557	650	7.1	150	118	206	130	135	47	73	210	
1721	2001985768	10/24/2003	2035570	1004557	650	6.5	140	121	187	131	136	61	64	214	
1722	2001985772	10/24/2003	2035570	1004557	650	6.5	141	103	200	120	140	45	73	229	
1723	2001985776	10/25/2003	2035570	1004557	650	6.3	142	111	180	115	121	55	78	236	
1724	2001985781	10/25/2003	2035570	1004557	650	6.0	131	98	179	116	138	50	74	190	
1725	2001985788	10/25/2003	2035570	1004557	650	6.2	135	127	184	123	121	69	74	230	
1726	2001988510	10/25/2003	2035570	1004557	650	6.6	139	126	189	129	134	77	51	221	
1727	2001988516	10/25/2003	2035570	1004557	650	6.6	145	139	215	130	129	57	76	227	
1728	2001988573	10/25/2003	2035570	1004557	650	6.5	143	132	205	124	124	48	99	239	
1729	2001988579	10/25/2003	2035570	1004557	650	6.6	138	139	201	134	129	47	85	196	
1730	2001988585	10/27/2003	2035570	1004557	650	6.3	143	118	181	111	119	54	82	227	
1731															
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SI® Geosolutions

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION
Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Sid Weiser

Brand Name: Geotex 650

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187973, 187974
Ship Date:	23-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187973

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	200343VR	00003351	6.6	64.4
LO-N/W-WHITE-ST	061904NWA		6.2	67.8
LO-N/W-WHITE-ST	061904NWB		6.5	62.8
LO-N/W-WHITE-ST	061904NWC		6.8	74.2
LO-N/W-WHITE-ST	061904NWD		6.4	69.4
LO-N/W-WHITE-ST	061904NWE		6.7	69.5

GEOSYNTHETIC CLAY LINER

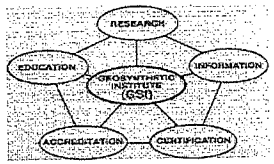
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187973, 187974
Ship Date:	23-Jun

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCS#FT2 OCT#FT2
6/24/04 10:48:54

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI SHERCO GEN
BECKER

O R D E R # 000187973

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	20042510	00005086	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005085	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005084	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005083	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005082	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005081	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005080	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005079	.89	264.40	30.40
LO-BENTOMAT ST	20042510	00005078	.89*	264.40*	30.40*
LO-BENTOMAT ST	20042510	00005077	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005072	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005065	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005064	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005063	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005062	.90	249.90	42.20
LO-BENTOMAT ST	20042510	00005061	.90	249.90	42.20

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 6/24/04 QCT#FT2 10:48:08

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187974

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005116	.89	264.40	27.20
LO-BENTOMAT ST	200425LO	00005110	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005109	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005108	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005103	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005102	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005100	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005095	.85	264.40	36.30
LO-BENTOMAT ST	200425LO	00005094	.85*	264.40	36.30*
LO-BENTOMAT ST	200425LO	00005093	.89	264.40	30.40
LO-BENTOMAT ST	200425LO	00005091	.89	264.40	30.40
LO-BENTOMAT ST	200425LO	00005090	.89	264.40	30.40
LO-BENTOMAT ST	200425LO	00005088	.89	264.40	30.40
LO-BENTOMAT ST	200425LO	00005087	.89	264.40	30.40
LO-BENTOMAT ST	200425LO	00005076	.90	249.90	42.20
LO-BENTOMAT ST	200425LO	00005070	.90	249.90	42.20

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40.000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200.000sf.
Peel Strength is tested a minimum of every 40.000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 6/24/04 QCT#TF1 12:40:01

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187974

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 20042SLO									
00005070	LO-BENTOMAT ST	150	2250	2610	200343VR	00003351	2002083026		060904A
00005076	LO-BENTOMAT ST	150	2250	2600	061904NWC		2002083026		060904A
00005087	LO-BENTOMAT ST	150	2250	2600	061904NWD		2002083026		060904A
00005088	LO-BENTOMAT ST	150	2250	2607	061904NWD		2002083026		060904A
00005090	LO-BENTOMAT ST	150	2250	2604	061904NWD		2002083026		060904A
00005091	LO-BENTOMAT ST	150	2250	2615	061904NWD		2002083026		060904A
00005093	LO-BENTOMAT ST	150	2250	2605	2001985773		2001300308		060904A
00005094	LO-BENTOMAT ST	150	2250	2610	2001985773		2001300308		060904A
00005095	LO-BENTOMAT ST	150	2250	2605	2001985773		2001300308		060904A
00005100	LO-BENTOMAT ST	150	2250	2601	2001985773		2001300308		060904A
00005102	LO-BENTOMAT ST	150	2250	2603	000060718A		2001300308		060904A
00005103	LO-BENTOMAT ST	150	2250	2608	000060718A		2001300308		060904A
00005108	LO-BENTOMAT ST	150	2250	2599	000060718A		2001300308		060904A
00005109	LO-BENTOMAT ST	150	2250	2604	000060718A		2001300308		060904A
00005110	LO-BENTOMAT ST	150	2250	2610	000060718A		2001300308		060904A
00005116	LO-BENTOMAT ST	150	2250	2613	061904NWE		2001300308		060904B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 6/24/04 QCT#TF1 10:48:54

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187973

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 20042SLO									
00005061	LO-BENTOMAT ST	150	2250	2619	061904NWA		2002083026		060804D
00005062	LO-BENTOMAT ST	150	2250	2625	061904NWA		2002083026		060804D
00005063	LO-BENTOMAT ST	150	2250	2630	061904NWA		2002083026		060804D
00005064	LO-BENTOMAT ST	150	2250	2600	061904NWA		2002083026		060804D
00005065	LO-BENTOMAT ST	150	2250	2610	061904NWA		2002083026		060804D
00005072	LO-BENTOMAT ST	150	2250	2600	061904NWB		2002083026		060904A
00005077	LO-BENTOMAT ST	150	2250	2625	061904NWC		2002083026		060904A
00005078	LO-BENTOMAT ST	150	2250	2617	061904NWC		2002083026		060904A
00005079	LO-BENTOMAT ST	150	2250	2605	061904NWC		2002083026		060904A
00005080	LO-BENTOMAT ST	150	2250	2610	061904NWC		2002083026		060904A
00005081	LO-BENTOMAT ST	150	2250	2615	061904NWC		2002083026		060904A
00005082	LO-BENTOMAT ST	150	2250	2605	061904NWC		2002083026		060904A
00005083	LO-BENTOMAT ST	150	2250	2616	061904NWC		2002083026		060904A
00005084	LO-BENTOMAT ST	150	2250	2620	061904NWC		2002083026		060904A
00005085	LO-BENTOMAT ST	150	2250	2610	061904NWD		2002083026		060904A
00005086	LO-BENTOMAT ST	150	2250	2612	061904NWD		2002083026		060904A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 28, 2004
PO: 9656-00
Order #: 187975, 187976

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on June 25, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187975, 187976
Ship Date:	25-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187975
ORDER DATE: 5/17/2004
SHIP DATE:. 6/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200424LO	00004487	150.0	15.0	2250.0	2598.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004489	150.0	15.0	2250.0	2578.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004494	150.0	15.0	2250.0	2590.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004495	150.0	15.0	2250.0	2589.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004496	150.0	15.0	2250.0	2578.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004503	150.0	15.0	2250.0	2580.0
LO-BENTOMAT ST		SFT	SF 200424LO	00004504	150.0	15.0	2250.0	2589.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005399	150.0	15.0	2250.0	2631.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005431	150.0	15.0	2250.0	2654.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005432	150.0	15.0	2250.0	2666.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005433	150.0	15.0	2250.0	2658.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005447	150.0	15.0	2250.0	2641.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005448	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005449	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005451	150.0	15.0	2250.0	2679.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005452	150.0	15.0	2250.0	2682.0
ORDER TOTALS.....							36000.0	42043.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187976
ORDER DATE: 5/17/2004
SHIP DATE:. 6/25/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200425LO	00004995	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT	SF 200425LO	00004996	150.0	15.0	2250.0	2699.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005005	150.0	15.0	2250.0	2678.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005006	150.0	15.0	2250.0	2699.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005010	150.0	15.0	2250.0	2625.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005014	150.0	15.0	2250.0	2620.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005015	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005019	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005021	150.0	15.0	2250.0	2688.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005024	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005026	150.0	15.0	2250.0	2675.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005028	150.0	15.0	2250.0	2621.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005029	150.0	15.0	2250.0	2604.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005030	150.0	15.0	2250.0	2634.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005031	150.0	15.0	2250.0	2615.0
LO-BENTOMAT ST		SFT	SF 200425LO	00005032	150.0	15.0	2250.0	2629.0
							36000.0	42517.0

ORDER TOTALS.....

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187975, 187976
Ship Date:	25-Jun

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187975, 187976
Ship Date:	25-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **01-Jun-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **060104D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 08-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 060804C
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 15-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061504F
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 16-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061604A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	11.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1153	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1154	2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333	
1155	2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313	
1156	2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313	
1157	2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312	
1158	2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320	
1159	2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322	
1160	2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340	
1161	2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300	
1162	2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287	
1163	2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303	
1164	2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300	
1165	2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323	
1166	2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267	
1167	2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290	
1168	2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287	
1169	2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360	
1170	2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317	
1171	2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292	
1172	2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297	
1173	2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327	
1174	2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323	
1175	2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310	
1176	2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307	
1177	2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310	
1178	2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297	
1179	2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325	
1180	2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273	
1181	2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277	
1182	2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307	
1183	2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293	
1184	2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290	
1185	2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323	
1186	2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310	
1187	2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303	
1188	2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297	
1189	2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267	

SI® Geosolutions

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

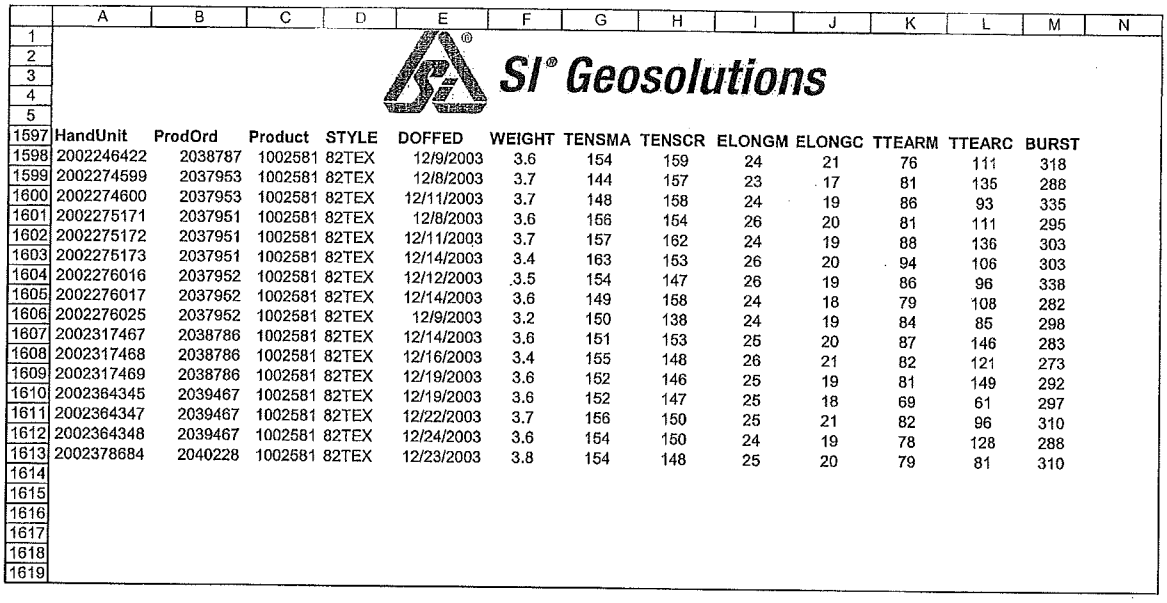
Manufacturer: Synthetic Industries Inc.

PRODUCTION

Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

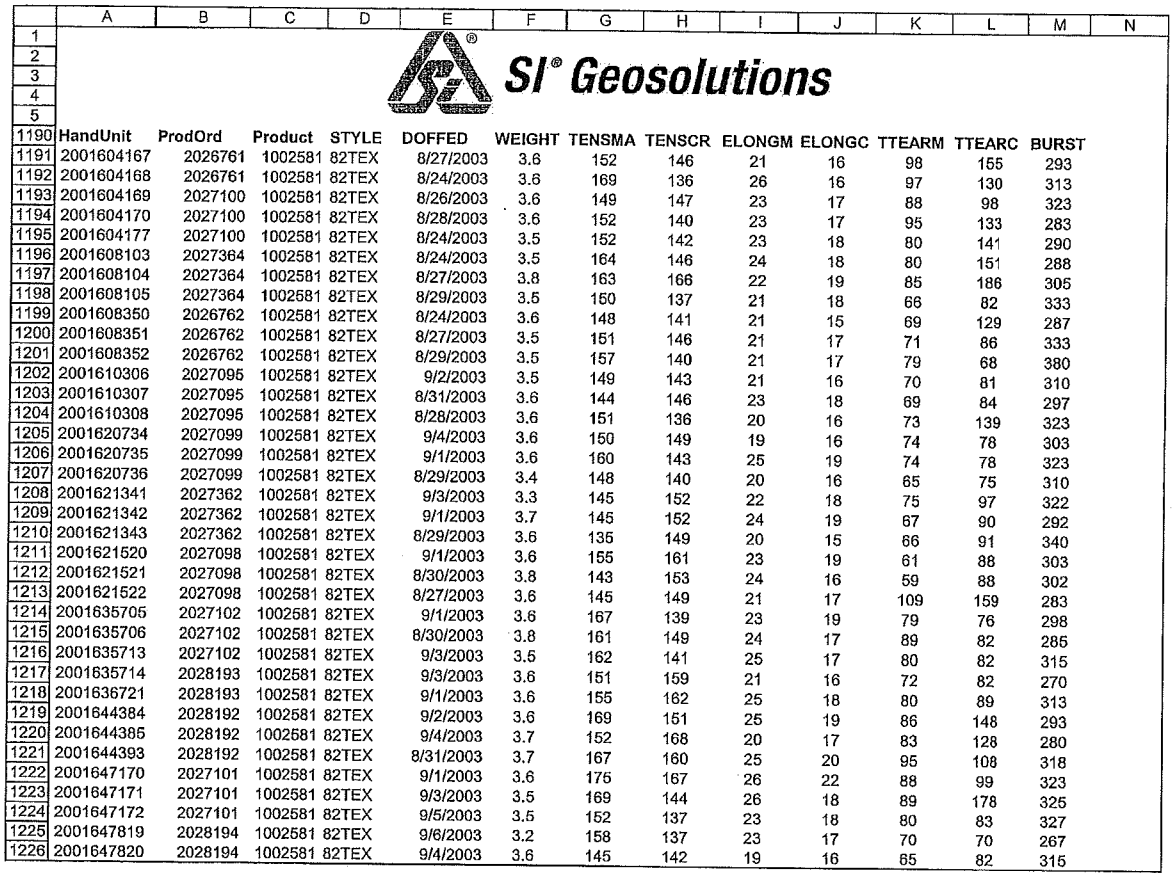
Contact: Randy Johnson

Brand Name: 82 Tex.



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002246422	2038787	1002581	82TEX	12/9/2003	3.6	154	159	24	21	76	111	318
2002274599	2037953	1002581	82TEX	12/8/2003	3.7	144	157	23	17	81	135	288
2002274600	2037953	1002581	82TEX	12/11/2003	3.7	148	158	24	19	86	93	335
2002275171	2037951	1002581	82TEX	12/8/2003	3.6	156	154	26	20	81	111	295
2002275172	2037951	1002581	82TEX	12/11/2003	3.7	157	162	24	19	88	136	303
2002275173	2037951	1002581	82TEX	12/14/2003	3.4	163	153	26	20	94	106	303
2002276016	2037952	1002581	82TEX	12/12/2003	3.5	154	147	26	19	86	96	338
2002276017	2037952	1002581	82TEX	12/14/2003	3.6	149	158	24	18	79	108	282
2002276025	2037952	1002581	82TEX	12/9/2003	3.2	150	138	24	19	84	85	298
2002317467	2038786	1002581	82TEX	12/14/2003	3.6	151	153	25	20	87	146	283
2002317468	2038786	1002581	82TEX	12/16/2003	3.4	155	148	26	21	82	121	273
2002317469	2038786	1002581	82TEX	12/19/2003	3.6	152	146	25	19	81	149	292
2002364345	2039467	1002581	82TEX	12/19/2003	3.6	152	147	25	18	69	61	297
2002364347	2039467	1002581	82TEX	12/22/2003	3.7	156	150	25	21	82	96	310
2002364348	2039467	1002581	82TEX	12/24/2003	3.6	154	150	24	19	78	128	288
2002378684	2040228	1002581	82TEX	12/23/2003	3.8	154	148	25	20	79	81	310



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644386	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	ELONGM	ELONGC	TENSMA	TENSCR	TTEARC	TTEARM	BURST
1620													
1621	2002744745	2046683	1002581	82TEX	3/4/2004	3.6	22	17	142	137	63	67	360
1622	2002744747	2046683	1002581	82TEX	3/9/2004	3.5	23	17	149	143	67	71	357
1623	2002847681	2049111	1002581	82TEX	3/30/2004	3.6	25	18	154	145			340
1624	2002729024	2045017	1002581	82TEX	3/2/2004	3.6	25	18	157	159	62	74	343
1625	2002744749	2046686	1002581	82TEX	3/14/2004	3.4	25	19	157	147	78	65	327
1626	2002547688	2049111	1002581	82TEX	3/19/2004	3.5	23	21	147	159			360
1627	2002729023	2045017	1002581	82TEX	2/29/2004	3.6	26	21	160	157	110	82	337
1628													
1629													
1630													
1631													
1632													

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187975, 187976
Ship Date:	25-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF3 QCT#TF3 CETCO PAGE: 1
6/28/04 12:38:16 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187976

MATERIAL	LOT#	ROLL#	GEOTEXTILE 5.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200411VR	00000849	6.7	47.0
LO-N/W-WHITE-ST	200412VR	00000889	6.6	51.1
LO-N/W-WHITE-ST	200412VR	00000911	6.3	41.0
LO-N/W-WHITE-ST	200422VR	00001817	6.7	61.5
LO-N/W-WHITE-ST	200424VR	00002074	7.1	81.4

TOTAL PAGES 1

QCG#TF3 QCT#TF3 CETCO PAGE: 1
6/28/04 12:39:07 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187975

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200420VR	00001594	6.8	79.7
LO-N/W-WHITE-ST	200422VR	00001836	7.0	75.8
LO-N/W-WHITE-ST	200422VR	00001840	6.3	61.3
LO-N/W-WHITE-ST	200424VR	00002041	6.7	82.9
LO-N/W-WHITE-ST	200424VR	00002052	6.8	75.6
LO-N/W-WHITE-ST	200424VR	00002075	7.1	81.4
LO-N/W-WHITE-ST	200425VR	00002100	6.7	73.6

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

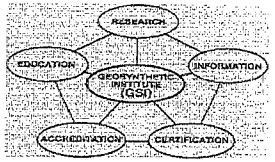
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187975, 187976
Ship Date:	25-Jun

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
6/28/04 12:38:16

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187976

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200425LO	00005032	.83	249.90	28.70
LO-BENTOMAT ST	200425LO	00005031	.83	249.90	28.70
LO-BENTOMAT ST	200425LO	00005030	.83	249.90	28.70
LO-BENTOMAT ST	200425LO	00005029	.83	249.90	28.70
LO-BENTOMAT ST	200425LO	00005028	.83	249.90	28.70
LO-BENTOMAT ST	200425LO	00005026	.83*	249.90	28.70*
LO-BENTOMAT ST	200425LO	00005024	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005021	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005019	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005015	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005014	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005010	.92	249.90	34.00
LO-BENTOMAT ST	200425LO	00005006	.80	249.90	45.80
LO-BENTOMAT ST	200425LO	00005005	.80	249.90	45.80
LO-BENTOMAT ST	200425LO	00004996	.80	249.90	45.80
LO-BENTOMAT ST	200425LO	00004995	.80	249.90	45.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
6/28/04 12:39:07

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187975

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200426LO	00005452	.81*	252.40	26.80*
LO-BENTOMAT ST	200426LO	00005451	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005449	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005448	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005447	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005433	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005432	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005431	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005399	.93	265.10	32.90
LO-BENTOMAT ST	200424LO	00004504	.85	249.00	27.40
LO-BENTOMAT ST	200424LO	00004503	.85	249.00	27.40
LO-BENTOMAT ST	200424LO	00004496	.85	249.00	27.40
LO-BENTOMAT ST	200424LO	00004495	.85	249.00	27.40
LO-BENTOMAT ST	200424LO	00004494	.85*	249.00	27.40*
LO-BENTOMAT ST	200424LO	00004489	.84	249.00	22.60
LO-BENTOMAT ST	200424LO	00004487	.84	249.00	22.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG$TF1 QCT$TF1
6/28/04 12:39:07

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187975

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200424LO									
00004487	LO-BENTOMAT ST	150	2250	2598	200422VR	00001840	2001563735		060104D
00004489	LO-BENTOMAT ST	150	2250	2578	200422VR	00001840	2001563735		060104D
00004494	LO-BENTOMAT ST	150	2250	2590	200422VR	00001836	2001565024		060104D
00004495	LO-BENTOMAT ST	150	2250	2589	200422VR	00001836	2001565024		060104D
00004496	LO-BENTOMAT ST	150	2250	2578	200422VR	00001836	2001565024		060104D
00004503	LO-BENTOMAT ST	150	2250	2580	200424VR	00002041	2001565024		060104D
00004504	LO-BENTOMAT ST	150	2250	2589	200424VR	00002041	2001565024		060104D
LOT# 200426LO									
00005399	LO-BENTOMAT ST	150	2250	2631	200425VR	00002100	2002729025		061504F
00005431	LO-BENTOMAT ST	150	2250	2654	200420VR	00001594	2001579941		061604A
00005432	LO-BENTOMAT ST	150	2250	2666	200420VR	00001594	2001579941		061604A
00005433	LO-BENTOMAT ST	150	2250	2658	200420VR	00001594	2001579941		061604A
00005447	LO-BENTOMAT ST	150	2250	2641	200424VR	00002075	2001579941		061604A
00005448	LO-BENTOMAT ST	150	2250	2659	200424VR	00002075	2001579941		061604A
00005449	LO-BENTOMAT ST	150	2250	2671	200424VR	00002075	2001579941		061604A
00005451	LO-BENTOMAT ST	150	2250	2679	200424VR	00002052	2001608104		061604A
00005452	LO-BENTOMAT ST	150	2250	2682	200424VR	00002052	2001608104		061604A

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG$TF1 QCT$TF1
6/28/04 12:38:16

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187976

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 20042SLO									
00004995	LO-BENTOMAT ST	150	2250	2689	200412VR	00000911	2002275175		060804C
00004996	LO-BENTOMAT ST	150	2250	2699	200412VR	00000911	2002275175		060804C
00005005	LO-BENTOMAT ST	150	2250	2678	200412VR	00000889	2002275175		060804C
00005006	LO-BENTOMAT ST	150	2250	2699	200412VR	00000889	2002275175		060804C
00005010	LO-BENTOMAT ST	150	2250	2625	200411VR	00000849	2002275175		060804C
00005014	LO-BENTOMAT ST	150	2250	2620	200411VR	00000849	2002275175		060804C
00005015	LO-BENTOMAT ST	150	2250	2681	200411VR	00000849	2002275175		060804C
00005019	LO-BENTOMAT ST	150	2250	2689	200422VR	00001817	2002276019		060804C
00005021	LO-BENTOMAT ST	150	2250	2688	200422VR	00001817	2002276019		060804C
00005024	LO-BENTOMAT ST	150	2250	2671	200422VR	00001817	2002276019		060804C
00005026	LO-BENTOMAT ST	150	2250	2675	200422VR	00001817	2002276019		060804C
00005028	LO-BENTOMAT ST	150	2250	2621	200424VR	00002074	2002276019		060804C
00005029	LO-BENTOMAT ST	150	2250	2604	200424VR	00002074	2002276019		060804C
00005030	LO-BENTOMAT ST	150	2250	2634	200424VR	00002074	2002276019		060804C
00005031	LO-BENTOMAT ST	150	2250	2615	200424VR	00002074	2002276019		060804C
00005032	LO-BENTOMAT ST	150	2250	2629	200424VR	00002074	2002276019		060804C

TOTAL SQUARE FEET..... 16,000

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 29, 2004
PO: 9656-00
Order #: 187977, 187979

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on June 28, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187977, 187979
Ship Date:	28-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187977
ORDER DATE: 5/17/2004
SHIP DATE:. 6/28/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200426LO	00005395	150.0	15.0	2250.0	2645.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005396	150.0	15.0	2250.0	2636.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005397	150.0	15.0	2250.0	2639.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005408	150.0	15.0	2250.0	2643.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005410	150.0	15.0	2250.0	2649.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005428	150.0	15.0	2250.0	2645.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005429	150.0	15.0	2250.0	2650.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005430	150.0	15.0	2250.0	2648.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005435	150.0	15.0	2250.0	2652.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005445	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005446	150.0	15.0	2250.0	2648.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005461	150.0	15.0	2250.0	2666.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005462	150.0	15.0	2250.0	2667.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005475	150.0	15.0	2250.0	2639.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005476	150.0	15.0	2250.0	2647.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005483	150.0	15.0	2250.0	2650.0
ORDER TOTALS.....							36000.0	42383.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187979
ORDER DATE: 5/17/2004
SHIP DATE:. 6/28/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200426LO	00005425	150.0	15.0	2250.0	2635.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005453	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005454	150.0	15.0	2250.0	2674.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005455	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005457	150.0	15.0	2250.0	2681.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005458	150.0	15.0	2250.0	2678.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005468	150.0	15.0	2250.0	2665.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005469	150.0	15.0	2250.0	2660.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005470	150.0	15.0	2250.0	2671.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005471	150.0	15.0	2250.0	2658.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005472	150.0	15.0	2250.0	2641.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005473	150.0	15.0	2250.0	2649.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005481	150.0	15.0	2250.0	2637.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005482	150.0	15.0	2250.0	2640.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005484	150.0	15.0	2250.0	2667.0
LO-BENTOMAT ST		SFT	SF 200426LO	00005485	150.0	15.0	2250.0	2670.0
ORDER TOTALS.....							36000.0	42566.0
TOTAL ITEMS.....	16							

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187977, 187979
Ship Date:	28-Jun

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187977, 187979
Ship Date:	28-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 15-Jun-04

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **061504F**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.6
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 16-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061604A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	11.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 16-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061604B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.7
Moisture	ASTM D 2216	12.0 % (MAX)	11.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

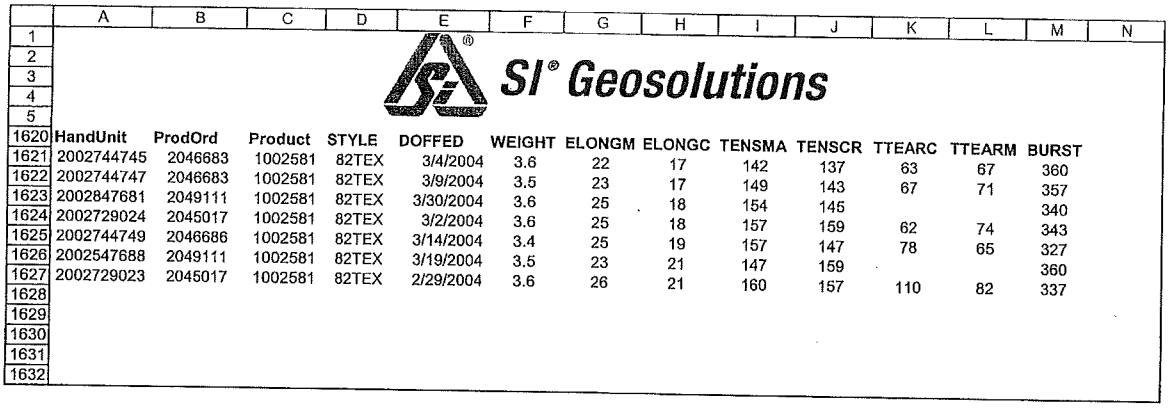
Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION Facility:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Randy Johnson
Brand Name:	82 Tex.

SI® Geosolutions

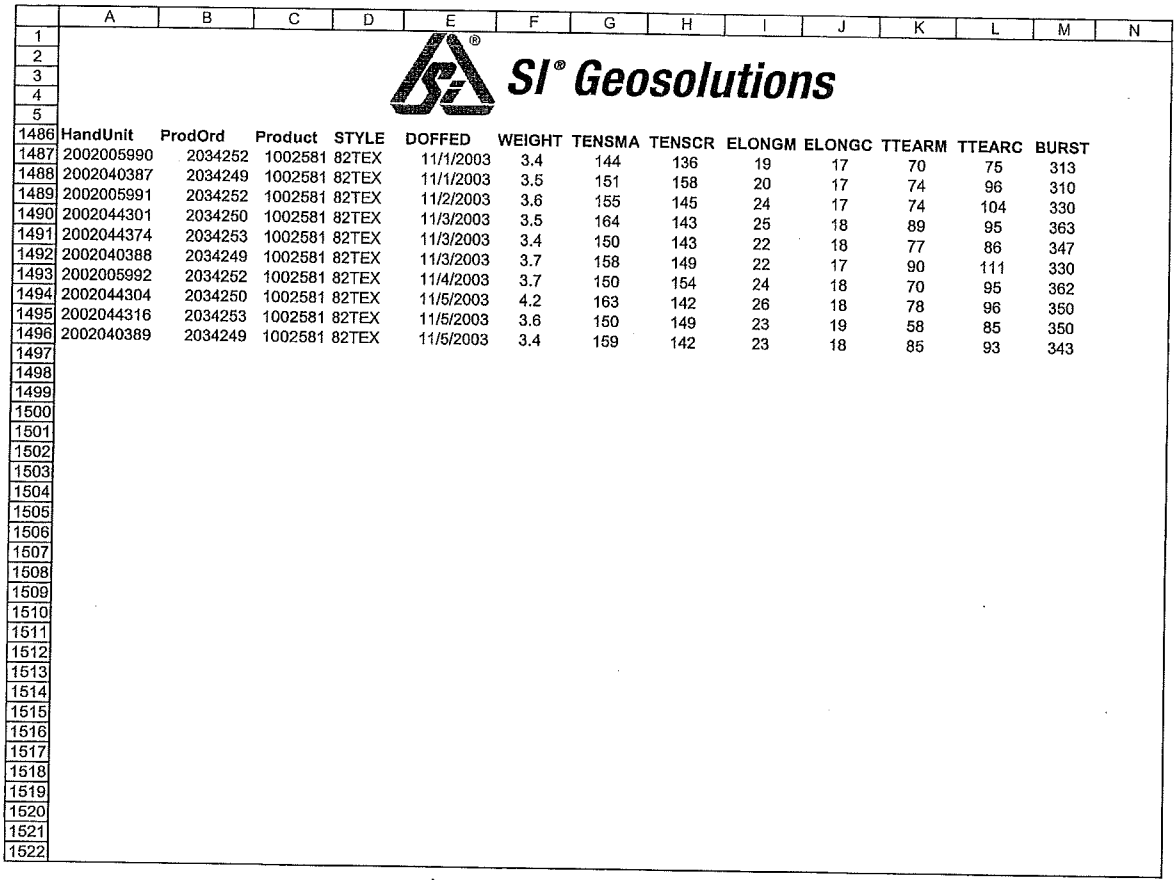
HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644385	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333
2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313
2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313
2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312
2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320
2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322
2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340
2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300
2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287
2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303
2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300
2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323
2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267
2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290
2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287
2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360
2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317
2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292
2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297
2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327
2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323
2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310
2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307
2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310
2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297
2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325
2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273
2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277
2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307
2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293
2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290
2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323
2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310
2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303
2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297
2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267



HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	ELONGM	ELONGC	TENSMA	TENSCR	TTEARC	TTEARM	BURST
2002744745	2046683	1002581	82TEX	3/4/2004	3.6	22	17	142	137	63	67	360
2002744747	2046683	1002581	82TEX	3/9/2004	3.5	23	17	149	143	67	71	357
2002847681	2049111	1002581	82TEX	3/30/2004	3.6	25	18	154	145			340
2002729024	2045017	1002581	82TEX	3/2/2004	3.6	25	18	157	159	62	74	343
2002744749	2046686	1002581	82TEX	3/14/2004	3.4	25	19	157	147	78	65	327
2002547688	2049111	1002581	82TEX	3/19/2004	3.5	23	21	147	159			360
2002729023	2045017	1002581	82TEX	2/29/2004	3.6	26	21	160	157	110	82	337



HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002005990	2034252	1002581	82TEX	11/1/2003	3.4	144	136	19	17	70	75	313
2002040387	2034249	1002581	82TEX	11/1/2003	3.5	151	158	20	17	74	96	310
2002005991	2034252	1002581	82TEX	11/2/2003	3.6	155	145	24	17	74	104	330
2002044301	2034250	1002581	82TEX	11/3/2003	3.5	164	143	25	18	89	95	363
2002044374	2034253	1002581	82TEX	11/3/2003	3.4	150	143	22	18	77	86	347
2002040388	2034249	1002581	82TEX	11/3/2003	3.7	158	149	22	17	90	111	330
2002005992	2034252	1002581	82TEX	11/4/2003	3.7	150	154	24	18	70	95	362
2002044304	2034250	1002581	82TEX	11/5/2003	4.2	163	142	26	18	78	96	350
2002044316	2034253	1002581	82TEX	11/5/2003	3.6	150	149	23	19	58	85	350
2002040389	2034249	1002581	82TEX	11/5/2003	3.4	159	142	23	18	85	93	343

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**Colloid Environmental Technologies Co.**
PRODUCTION FACILITY:	**CETCO** **102 Conners Road** **Villa Rica, GA 30180**
CONTACT:	Debbie Bivins 404-459-4995
BRAND NAME:	Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187977, 187979
Ship Date:	28-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF3 QCT#TF3
6/29/04 9:46:30

CETCO
GEOTEXTILE QC DATA

PAGE: 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187977

MATERIAL	LOT#	ROLL#	GEOTEXTILE	GRAB STRENGTH
			6.0oz/sy mv	6.0 lbs marv
			ASTM D 5261	ASTM D 4632
LO-N/W-WHITE-ST	200420VR	00001594	6.8	79.7
LO-N/W-WHITE-ST	200422VR	00001815	6.7	61.5
LO-N/W-WHITE-ST	200424VR	00002046	6.9	75.6
LO-N/W-WHITE-ST	200424VR	00002058	7.0	67.9
LO-N/W-WHITE-ST	200424VR	00002071	7.1	81.4
LO-N/W-WHITE-ST	200424VR	00002075	7.1	81.4
LO-N/W-WHITE-ST	200424VR	00002076	7.1	98.6
LO-N/W-WHITE-ST	200425VR	00002102	6.7	73.6

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TF3 QCT#TF3 CETCO PAGE: 1
6/29/04 9:45:23 GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187979

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200412VR	00000896	6.8	41.9
LO-N/W-WHITE-ST	200420VR	00001594	6.8	79.7
LO-N/W-WHITE-ST	200422VR	00001815	6.7	61.5
LO-N/W-WHITE-ST	200424VR	00002052	6.9	75.6
LO-N/W-WHITE-ST	200424VR	00002058	7.0	67.9
LO-N/W-WHITE-ST	200424VR	00002071	7.1	81.4

TOTAL PAGES 1

QCG#FT2 6/29/04 QCT#FT2 9:46:30

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187977

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200426LO	00005483	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005476	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005475	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005462	.81	252.40	25.80
LO-BENTOMAT ST	200426LO	00005461	.81	252.40	25.80
LO-BENTOMAT ST	200426LO	00005446	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005445	.86	252.40	32.30
LO-BENTOMAT ST	200426LO	00005435	.86*	252.40	32.30*
LO-BENTOMAT ST	200426LO	00005430	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005429	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005428	.87	252.40	21.40
LO-BENTOMAT ST	200426LO	00005410	.78	252.40	31.70
LO-BENTOMAT ST	200426LO	00005408	.78	252.40	31.70
LO-BENTOMAT ST	200426LO	00005397	.93	265.10	32.90
LO-BENTOMAT ST	200426LO	00005396	.93	265.10	32.90
LO-BENTOMAT ST	200426LO	00005395	.93	265.10	32.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

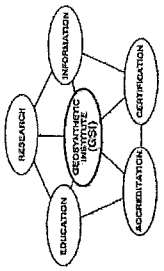
Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187977, 187979

Ship Date: 28-Jun

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
#REF!	#REF!	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 6/29/04 QCT#FT2 9:45:22

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187979

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200426LO	00005485	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005484	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005482	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005481	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005473	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005472	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005471	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005470	.82	252.40	23.80
LO-BENTOMAT ST	200426LO	00005469	.82*	252.40	23.80*
LO-BENTOMAT ST	200426LO	00005468	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005456	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005457	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005455	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005454	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005453	.81	252.40	26.80
LO-BENTOMAT ST	200426LO	00005425	.87	252.40	21.40

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/29/04 9:45:21

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187979

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200426LO									
00005425	LO-BENTOMAT ST	150	2250	2635	200420VR	00001594	2001579941		061604A
00005453	LO-BENTOMAT ST	150	2250	2659	200424VR	00002052	2001608104		061604A
00005454	LO-BENTOMAT ST	150	2250	2674	200424VR	00002052	2001608104		061604A
00005455	LO-BENTOMAT ST	150	2250	2681	200424VR	00002052	2001608104		061604A
00005457	LO-BENTOMAT ST	150	2250	2681	200422VR	00001815	2001608104		061604A
00005458	LO-BENTOMAT ST	150	2250	2678	200422VR	00001815	2001608104		061604A
00005468	LO-BENTOMAT ST	150	2250	2665	200412VR	00000896	2001608104		061604A
00005469	LO-BENTOMAT ST	150	2250	2660	200412VR	00000896	2001608104		061604B
00005470	LO-BENTOMAT ST	150	2250	2671	200412VR	00000896	2001608104		061604B
00005471	LO-BENTOMAT ST	150	2250	2658	200412VR	00000896	2001608104		061604B
00005472	LO-BENTOMAT ST	150	2250	2641	200412VR	00000896	2001608104		061604B
00005473	LO-BENTOMAT ST	150	2250	2649	200412VR	00000896	2001608104		061604B
00005481	LO-BENTOMAT ST	150	2250	2637	200424VR	00002071	2001564816		061604B
00005482	LO-BENTOMAT ST	150	2250	2640	200424VR	00002071	2001564816		061604B
00005484	LO-BENTOMAT ST	150	2250	2667	200424VR	00002058	2001564816		061604B
00005485	LO-BENTOMAT ST	150	2250	2670	200424VR	00002058	2001564816		061604B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
6/29/04 9:46:29

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187977

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200426LO									
00005395	LO-BENTOMAT ST	150	2250	2645	200425VR	00002102	2002729025		061504F
00005396	LO-BENTOMAT ST	150	2250	2636	200425VR	00002102	2002729025		061504F
00005397	LO-BENTOMAT ST	150	2250	2639	200425VR	00002102	2002729025		061504F
00005408	LO-BENTOMAT ST	150	2250	2643	200424VR	00002076	2002044317		061504F
00005410	LO-BENTOMAT ST	150	2250	2649	200424VR	00002076	2002044317		061504F
00005428	LO-BENTOMAT ST	150	2250	2645	200420VR	00001594	2001579941		061604A
00005429	LO-BENTOMAT ST	150	2250	2650	200420VR	00001594	2001579941		061604A
00005430	LO-BENTOMAT ST	150	2250	2648	200420VR	00001594	2001579941		061604A
00005435	LO-BENTOMAT ST	150	2250	2652	200424VR	00002046	2001579941		061604A
00005445	LO-BENTOMAT ST	150	2250	2659	200424VR	00002075	2001579941		061604A
00005446	LO-BENTOMAT ST	150	2250	2648	200424VR	00002075	2001579941		061604A
00005461	LO-BENTOMAT ST	150	2250	2666	200422VR	00001815	2001608104		061604A
00005462	LO-BENTOMAT ST	150	2250	2667	200422VR	00001815	2001608104		061604A
00005475	LO-BENTOMAT ST	150	2250	2639	200424VR	00002071	2001608104		061604B
00005476	LO-BENTOMAT ST	150	2250	2647	200424VR	00002071	2001608104		061604B
00005483	LO-BENTOMAT ST	150	2250	2650	200424VR	00002058	2001564816		061604B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: June 30, 2004
PO: 9656-00
Order #: 187978

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on June 29, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

A Wholly Owned Subsidiary of AMCOL International
Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187978
Ship Date:	29-Jun

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

PO: 9656-00

ORDER NO:.. 000187978
ORDER DATE: 5/17/2004
SHIP DATE:. 6/29/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200426LO	00005441	150.0	15.0	2250.0	2655.0
LO-BENTOMAT ST		SFT SF	200426LO	00005442	150.0	15.0	2250.0	2665.0
LO-BENTOMAT ST		SFT SF	200426LO	00005459	150.0	15.0	2250.0	2689.0
LO-BENTOMAT ST		SFT SF	200427LO	00005496	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT SF	200427LO	00005497	150.0	15.0	2250.0	2540.0
LO-BENTOMAT ST		SFT SF	200427LO	00005499	150.0	15.0	2250.0	2553.0
LO-BENTOMAT ST		SFT SF	200427LO	00005500	150.0	15.0	2250.0	2556.0
LO-BENTOMAT ST		SFT SF	200427LO	00005501	150.0	15.0	2250.0	2559.0
LO-BENTOMAT ST		SFT SF	200427LO	00005502	150.0	15.0	2250.0	2547.0
LO-BENTOMAT ST		SFT SF	200427LO	00005503	150.0	15.0	2250.0	2554.0
LO-BENTOMAT ST		SFT SF	200427LO	00005504	150.0	15.0	2250.0	2555.0
LO-BENTOMAT ST		SFT SF	200427LO	00005505	150.0	15.0	2250.0	2542.0
LO-BENTOMAT ST		SFT SF	200427LO	00005506	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT SF	200427LO	00005508	150.0	15.0	2250.0	2558.0
LO-BENTOMAT ST		SFT SF	200427LO	00005509	150.0	15.0	2250.0	2551.0
ORDER TOTALS.....							33750.0	38625.0
TOTAL ITEMS.....	15							

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187978
Ship Date:	29-Jun

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Jerod Tippetts
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187978
Ship Date:	29-Jun

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Jerod Tippetts
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 16-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 061604A
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	11.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 062104B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

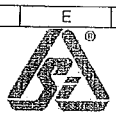
WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION Facility:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Randy Johnson
Brand Name:	82 Tex.



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644385	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333
2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313
2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313
2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312
2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320
2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322
2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340
2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300
2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287
2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303
2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300
2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323
2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267
2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290
2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287
2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360
2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317
2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292
2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297
2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327
2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323
2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310
2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307
2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310
2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297
2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325
2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273
2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277
2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307
2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293
2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290
2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323
2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310
2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303
2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297
2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187389

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002441786		3.6	172.8

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1					SI® Geosolutions										
875	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
876	2001039690	2019260	1004557	650	5/31/2003	7.2	173	68	76	131	125	25	28	240	
877	2001039695	2019260	1004557	650	5/31/2003	7.2	166	68	108	105	135	28	32	204	
878	2001139638	2020696	1004557	650	6/11/2003	7.4	149	137	237	114	139	49	69	260	
879	2001139643	2020696	1004557	650	6/12/2003	7.9	148	150	234	119	129	66	84	296	
880	2001139647	2020696	1004557	650	6/12/2003	7.5	145	139	242	109	118	50	67	277	
881	2001139652	2020696	1004557	650	6/12/2003	8.2	152	140	222	113	125	65	82	299	
882	2001154212	2020808	1004557	650	6/16/2003	6.3	164	54	50	109	116	25	15	224	
883	2001154219	2020808	1004557	650	6/16/2003	6.3	146	90	142	94	125	39	39	230	
884	2001154225	2020808	1004557	650	6/16/2003	6.6	144	100	150	97	114	38	46	251	
885	2001154230	2020808	1004557	650	6/16/2003	6.3	142	87	150	90	117	46	42	254	
886	2001154235	2020808	1004557	650	6/17/2003	6.4	146	89	108	93	102	35	38	231	
887	2001154240	2020808	1004557	650	6/17/2003	6.3	142	96	119	91	104	43	41	221	
888	2001168571	2020808	1004557	650	6/16/2003	8.7	207	108	108	105	113	39	40	313	
889	2001211510	2022397	1004557	650	6/26/2003	7.3	142	133	232	121	126	51	77	241	
890	2001232544	2022283	1004557	650	6/25/2003	6.1	141	81	101	96	117	40	47	229	
891	2001232548	2022283	1004557	650	6/25/2003	6.3	147	75	107	104	117	32	41	220	
892	2001232552	2022283	1004557	650	6/25/2003	6.1	145	68	79	112	115	37	40	224	
893	2001241496	2022397	1004557	650	6/26/2003	7.7	143	144	231	122	138	57	83	257	
894	2001241497	2022397	1004557	650	6/26/2003	8.4	150	137	239	123	125	52	110	257	
895	2001241499	2022397	1004557	650	6/26/2003	6.8	133	110	187	115	124	40	73	224	
896	2001241502	2022397	1004557	650	6/26/2003	7.4	139	129	229	117	125	63	75	256	
897	2001241505	2022397	1004557	650	6/26/2003	7.3	138	135	231	119	125	50	69	237	
898	2001241516	2022397	1004557	650	6/27/2003	7.0	136	113	224	113	132	50	76	240	
899	2001241626	2022397	1004557	650	6/27/2003	7.0	140	100	175	110	120	45	68	233	
900	2001241629	2022397	1004557	650	6/27/2003	7.0	138	103	213	110	124	43	72	237	
901	2001241636	2022397	1004557	650	6/27/2003	7.3	142	125	212	121	126	56	74	247	
902	2001241643	2022397	1004557	650	6/28/2003	6.8	138	88	176	106	123	43	68	230	
903	2001241649	2022397	1004557	650	6/28/2003	6.7	133	92	181	106	114	47	86	243	
904	2001241653	2022397	1004557	650	6/29/2003	7.7	157	134	237	124	129	54	85	224	
905	2001241659	2022397	1004557	650	6/29/2003	6.9	147	108	204	109	118	71	67	240	
906	2001241665	2022397	1004557	650	6/29/2003	6.9	143	97	158	114	112	42	51	227	
907	2001241668	2022397	1004557	650	6/30/2003	6.9	146	112	203	109	116	54	106	251	
908	2001241674	2022397	1004557	650	6/30/2003	7.1	155	109	212	110	118	47	77	247	
909	2001241680	2022397	1004557	650	6/30/2003	7.2	154	121	236	125	132	52	67	246	
910	2001241684	2022397	1004557	650	6/30/2003	7.3	151	113	226	116	123	58	82	233	
911	2001241688	2022397	1004557	650	6/30/2003	7.4	150	113	231	114	126	49	69	253	
912	2001241694	2022397	1004557	650	6/30/2003	7.1	152	119	206	124	123	52	81	244	
913	2001243117	2022397	1004557	650	6/27/2003	7.1	139	89	105	92	94	54	64	266	
914	2001244630	2022397	1004557	650	6/27/2003	7.3	143	121	203	125	136	54	75	234	
915	2001285094	2022397	1004557	650	7/1/2003	6.4	140	198	185	134	126	42	69	220	
916	2001285100	2022397	1004557	650	7/1/2003	6.9	144	108	204	117	121	45	88	229	
917	2001285105	2022397	1004557	650	7/1/2003	6.8	149	102	205	113	127	44	76	230	
918	2002870450	2002870	1004557	650	1/8/2003	6.9	170	95	118	124	135	38	42	221	
919															
920															

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Sid Weiser

Brand Name: Geotex 650

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Thantex Specialties, Inc.**

PRODUCTION

Facility: **Thantex**
94 Glenn Bridge Road
Arden, NC. 28704

Contact: Furman Drake, 828-687-0940

Brand Name:

THANTEX

Bill of Lading No. 0064669

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000059224A	24-Oct-03	6.36	0.145	161.4	128.5	97.81	149.1	80.5	44

PRODUCT TYPE: SP 165 NATURAL PAGE 1

BATCH # 1704

DATE	TIME	ROLL #	WEIGHT	MD TENSILE	ELONG.	XMD TENSILE	THICKNESS	ROLL	LIN.
6/23/2003		1025502A	7.42	174.75	152.66	212.27	140		
6/23/2003		1025503A	7.36				138	1080	450
6/23/2003		1025504A	7.66	182.81	156.33		140		
6/23/2003		1025505A	6.74	164.02	155.33	193.32	132	1045	450
6/23/2003		1025506A	7.52				142	999	450
6/23/2003		1025508A	6.82	149.75	134	208.1	127		
6/23/2003		1025510A	6.66	158.28	142.67		123	1001	450
6/23/2003		1025511A	6.52	131.79	134		126	998	450
6/23/2003		1025512A	7.24	145.84	161.33		135	1004	450
6/23/2003		1025513A	6.82	132.79	140	192.71	135	1016	450
6/23/2003		1025514A	6.72	146.18	143.33	194.37		1012	450
6/23/2003		1025516A	6.62	135.35	146			999	450
6/23/2003		1025516A	6.74	148.79	153.67		138	990	450
6/23/2003		1025517A	6.56	146.9	149.33	187.32	136	992	450
6/23/2003		1025518A	6.68	163.3	163.67			996	450
6/23/2003		1025519A	7.64	155.36	146.67			1004	450
6/23/2003		1025520A	6.72	129.89	137	185.67	130	1011	450
6/23/2003		1025522A	7.34	136.81	135	184.05	132	1013	450
6/23/2003		1025524A	7.62	135.47	145.67		147	993	438
6/23/2003		1025525A	7.22	160.94	153	181.97	134	624	276
6/23/2003		1025526A	7.04						
6/23/2003		1025528A	7.12	134.48	136	212.17	133	1010	450
6/23/2003		1025529A	7.04	129.67	144.33	152.63	134	1005	450
6/23/2003		1025530A	6.84	128.19	126	205.65	131	1005	450
6/23/2003		1025531A	6.98	134.58	132.67	209.6	133	1005	450
6/23/2003		1025533A	7.08	130.49	125	208.74	137	1012	450
6/23/2003		1025534A	7.12	141.18	137.33	209.45	132	1009	450
6/23/2003		1025536A	6.8	149.74	147.33	209.28	143	1004	450
6/23/2003		1025538A	6.96	127.39	125.67	207.51	135	1000	450
6/23/2003		1025540A	7.38	139.33	137.67	210.37	138	1003	450
6/23/2003		1025541A	6.88	141.01	131	206.85	131	1003	450
6/23/2003		1025542A	7.34	146.1	137.33	212.45	139	1000	450
6/23/2003		1025544A	7.1	134	126.67	211	132	1002	450
6/24/2003		1025546A	6.74	131.64	127.67	206.03		1003	450
6/24/2003		1025548A	6.68	145.33	134.33		131	998	450
6/24/2003		1025549A	6.64	131.88	123.67	195.11		983	450
6/24/2003		1025550A	6.64	134.69	119		130	982	450
6/24/2003		1025551A	7.1	127.34	125.33	2087.98		982	450
6/24/2003		1025552A	6.72	146.87	146.33		128	982	450
6/24/2003		1025553A	6.92	138.23	138.33		135	985	450
6/24/2003		1025555A	6.78	137.19	137.67	199.16		987	450
6/24/2003		1025556A	6.78	139.64	134			984	450
6/24/2003		1025557A	6.72	138.2	136.33	209.97		981	450
6/24/2003		1025558A	6.92	136.68	130.33		132	989	450
6/24/2003		1025559A	6.9	145.1	145.33			990	450
6/24/2003		1025560A	6.96	129.3	131	204.71	138	993	450
6/24/2003		1025561A	6.78	142.3	141.33			993	450
6/24/2003		1025562A	7.12	142.66	138.67	204.8	134	986	450

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

AMERICAN SYNTHETIS FIBERS

Manufacturer:

PRODUCTION

Facility: **American Synthetic Fiber**
312 South Holland Drive
Pendergrass, GA. 30567

Contact: Troy Ash 706-693-7026

Brand Name: SP 165

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187978
Ship Date:	29-Jun

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Jerod Tippetts
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187978

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-DN	200422VR	00001815	6.7	61.5
LO-N/W-WHITE-DN	200424VR	00002075	7.1	81.4

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER

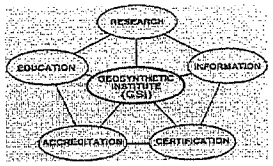
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187978
Ship Date:	29-Jun

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Jerod Tippetts
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

CCO#F72 OCT#F72
6/30/04 14:59:54

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

ORDER # 000187978

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	20042710	00005509	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005508	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005506	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005504	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005503	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005502	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005501	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005499	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005497	.87	229.10	20.10
LO-BENTOMAT ST	20042710	00005496	.87	229.10	20.10
LO-BENTOMAT ST	20042610	00005459	.81	252.40	29.80
LO-BENTOMAT ST	20042610	00005442	.86	252.40	32.30
LO-BENTOMAT ST	20042610	00005441	.86	252.40	32.30

NOTE: An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 40,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
6/30/04 14:59:54

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187978

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200425LO									
00005441	LO-BENTOMAT ST	150	2250	2655	200424VR	00002075	2001579941		061604A
00005442	LO-BENTOMAT ST	150	2250	2665	200424VR	00002075	2001579941		061604A
00005459	LO-BENTOMAT ST	150	2250	2689	200422VR	00001815	2001608104		061604A
LOT# 200427LO									
00005496	LO-BENTOMAT ST	150	2250	2551	000059224A		2002441789		062104B
00005497	LO-BENTOMAT ST	150	2250	2540	000059224A		2002441789		062104B
00005499	LO-BENTOMAT ST	150	2250	2553	1025522A		2002441789		062104B
00005500	LO-BENTOMAT ST	150	2250	2556	1025522A		2002441789		062104B
00005501	LO-BENTOMAT ST	150	2250	2559	1025522A		2002441789		062104B
00005502	LO-BENTOMAT ST	150	2250	2547	1025522A		2002441789		062104B
00005503	LO-BENTOMAT ST	150	2250	2554	1025522A		2002441789		062104B
00005504	LO-BENTOMAT ST	150	2250	2555	1025522A		2002441789		062104B
00005505	LO-BENTOMAT ST	150	2250	2542	1025522A		2002441789		062104B
00005506	LO-BENTOMAT ST	150	2250	2550	1025522A		2002441789		062104B
00005508	LO-BENTOMAT ST	150	2250	2558	2001241498		2002441789		062104B
00005509	LO-BENTOMAT ST	150	2250	2551	2001241498		2002441789		062104B

TOTAL SQUARE FEET..... 33,750

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 549-6413

Date: July 8, 2004
PO: 9656-00
Order #: 187980

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on July 7, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187980
Ship Date:	7-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187980
ORDER DATE: 5/17/2004
SHIP DATE:. 7/07/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200427LO	00005507	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT SF	200427LO	00005598	150.0	15.0	2250.0	2547.0
LO-BENTOMAT ST		SFT SF	200427LO	00005603	150.0	15.0	2250.0	2535.0
LO-BENTOMAT ST		SFT SF	200427LO	00005604	150.0	15.0	2250.0	2543.0
LO-BENTOMAT ST		SFT SF	200427LO	00005605	150.0	15.0	2250.0	2539.0
LO-BENTOMAT ST		SFT SF	200427LO	00005606	150.0	15.0	2250.0	2542.0
LO-BENTOMAT ST		SFT SF	200427LO	00005607	150.0	15.0	2250.0	2548.0
LO-BENTOMAT ST		SFT SF	200427LO	00005608	150.0	15.0	2250.0	2555.0
LO-BENTOMAT ST		SFT SF	200427LO	00005609	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST		SFT SF	200427LO	00005610	150.0	15.0	2250.0	2554.0
LO-BENTOMAT ST		SFT SF	200427LO	00005611	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT SF	200427LO	00005612	150.0	15.0	2250.0	2548.0
LO-BENTOMAT ST		SFT SF	200427LO	00005613	150.0	15.0	2250.0	2540.0
LO-BENTOMAT ST		SFT SF	200427LO	00005614	150.0	15.0	2250.0	2545.0
LO-BENTOMAT ST		SFT SF	200427LO	00005618	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT SF	200428LO	00005692	150.0	15.0	2250.0	2560.0
ORDER TOTALS.....							36000.0	40777.0

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187980
Ship Date:	7-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187980
Ship Date:	7-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 062104B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 25-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 062504B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 25-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 062504D
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.9
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.8

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001647821	2028194	1002581	82TEX	9/2/2003	3.9	156	165	24	17	56	113	307
2001656377	2028191	1002581	82TEX	9/8/2003	3.4	149	155	21	16	77	100	310
2001656386	2028191	1002581	82TEX	9/6/2003	3.6	155	155	21	18	77	96	283
2001662571	2028843	1002581	82TEX	9/6/2003	3.5	174	142	26	18	79	86	300
2001662572	2028843	1002581	82TEX	9/8/2003	3.6	171	157	26	18	87	149	333
2001662579	2028843	1002581	82TEX	9/5/2003	4.2	155	138	23	17	80	78	330
2001662743	2028195	1002581	82TEX	9/7/2003	3.7	162	157	22	16	71	92	343
2001676613	2028835	1002581	82TEX	9/6/2003	3.5	165	143	22	19	78	84	307
2001676614	2028835	1002581	82TEX	9/8/2003	3.5	153	148	23	18	78	79	323
2001676615	2028836	1002581	82TEX	9/10/2003	3.6	162	140	24	18	75	77	287
2001677789	2028838	1002581	82TEX	9/8/2003	3.6	147	144	21	16	79	115	283
2001678450	2028833	1002581	82TEX	9/9/2003	4.3	152	188	24	19	70	96	293

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001741804	2029690	1002581	82TEX	10/1/2003	3.5	159	149	22	18	70	102	333
2001756545	2028831	1002581	82TEX	9/28/2003	3.6	160	158	20	16	69	89	330
2001758204	2029689	1002581	82TEX	9/25/2003	3.7	157	154	22	17	67	86	340
2001786178	2029692	1002581	82TEX	10/4/2003	3.4	161	147	23	19	62	70	320
2001786180	2029692	1002581	82TEX	10/2/2003	3.6	161	156	25	19	54	77	370
2001786181	2029692	1002581	82TEX	9/29/2003	3.2	156	142	21	17	65	75	340
2001786182	2029692	1002581	82TEX	9/27/2003	3.5	163	149	25	17	58	74	357
2001786291	2030466	1002581	82TEX	9/27/2003	3.5	150	153	23	19	58	85	347
2001786292	2030466	1002581	82TEX	9/29/2003	3.5	153	162	20	16	62	72	310
2001786293	2030466	1002581	82TEX	9/30/2003	3.4	169	156	25	18	69	85	328
2001811817	2030481	1002581	82TEX	10/2/2003	3.4	148	143	20	17	79	86	337
2001814524	2030481	1002581	82TEX	9/29/2003	3.5	157	156	23	17	70	84	303
2001814525	2030481	1002581	82TEX	9/27/2003	3.5	154	136	20	16	67	107	307
2001819099	2030468	1002581	82TEX	9/30/2003	3.6	155	152	22	18	75	116	323
2001819100	2030468	1002581	82TEX	10/4/2003	3.3	164	135	26	19	70	77	333
2001819109	2030468	1002581	82TEX	10/2/2003	3.6	164	160	25	19	69	82	343
2001826156	2030475	1002581	82TEX	10/2/2003	3.3	172	151	23	19	89	101	307
2001826157	2030475	1002581	82TEX	10/4/2003	3.3	170	166	23	20	76	99	367
2001826164	2030475	1002581	82TEX	9/30/2003	3.7	164	157	26	20	84	116	320
2001835461	2030470	1002581	82TEX	10/4/2003	3.5	146	138	22	18	68	71	333
2001835462	2030470	1002581	82TEX	10/6/2003	3.5	152	146	19	16	74	80	303
2001836319	2030470	1002581	82TEX	10/3/2003	3.8	145	172	22	19	79	111	363
2001836327	2030465	1002581	82TEX	10/4/2003	3.6	160	146	22	16	63	71	353
2001836328	2030465	1002581	82TEX	10/7/2003	3.6	160	157	23	21	75	56	352
2001839554	2030483	1002581	82TEX	10/4/2003	3.5	166	160	22	19	74	91	363
2001839555	2030483	1002581	82TEX	10/6/2003	3.5	170	157	23	19	72	94	317
2001858813	2030482	1002581	82TEX	10/4/2003	3.4	155	146	21	18	74	95	330
2001858814	2030482	1002581	82TEX	10/7/2003	3.5	169	145	25	18	69	84	338

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001730613	2028839	1002581	82TEX	9/19/2003	3.5	175	167	25	19	73	103	340
2001730638	2028836	1002581	82TEX	9/19/2003	3.5	169	157	22	18	61	81	347
2001730650	2028837	1002581	82TEX	9/19/2003	3.5	156	143	20	17	68	92	330
2001741069	2028842	1002581	82TEX	9/19/2003	3.6	165	158	26	18	78	88	333
2001741070	2028842	1002581	82TEX	9/21/2003	3.5	167	149	21	18	69	92	317
2001741799	2029690	1002581	82TEX	9/19/2003	3.4	173	155	27	20	76	88	268
2001741800	2029690	1002581	82TEX	9/21/2003	3.4	175	154	26	20	77	94	348
2001756542	2028831	1002581	82TEX	9/19/2003	3.4	139	141	21	17	58	59	267
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001757153	2029691	1002581	82TEX	9/20/2003	3.3	155	139	21	17	83	99	360
2001757154	2029691	1002581	82TEX	9/23/2003	3.6	156	153	26	19	67	97	323
2001758202	2029689	1002581	82TEX	9/24/2003	3.4	149	140	22	18	57	70	328
2001758203	2029689	1002581	82TEX	9/21/2003	3.3	146	136	20	16	72	92	297

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187980

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002441786		3.6	172.8

TOTAL PAGES 1

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
1339	2001647177	2027101	1002581	82TEX	9/15/2003	3.4	157	150	24	19	81	91	303
1340	2001656378	2028191	1002581	82TEX	9/11/2003	3.6	153	142	22	17	73	80	320
1341	2001662745	2028195	1002581	82TEX	9/11/2003	3.4	158	163	23	16	77	87	310
1342	2001662747	2028195	1002581	82TEX	9/13/2003	3.6	150	153	23	18	71	80	323
1343	2001676615	2028836	1002581	82TEX	9/10/2003	3.6	162	140	24	18	75	77	287
1344	2001677781	2028838	1002581	82TEX	9/10/2003	3.5	142	136	19	18	76	82	320
1345	2001677782	2028838	1002581	82TEX	9/12/2003	3.6	172	158	23	17	88	135	337
1346	2001678454	2028833	1002581	82TEX	9/14/2003	3.6	155	140	23	17	71	70	332
1347	2001678455	2028833	1002581	82TEX	9/11/2003	3.6	144	155	20	16	69	97	337
1348	2001684525	2028840	1002581	82TEX	9/11/2003	3.6	164	155	24	18	80	107	297
1349	2001684526	2028840	1002581	82TEX	9/13/2003	3.7	159	164	22	20	74	101	343
1350	2001684527	2028840	1002581	82TEX	9/15/2003	3.5	165	163	22	18	74	92	343
1351	2001696391	2028841	1002581	82TEX	9/11/2003	3.6	161	142	24	15	81	75	280
1352	2001696392	2028841	1002581	82TEX	9/14/2003	3.7	163	141	26	15	85	99	317
1353	2001696393	2028841	1002581	82TEX	9/17/2003	3.4	164	143	27	15	77	78	273
1354	2001698698	2028844	1002581	82TEX	9/12/2003	3.5	157	158	22	17	82	138	317
1355	2001698699	2028844	1002581	82TEX	9/15/2003	3.5	156	135	24	17	64	67	318
1356	2001698700	2028844	1002581	82TEX	9/17/2003	3.6	146	146	20	17	73	85	333
1357	2001700943	2028832	1002581	82TEX	9/15/2003	3.6	155	155	21	17	66	96	310
1358	2001700947	2028832	1002581	82TEX	9/13/2003	3.6	148	150	22	16	74	95	327
1359	2001703297	2028830	1002581	82TEX	9/13/2003	3.4	167	165	26	20	76	118	322
1360	2001703298	2028830	1002581	82TEX	9/15/2003	3.6	166	141	24	16	68	91	328
1361	2001703305	2028830	1002581	82TEX	9/11/2003	3.8	171	153	25	19	81	104	322
1362	2001714197	2028829	1002581	82TEX	9/11/2003	3.5	147	149	22	17	79	105	307
1363	2001714198	2028829	1002581	82TEX	9/12/2003	3.6	159	166	22	16	70	94	337
1364	2001714199	2028829	1002581	82TEX	9/15/2003	3.5	172	144	25	17	74	73	343
1365	2001724728	2028834	1002581	82TEX	9/15/2003	3.6	180	153	27	17	88	130	320
1366	2001724730	2028834	1002581	82TEX	9/14/2003	3.6	170	151	27	17	87	61	352
1367	2001730620	2028839	1002581	82TEX	9/15/2003	3.5	166	169	23	20	77	101	327
1368	2001730637	2028836	1002581	82TEX	9/17/2003	3.4	162	173	24	21	67	79	353
1369	2001730646	2028836	1002581	82TEX	9/15/2003	3.7	156	165	21	18	61	73	330
1370	2001730647	2028837	1002581	82TEX	9/15/2003	3.6	149	150	21	16	65	102	320
1371	2001730649	2028837	1002581	82TEX	9/17/2003	3.6	162	166	25	17	66	95	347
1372	2001741078	2028842	1002581	82TEX	9/17/2003	3.3	146	139	22	19	76	88	297
1373	2001741798	2029690	1002581	82TEX	9/17/2003	3.4	174	165	25	19	90	99	317

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION FACILITY:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
CONTACT:	Sid Weiser
BRAND NAME:	Geotex 650

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Thantex Specialties, Inc.

PRODUCTION Facility: Thantex
94 Glenn Bridge Road
Arden, NC. 28704

Contact: Furman Drake, 828-687-0940

Brand Name:

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
875	2001039690	2019260	1004557	650	5/31/2003	7.2	173	68	76	131	125	25	28	240
876	2001039695	2019260	1004557	650	5/31/2003	7.2	166	68	108	105	135	28	32	204
877	2001139638	2020696	1004557	650	6/11/2003	7.4	149	137	237	114	139	49	69	260
878	2001139643	2020696	1004557	650	6/12/2003	7.9	148	150	234	119	129	66	84	296
879	2001139647	2020696	1004557	650	6/12/2003	7.5	145	139	242	109	118	50	67	277
880	2001139652	2020696	1004557	650	6/12/2003	8.2	152	140	222	113	125	65	82	299
881	2001154212	2020808	1004557	650	6/16/2003	6.3	164	54	50	109	116	25	15	224
882	2001154219	2020808	1004557	650	6/16/2003	6.3	146	90	142	94	125	39	39	230
883	2001154225	2020808	1004557	650	6/16/2003	6.6	144	100	150	97	114	38	46	251
884	2001154230	2020808	1004557	650	6/16/2003	6.3	142	87	150	90	117	46	42	254
885	2001154235	2020808	1004557	650	6/17/2003	6.4	146	89	108	93	102	35	38	231
886	2001154240	2020808	1004557	650	6/17/2003	6.3	142	96	119	91	104	43	41	221
887	2001168571	2020808	1004557	650	6/16/2003	8.7	207	108	108	105	113	39	40	313
888	2001211510	2022397	1004557	650	6/26/2003	7.3	142	133	232	121	126	51	77	241
889	2001232544	2022283	1004557	650	6/25/2003	6.1	141	81	101	96	117	40	47	229
890	2001232548	2022283	1004557	650	6/25/2003	6.3	147	75	107	104	117	32	41	220
891	2001232552	2022283	1004557	650	6/25/2003	6.1	145	68	79	112	115	37	40	224
892	2001241496	2022397	1004557	650	6/26/2003	7.7	143	144	231	122	138	57	83	257
893	2001241497	2022397	1004557	650	6/26/2003	8.4	150	137	239	123	125	52	110	257
894	2001241499	2022397	1004557	650	6/26/2003	6.8	133	110	187	115	124	40	73	224
895	2001241502	2022397	1004557	650	6/26/2003	7.4	139	129	229	117	125	63	75	256
896	2001241505	2022397	1004557	650	6/26/2003	7.3	138	135	231	119	125	50	69	237
897	2001241516	2022397	1004557	650	6/27/2003	7.0	136	113	224	113	132	50	76	240
898	2001241626	2022397	1004557	650	6/27/2003	7.0	140	100	175	110	120	45	68	233
899	2001241629	2022397	1004557	650	6/27/2003	7.0	138	103	213	110	124	43	72	237
900	2001241636	2022397	1004557	650	6/27/2003	7.3	142	125	212	121	126	56	74	247
901	2001241643	2022397	1004557	650	6/28/2003	6.8	138	88	176	106	123	43	66	230
902	2001241649	2022397	1004557	650	6/28/2003	6.7	133	92	181	106	114	47	86	243
903	2001241653	2022397	1004557	650	6/29/2003	7.7	157	134	237	124	129	54	85	224
904	2001241659	2022397	1004557	650	6/29/2003	6.9	147	108	204	109	118	71	67	240
905	2001241665	2022397	1004557	650	6/29/2003	6.9	143	97	158	114	112	42	51	227
906	2001241668	2022397	1004557	650	6/30/2003	6.9	146	112	203	109	116	54	106	251
907	2001241674	2022397	1004557	650	6/30/2003	7.1	155	109	212	110	118	47	77	247
908	2001241680	2022397	1004557	650	6/30/2003	7.2	154	121	236	125	132	52	67	246
909	2001241684	2022397	1004557	650	6/30/2003	7.3	151	113	226	116	123	58	82	233
910	2001241688	2022397	1004557	650	6/30/2003	7.4	150	113	231	114	126	49	69	253
911	2001241694	2022397	1004557	650	6/30/2003	7.1	152	119	206	124	123	52	81	244
912	2001243117	2022397	1004557	650	6/27/2003	7.1	139	89	105	92	94	54	64	266
913	2001244630	2022397	1004557	650	6/27/2003	7.3	143	121	203	125	136	54	75	234
914	2001285094	2022397	1004557	650	7/1/2003	6.4	140	198	185	134	126	42	69	220
915	2001285100	2022397	1004557	650	7/1/2003	6.9	144	108	204	117	121	45	88	229
916	2001285105	2022397	1004557	650	7/1/2003	6.8	149	102	205	113	127	44	76	230
917	2002870450	2002870	1004557	650	1/8/2003	6.9	170	95	118	124	135	38	42	221
918														
919														
920														

THANTEX

Bill of Lading No. 0061480

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000059156A	24-Oct-03	6.48	0.142	171.2	127.0	75.01	166.0	82.6	46
ROLL000059189A	24-Oct-03	6.24	0.131	187.2	130.1	81.07	158.1	67.3	48
ROLL000059207A	24-Oct-03	6.23	0.139	157.4	163.9	78.29	152.3	72.3	45
ROLL000059212A	24-Oct-03	6.60	0.149	142.5	133.2	84.36	157.9	75.7	44

THANTEX

Bill of Lading No. 0062970

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000060159A	13-Nov-03	6.84	0.131	128.5	130.4	96.2	184.0	92.44	52
ROLL000060186A	13-Nov-03	6.60	0.128	159.4	132.3	88.1	184.1	86.65	51
ROLL000060203A	14-Nov-03	6.47	0.123	166.9	130.0	99.6	178.6	75.49	53

THANTEX

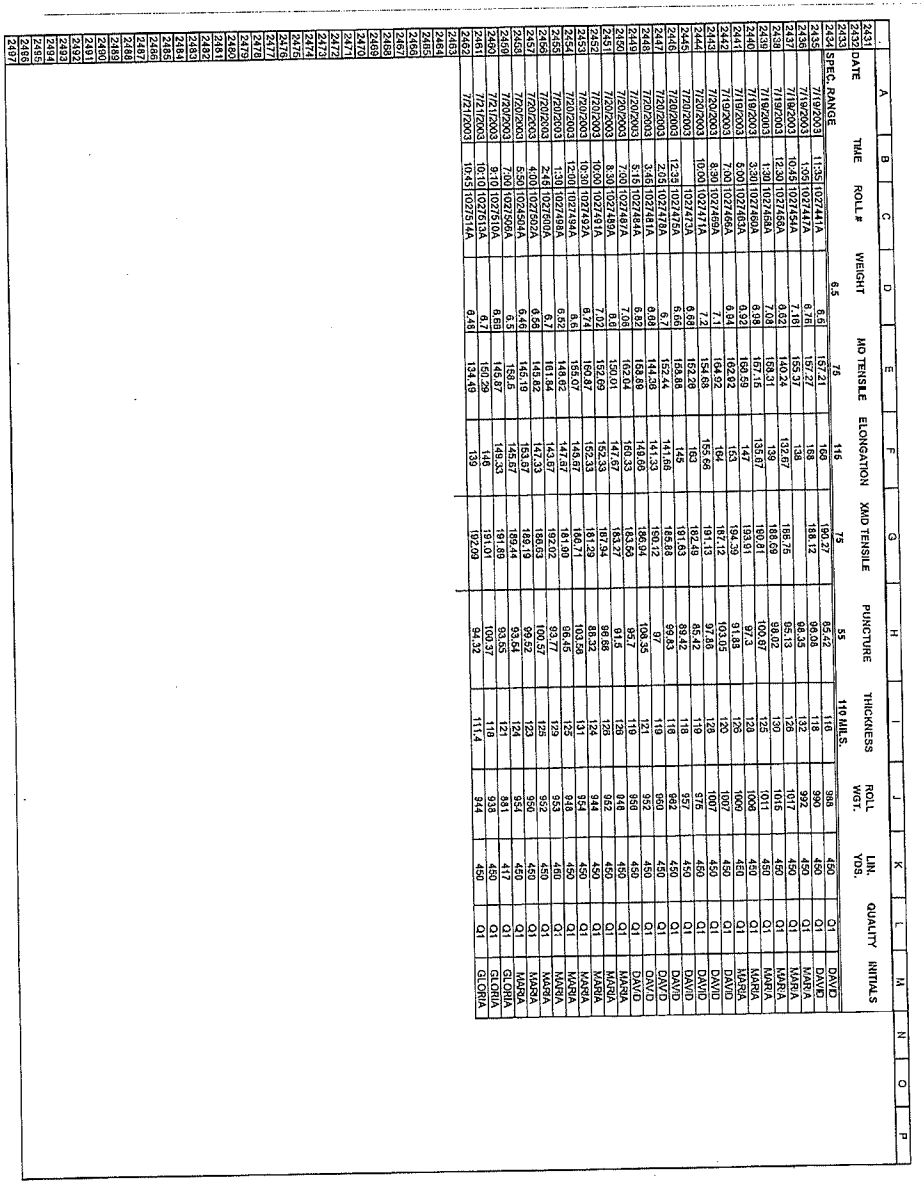
Bill of Lading No. 0062943

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000060235A	14-Nov-03	6.92	0.126	157.9	131.6	101.1	204.9	68.39	55
ROLL000060262A	14-Nov-03	6.12	0.120	153.0	126.6	85.5	164.1	80.93	51
ROLL000060281A	14-Nov-03	6.24	0.123	142.4	125.0	89.8	182.0	79.78	51

THANTEX

Bill of Lading No. 0063415

ROLL NUMBER	TEST DATE	MASS PER UNIT AREA MARV >6.0	THICKNESS >.110	MD GRAB ELONGATION >115	CD GRAB ELONGATION >125	MD TENSILE >75	CD TENSILE >75	PUNCTURE >55	WEIGTH TO THICKNESS RATIO >35 <55
ROLL000060712A	25-Nov-03	6.60	0.133	157.3	152.0	95.1	153.6	85.1	50
ROLL000060717A	25-Nov-03	6.32	0.129	172.8	151.8	87.8	157.8	74.7	49
ROLL000060728A	26-Nov-03	6.28	0.125	151.9	125.8	85.8	164.9	81.2	50



	A	B	C	D	E	F	G	H	I	J	K	L	M
2431													
2432	DATE	TIME	ROLL #	WEIGHT	MD TENSILE	ELONGATION	XMD TENSILE	PUNCTURE	THICKNESS	ROLL WGT.	LIN. YDS.	QUALITY	INITIALS
2433													
2434	SPEC. RANGE			6.5	75	115	75	55	110 MILS.				
2435	7/19/2003	11:35	1027441A	6.6	157.21	166	190.27	85.42	116	988	450	Q1	DAVID
2436	7/19/2003	1:05	1027447A	6.76	157.27	168	188.12	96.08	118	990	450	Q1	DAVID
2437	7/19/2003	10:45	1027454A	7.16	155.37	138		98.35	132	992	450	Q1	MARIA
2438	7/19/2003	12:30	1027456A	6.62	140.24	132.67	188.75	95.13	126	1017	450	Q1	MARIA
2439	7/19/2003	1:30	1027458A	7.08	158.31	139	188.69	98.02	130	1015	450	Q1	MARIA
2440	7/19/2003	3:30	1027460A	6.98	157.15	135.67	190.81	100.67	125	1011	450	Q1	MARIA
2441	7/19/2003	5:00	1027463A	6.92	160.59	147	193.91	97.3	128	1006	450	Q1	MARIA
2442	7/19/2003	7:00	1027466A	6.94	162.92	153	194.39	91.88	126	1009	450	Q1	MARIA
2443	7/20/2003	8:30	1027469A	7.1	164.92	164	187.12	103.05	120	1007	450	Q1	DAVID
2444	7/20/2003	10:00	1027471A	7.2	154.68	155.66	191.13	97.88	128	1007	450	Q1	DAVID
2445	7/20/2003		1027473A	6.68	152.26	163	182.49	85.42	119	975	450	Q1	DAVID
2446	7/20/2003	12:35	1027475A	6.66	158.88	145	191.63	89.42	118	957	450	Q1	DAVID
2447	7/20/2003	2:05	1027478A	6.7	152.44	141.66	185.88	99.83	116	962	450	Q1	DAVID
2448	7/20/2003	3:45	1027481A	6.68	144.38	141.33	190.12	97	119	960	450	Q1	DAVID
2449	7/20/2003	5:15	1027484A	6.82	158.89	149.66	186.94	108.35	121	952	450	Q1	DAVID
2450	7/20/2003	7:00	1027487A	7.08	162.04	150.33	183.56	95.7	119	956	450	Q1	DAVID
2451	7/20/2003	8:30	1027489A	6.6	150.01	147.67	183.27	91.5	126	948	450	Q1	MARIA
2452	7/20/2003	10:00	1027491A	7.02	152.69	152.33	187.94	96.68	128	952	450	Q1	MARIA
2453	7/20/2003	10:30	1027492A	6.74	160.87	152.33	181.29	88.32	124	944	450	Q1	MARIA
2454	7/20/2003	12:00	1027494A	6.6	155.07	145.67	186.71	103.56	131	954	450	Q1	MARIA
2455	7/20/2003	1:30	1027498A	6.52	148.62	147.67	181.90	96.45	125	948	450	Q1	MARIA
2456	7/20/2003	2:45	1027500A	6.7	161.84	143.67	192.02	93.77	129	953	450	Q1	MARIA
2457	7/20/2003	4:00	1027502A	6.56	145.82	147.33	186.63	100.57	125	952	450	Q1	MARIA
2458	7/20/2003	5:50	1024504A	6.46	145.19	153.67	189.19	99.52	123	950	450	Q1	MARIA
2459	7/20/2003	7:00	1027506A	6.5	158.5	145.67	189.44	93.54	124	954	450	Q1	MARIA
2460	7/21/2003	9:10	1027510A	6.68	145.87	149.33	191.89	93.55	121	881	417	Q1	GLORIA
2461	7/21/2003	10:10	1027513A	6.7	150.29	146	191.01	100.37	118	938	450	Q1	GLORIA
2462	7/21/2003	10:45	1027514A	6.48	134.49	139	192.09	94.32	111.4	944	450	Q1	GLORIA
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TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: AMERICAN SYNTHETIS FIBERS

PRODUCTION

Facility: American Synthetic Fiber
312 South Holland Drive
Pendergrass, GA. 30567

Contact: Troy Ash 706-693-7026

Brand Name: SP 165

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187980
Ship Date:	7-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS

QCG#FT2 QCT#FT2
7/08/04 12:49:01

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187980

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200428LO	00005692	.99*	239.50*	40.60*
LO-BENTOMAT ST	200427LO	00005618	.91	271.10	27.80
LO-BENTOMAT ST	200427LO	00005614	.91	271.10	27.80
LO-BENTOMAT ST	200427LO	00005613	.91	271.10	27.80
LO-BENTOMAT ST	200427LO	00005612	.91*	271.10	27.80*
LO-BENTOMAT ST	200427LO	00005611	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005610	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005609	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005608	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005607	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005606	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005605	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005604	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005603	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005598	.80	271.10	23.60
LO-BENTOMAT ST	200427LO	00005507	.87	229.10	20.10

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

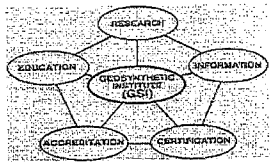
Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187980

Ship Date: 7-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#TF1 QCT#TF1
7/08/04 12:49:01

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 0001187980

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200427LO									
00005507	LO-BENTOMAT ST	150	2250	2560	2001241498		2002441789		062104B
00005598	LO-BENTOMAT ST	150	2250	2547	000060698A		2001677784		062504B
00005603	LO-BENTOMAT ST	150	2250	2535	000060148A		2001677784		062504B
00005604	LO-BENTOMAT ST	150	2250	2543	000060148A		2001677784		062504B
00005605	LO-BENTOMAT ST	150	2250	2539	000060148A		2001677784		062504B
00005606	LO-BENTOMAT ST	150	2250	2542	000060148A		2001677784		062504B
00005607	LO-BENTOMAT ST	150	2250	2548	000060148A		2001677784		062504B
00005608	LO-BENTOMAT ST	150	2250	2555	000060148A		2001677784		062504B
00005609	LO-BENTOMAT ST	150	2250	2560	000060148A		2001677784		062504B
00005610	LO-BENTOMAT ST	150	2250	2554	000059219A		2001677784		062504B
00005611	LO-BENTOMAT ST	150	2250	2550	000059219A		2001677784		062504B
00005612	LO-BENTOMAT ST	150	2250	2548	000059219A		2001677784		062504B
00005613	LO-BENTOMAT ST	150	2250	2540	000059219A		2001677784		062504B
00005614	LO-BENTOMAT ST	150	2250	2545	000059219A		2001677784		062504B
00005618	LO-BENTOMAT ST	150	2250	2551	000059219A		2001703300		062504B
LOT# 200428LO									
00005692	LO-BENTOMAT ST	150	2250	2560	1027470A		2001826156		062504D

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 21, 2004
PO: 9656-00
Order #: 187981, 187982, 187983

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on July 20, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187981, 187982, 187983
Ship Date:	20-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

WAUKESHA WI 53188-6904

ORDER NO:.. 000187981
ORDER DATE: 5/17/2004
SHIP DATE:. 7/20/2004

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200429LO	00005996	150.0	15.0	2250.0	2783.0
LO-BENTOMAT ST		SFT SF	200429LO	00006001	150.0	15.0	2250.0	2780.0
LO-BENTOMAT ST		SFT SF	200429LO	00006032	150.0	15.0	2250.0	2675.0
LO-BENTOMAT ST		SFT SF	200429LO	00006065	150.0	15.0	2250.0	2650.0
LO-BENTOMAT ST		SFT SF	200429LO	00006077	150.0	15.0	2250.0	2620.0
LO-BENTOMAT ST		SFT SF	200429LO	00006475	250.0	15.0	2250.0	2624.0
LO-BENTOMAT ST		SFT SF	200429LO	00006476	250.0	15.0	2250.0	2620.0
LO-BENTOMAT ST		SFT SF	200429LO	00006478	250.0	15.0	2250.0	2619.0
LO-BENTOMAT ST		SFT SF	200429LO	00006479	250.0	15.0	2250.0	2623.0
LO-BENTOMAT ST		SFT SF	200429LO	00006481	250.0	15.0	2250.0	2640.0
LO-BENTOMAT ST		SFT SF	200429LO	00006483	250.0	15.0	2250.0	2633.0
LO-BENTOMAT ST		SFT SF	200429LO	00006486	150.0	15.0	2250.0	2633.0
LO-BENTOMAT ST		SFT SF	200429LO	00006489	150.0	15.0	2250.0	2634.0
LO-BENTOMAT ST		SFT SF	200429LO	00006492	150.0	15.0	2250.0	2629.0
LO-BENTOMAT ST		SFT SF	200429LO	00006495	150.0	15.0	2250.0	2634.0
LO-BENTOMAT ST		SFT SF	200429LO	00006496	150.0	15.0	2250.0	2640.0
ORDER TOTALS.....							36000.0	42437.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187982
ORDER DATE: 5/17/2004
SHIP DATE:. 7/20/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200429LO	00006002	150.0	15.0	2250.0	2784.0
LO-BENTOMAT ST	SFT SF	200429LO	00006474	250.0	15.0	2250.0	2629.0
LO-BENTOMAT ST	SFT SF	200429LO	00006477	250.0	15.0	2250.0	2635.0
LO-BENTOMAT ST	SFT SF	200429LO	00006487	150.0	15.0	2250.0	2641.0
LO-BENTOMAT ST	SFT SF	200429LO	00006490	150.0	15.0	2250.0	2630.0
LO-BENTOMAT ST	SFT SF	200429LO	00006493	150.0	15.0	2250.0	2622.0
LO-BENTOMAT ST	SFT SF	200429LO	00006497	150.0	15.0	2250.0	2642.0
LO-BENTOMAT ST	SFT SF	200429LO	00006572	150.0	15.0	2250.0	2633.0
LO-BENTOMAT ST	SFT SF	200429LO	00006578	150.0	15.0	2250.0	2626.0
LO-BENTOMAT ST	SFT SF	200429LO	00006582	150.0	15.0	2250.0	2623.0
LO-BENTOMAT ST	SFT SF	200429LO	00006585	150.0	15.0	2250.0	2652.0
LO-BENTOMAT ST	SFT SF	200429LO	00006590	150.0	15.0	2250.0	2621.0
						27000.0	31738.0

ORDER TOTALS.....

TOTAL ITEMS..... 12

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187983
ORDER DATE: 5/17/2004
SHIP DATE:. 7/20/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200427LO	00005585	150.0	15.0	2250.0	2541.0
LO-BENTOMAT ST	SFT SF	200427LO	00005586	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST	SFT SF	200427LO	00005587	150.0	15.0	2250.0	2544.0
LO-BENTOMAT ST	SFT SF	200427LO	00005595	150.0	15.0	2250.0	2528.0
LO-BENTOMAT ST	SFT SF	200428LO	00005778	150.0	15.0	2250.0	2566.0
LO-BENTOMAT ST	SFT SF	200428LO	00005831	150.0	15.0	2250.0	2540.0
LO-BENTOMAT ST	SFT SF	200429LO	00006008	150.0	15.0	2250.0	2779.0
LO-BENTOMAT ST	SFT SF	200429LO	00006009	150.0	15.0	2250.0	2786.0
LO-BENTOMAT ST	SFT SF	200429LO	00006016	150.0	15.0	2250.0	2680.0
LO-BENTOMAT ST	SFT SF	200429LO	00006017	150.0	15.0	2250.0	2665.0
LO-BENTOMAT ST	SFT SF	200429LO	00006025	150.0	15.0	2250.0	2674.0
LO-BENTOMAT ST	SFT SF	200429LO	00006026	150.0	15.0	2250.0	2680.0
LO-BENTOMAT ST	SFT SF	200429LO	00006033	150.0	15.0	2250.0	2666.0
LO-BENTOMAT ST	SFT SF	200429LO	00006063	150.0	15.0	2250.0	2650.0
LO-BENTOMAT ST	SFT SF	200429LO	00006076	150.0	15.0	2250.0	2627.0
LO-BENTOMAT ST	SFT SF	200429LO	00006473	250.0	15.0	2250.0	2620.0
						36000.0	42096.0

ORDER TOTALS.....

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187981, 187982, 187983
Ship Date:	20-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187981, 187982, 187983
Ship Date:	20-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **25-Jun-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **062504B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.6**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **30-Jun-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **063004A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our

Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **30-Jun-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **063004B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **06-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **070604A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.9**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.6**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **06-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **070604B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.8
Moisture	ASTM D 2216	12.0 % (MAX)	9.9
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	14.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **12-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071204D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	1.0
Moisture	ASTM D 2216	12.0 % (MAX)	9.6
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	16.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **12-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071204E**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.6**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**16.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **13-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071304A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.9**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.6**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **14-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071403E**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**13.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1153	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1154	2001466201	2025076	1002581	82TEX	8/23/2003	3.8	142	168	22	16	83	171	333	
1155	2001498702	2025952	1002581	82TEX	8/18/2003	3.2	137	136	19	17	59	66	313	
1156	2001520480	2026760	1002581	82TEX	8/18/2003	3.4	143	136	21	17	73	77	313	
1157	2001520481	2026760	1002581	82TEX	8/20/2003	3.9	155	160	25	18	101	189	312	
1158	2001536629	2026381	1002581	82TEX	8/19/2003	3.3	142	138	19	15	66	74	320	
1159	2001536630	2026381	1002581	82TEX	8/22/2003	3.7	139	158	19	17	69	128	322	
1160	2001536633	2026381	1002581	82TEX	8/29/2003	3.6	144	138	21	16	82	76	340	
1161	2001563734	2026450	1002581	82TEX	8/19/2003	3.4	152	144	22	17	79	90	300	
1162	2001563735	2026450	1002581	82TEX	8/23/2003	3.5	145	140	22	17	90	143	287	
1163	2001563739	2026450	1002581	82TEX	8/21/2003	3.5	146	140	20	15	104	114	303	
1164	2001564802	2026380	1002581	82TEX	8/20/2003	3.6	161	140	24	18	111	140	300	
1165	2001564803	2026380	1002581	82TEX	8/22/2003	3.5	153	139	20	16	86	134	323	
1166	2001564804	2026380	1002581	82TEX	8/25/2003	3.6	145	143	21	17	86	155	267	
1167	2001564813	2025071	1002581	82TEX	8/23/2003	3.4	148	138	22	18	92	120	290	
1168	2001564820	2025071	1002581	82TEX	8/20/2003	3.7	155	145	21	17	91	148	287	
1169	2001564820	2025071	1002581	82TEX	8/18/2003	4.1	162	200	21	16	72	120	360	
1170	2001565021	2026449	1002581	82TEX	8/18/2003	3.6	159	144	21	16	77	93	317	
1171	2001565022	2026449	1002581	82TEX	8/21/2003	3.3	156	139	21	16	104	100	292	
1172	2001565023	2026449	1002581	82TEX	8/23/2003	3.6	156	144	24	17	103	156	297	
1173	2001566019	2026759	1002581	82TEX	8/21/2003	3.8	164	162	22	17	88	197	327	
1174	2001566020	2026759	1002581	82TEX	8/19/2003	3.6	154	151	22	18	84	148	323	
1175	2001566021	2026759	1002581	82TEX	8/23/2003	3.5	163	169	24	20	157	202	310	
1176	2001566022	2026759	1002581	82TEX	8/26/2003	3.5	159	142	25	18	89	87	307	
1177	2001579913	2027103	1002581	82TEX	8/23/2003	4.0	170	183	27	19	100	218	310	
1178	2001579914	2027103	1002581	82TEX	8/23/2003	3.5	156	151	22	18	90	177	297	
1179	2001579915	2027103	1002581	82TEX	8/26/2003	3.6	148	140	22	18	82	106	325	
1180	2001579938	2027096	1002581	82TEX	8/23/2003	3.2	141	137	23	16	92	138	273	
1181	2001579939	2027096	1002581	82TEX	8/23/2003	3.2	138	143	21	18	93	97	277	
1182	2001579941	2027096	1002581	82TEX	8/26/2003	3.7	146	158	22	17	65	102	307	
1183	2001601973	2026451	1002581	82TEX	8/25/2003	3.6	147	144	21	16	75	142	293	
1184	2001601974	2026451	1002581	82TEX	8/28/2003	3.4	157	136	25	17	87	103	290	
1185	2001601981	2026451	1002581	82TEX	8/24/2003	4.2	162	209	26	19	77	239	323	
1186	2001603563	2027097	1002581	82TEX	9/2/2003	3.5	143	139	22	18	75	87	310	
1187	2001603564	2027097	1002581	82TEX	8/30/2003	3.5	155	145	22	19	68	82	303	
1188	2001603565	2027097	1002581	82TEX	8/28/2003	3.6	150	139	22	16	79	131	297	
1189	2001604159	2026761	1002581	82TEX	8/25/2003	4.3	152	140	23	18	92	151	267	

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TECHNICAL DATA SHEET

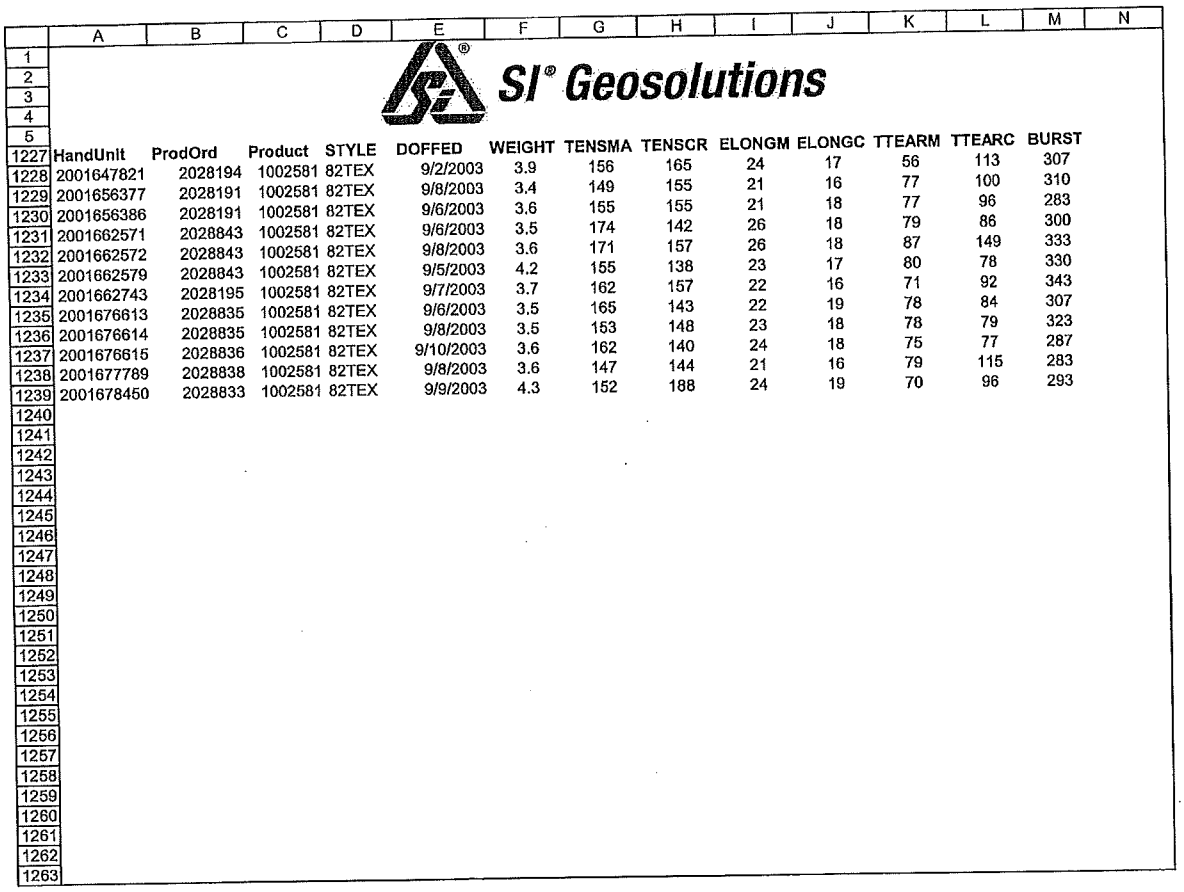
ORIGIN INFORMATION

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

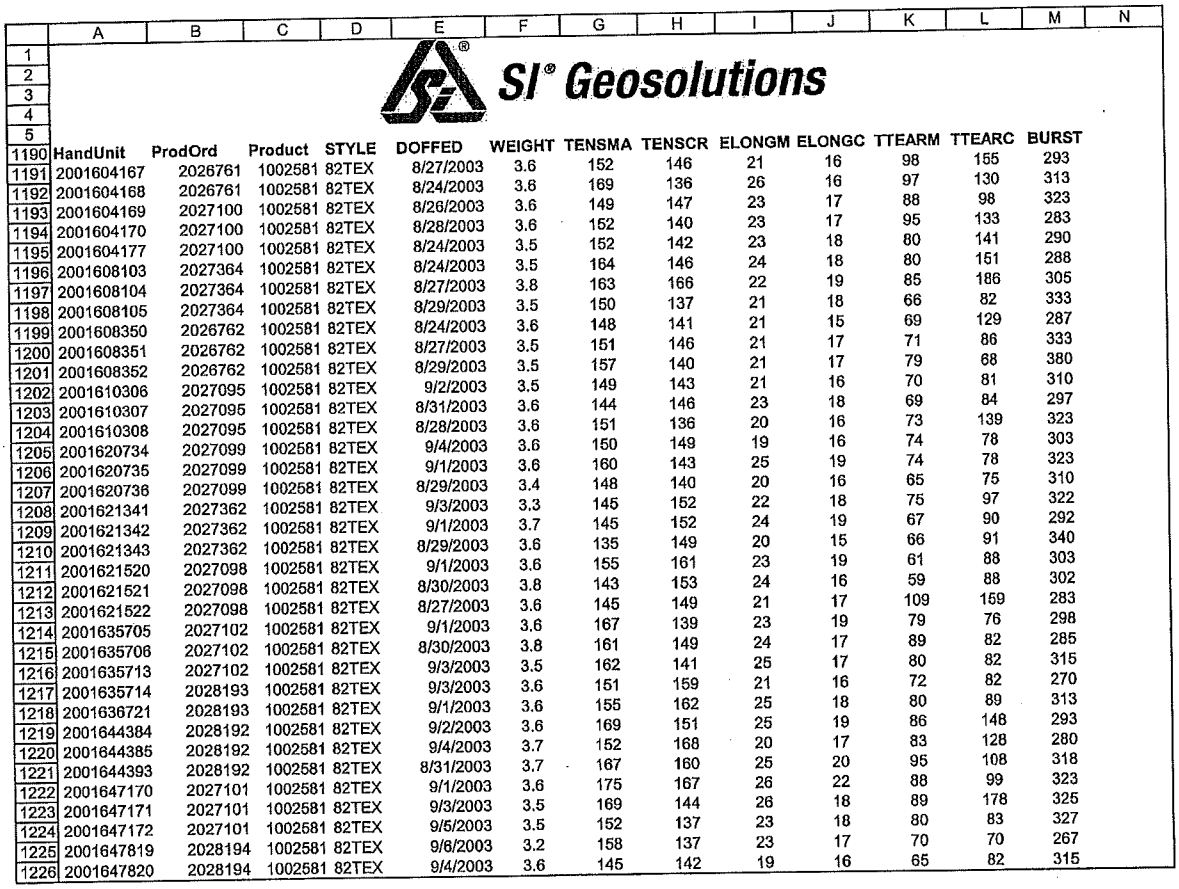
Contact: Randy Johnson

Brand Name: 82 Tex.



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001647821	2028194	1002581	82TEX	9/2/2003	3.9	156	165	24	17	56	113	307
2001656377	2028191	1002581	82TEX	9/8/2003	3.4	149	155	21	16	77	100	310
2001656386	2028191	1002581	82TEX	9/6/2003	3.6	155	155	21	18	77	96	283
2001662571	2028843	1002581	82TEX	9/6/2003	3.5	174	142	26	18	79	86	300
2001662572	2028843	1002581	82TEX	9/8/2003	3.6	171	157	26	18	87	149	333
2001662579	2028843	1002581	82TEX	9/5/2003	4.2	155	138	23	17	80	78	330
2001662743	2028195	1002581	82TEX	9/7/2003	3.7	162	157	22	16	71	92	343
2001676613	2028835	1002581	82TEX	9/6/2003	3.5	165	143	22	19	78	84	307
2001676614	2028835	1002581	82TEX	9/8/2003	3.5	153	148	23	18	78	79	323
2001676615	2028836	1002581	82TEX	9/10/2003	3.6	162	140	24	18	75	77	287
2001677789	2028838	1002581	82TEX	9/8/2003	3.6	147	144	21	16	79	115	283
2001678450	2028833	1002581	82TEX	9/9/2003	4.3	152	188	24	19	70	96	293



SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001604167	2026761	1002581	82TEX	8/27/2003	3.6	152	146	21	16	98	155	293
2001604168	2026761	1002581	82TEX	8/24/2003	3.6	169	136	26	16	97	130	313
2001604169	2027100	1002581	82TEX	8/26/2003	3.6	149	147	23	17	88	98	323
2001604170	2027100	1002581	82TEX	8/28/2003	3.6	152	140	23	17	95	133	283
2001604177	2027100	1002581	82TEX	8/24/2003	3.5	152	142	23	18	80	141	290
2001608103	2027364	1002581	82TEX	8/24/2003	3.5	164	146	24	18	80	151	288
2001608104	2027364	1002581	82TEX	8/27/2003	3.8	163	166	22	19	85	186	305
2001608105	2027364	1002581	82TEX	8/29/2003	3.5	150	137	21	18	66	82	333
2001608350	2026762	1002581	82TEX	8/24/2003	3.6	148	141	21	15	69	129	287
2001608351	2026762	1002581	82TEX	8/27/2003	3.5	151	146	21	17	71	86	333
2001608352	2026762	1002581	82TEX	8/29/2003	3.5	157	140	21	17	79	68	380
2001610306	2027095	1002581	82TEX	9/2/2003	3.5	149	143	21	16	70	81	310
2001610307	2027095	1002581	82TEX	8/31/2003	3.6	144	146	23	18	69	84	297
2001610308	2027095	1002581	82TEX	8/28/2003	3.6	151	136	20	16	73	139	323
2001620734	2027099	1002581	82TEX	9/4/2003	3.6	150	149	19	16	74	78	303
2001620735	2027099	1002581	82TEX	9/1/2003	3.6	160	143	25	19	74	78	323
2001620736	2027099	1002581	82TEX	8/29/2003	3.4	148	140	20	16	65	75	310
2001621341	2027362	1002581	82TEX	9/3/2003	3.3	145	152	22	18	75	97	322
2001621342	2027362	1002581	82TEX	9/1/2003	3.7	145	152	24	19	67	90	292
2001621343	2027362	1002581	82TEX	8/29/2003	3.6	135	149	20	15	66	91	340
2001621520	2027098	1002581	82TEX	9/1/2003	3.6	155	161	23	19	61	88	303
2001621521	2027098	1002581	82TEX	8/30/2003	3.8	143	153	24	16	59	88	302
2001621522	2027098	1002581	82TEX	8/27/2003	3.6	145	149	21	17	109	159	283
2001635705	2027102	1002581	82TEX	9/1/2003	3.6	167	139	23	19	79	76	298
2001635706	2027102	1002581	82TEX	8/30/2003	3.8	161	149	24	17	89	82	285
2001635713	2027102	1002581	82TEX	9/3/2003	3.5	162	141	25	17	80	82	315
2001635714	2028193	1002581	82TEX	9/3/2003	3.6	151	159	21	16	72	82	270
2001636721	2028193	1002581	82TEX	9/1/2003	3.6	155	162	25	18	80	89	313
2001644384	2028192	1002581	82TEX	9/2/2003	3.6	169	151	25	19	86	148	293
2001644385	2028192	1002581	82TEX	9/4/2003	3.7	152	168	20	17	83	128	280
2001644393	2028192	1002581	82TEX	8/31/2003	3.7	167	160	25	20	95	108	318
2001647170	2027101	1002581	82TEX	9/1/2003	3.6	175	167	26	22	88	99	323
2001647171	2027101	1002581	82TEX	9/3/2003	3.5	169	144	26	18	89	178	325
2001647172	2027101	1002581	82TEX	9/5/2003	3.5	152	137	23	18	80	83	327
2001647819	2028194	1002581	82TEX	9/6/2003	3.2	158	137	23	17	70	70	267
2001647820	2028194	1002581	82TEX	9/4/2003	3.6	145	142	19	16	65	82	315

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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001741804	2029690	1002581	82TEX	10/1/2003	3.5	159	149	22	18	70	102	333
2001756545	2028831	1002581	82TEX	9/28/2003	3.6	160	158	20	16	69	89	330
2001758204	2029689	1002581	82TEX	9/25/2003	3.7	157	154	22	17	67	86	340
2001786178	2029692	1002581	82TEX	10/4/2003	3.4	161	147	23	19	62	70	320
2001786180	2029692	1002581	82TEX	10/2/2003	3.6	161	156	25	19	54	77	370
2001786181	2029692	1002581	82TEX	9/29/2003	3.2	156	142	21	17	65	75	340
2001786182	2029692	1002581	82TEX	9/27/2003	3.5	163	149	25	17	58	74	357
2001786291	2030466	1002581	82TEX	9/27/2003	3.5	150	153	23	19	58	85	347
2001786292	2030466	1002581	82TEX	9/29/2003	3.5	153	162	20	16	62	72	310
2001786293	2030466	1002581	82TEX	9/30/2003	3.4	169	156	25	18	69	85	328
2001811817	2030481	1002581	82TEX	10/2/2003	3.4	148	143	20	17	79	86	337
2001814524	2030481	1002581	82TEX	9/29/2003	3.5	157	156	23	17	70	84	303
2001814525	2030481	1002581	82TEX	9/27/2003	3.5	164	136	20	16	67	107	307
2001819099	2030468	1002581	82TEX	9/30/2003	3.6	155	152	22	18	75	116	323
2001819100	2030468	1002581	82TEX	10/4/2003	3.3	164	135	26	19	70	77	333
2001819109	2030468	1002581	82TEX	10/2/2003	3.6	164	160	25	19	69	82	343
2001826156	2030475	1002581	82TEX	10/2/2003	3.3	172	151	23	19	89	101	307
2001826157	2030475	1002581	82TEX	10/4/2003	3.3	170	166	23	20	76	99	367
2001826164	2030475	1002581	82TEX	9/30/2003	3.7	164	157	26	20	84	116	320
2001835461	2030470	1002581	82TEX	10/4/2003	3.5	146	138	22	18	68	71	333
2001835462	2030470	1002581	82TEX	10/6/2003	3.5	152	146	19	16	74	80	303
2001836319	2030470	1002581	82TEX	10/3/2003	3.8	145	172	22	19	79	111	363
2001836327	2030465	1002581	82TEX	10/4/2003	3.6	160	146	22	16	63	71	353
2001836328	2030465	1002581	82TEX	10/7/2003	3.6	160	157	23	21	75	56	352
2001839554	2030483	1002581	82TEX	10/4/2003	3.5	166	160	22	19	74	91	363
2001839555	2030483	1002581	82TEX	10/6/2003	3.5	170	157	23	19	72	94	317
2001858813	2030482	1002581	82TEX	10/4/2003	3.4	155	146	21	18	74	95	330
2001858814	2030482	1002581	82TEX	10/7/2003	3.5	169	145	25	18	69	84	338

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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001730613	2028839	1002581	82TEX	9/19/2003	3.5	175	167	25	19	73	103	340
2001730638	2028836	1002581	82TEX	9/19/2003	3.5	169	157	22	18	61	81	347
2001730650	2028837	1002581	82TEX	9/19/2003	3.5	156	143	20	17	68	92	330
2001741069	2028842	1002581	82TEX	9/19/2003	3.6	165	158	26	18	78	88	333
2001741070	2028842	1002581	82TEX	9/21/2003	3.5	167	149	21	18	69	92	317
2001741799	2029690	1002581	82TEX	9/19/2003	3.4	173	155	27	20	76	88	268
2001741800	2029690	1002581	82TEX	9/21/2003	3.4	175	154	26	20	77	94	348
2001756542	2028831	1002581	82TEX	9/19/2003	3.4	139	141	21	17	58	59	267
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001756543	2028831	1002581	82TEX	9/22/2003	3.5	151	141	22	17	68	80	303
2001757153	2029691	1002581	82TEX	9/20/2003	3.3	155	139	21	17	83	99	360
2001757154	2029691	1002581	82TEX	9/23/2003	3.6	156	153	26	19	67	97	323
2001758202	2029689	1002581	82TEX	9/24/2003	3.4	149	140	22	18	57	70	328
2001758203	2029689	1002581	82TEX	9/21/2003	3.3	146	136	20	16	72	92	297



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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2002083025	2033346	1002581	82TEX	11/13/2003	3.6	163	159	24	21	79	101	342
2002083026	2033346	1002581	82TEX	11/15/2003	3.2	161	148	25	20	96	99	307
2002134885	2034251	1002581	82TEX	11/21/2003	3.5	148	144	26	21	84	81	293
2002134887	2034251	1002581	82TEX	11/26/2003	3.6	159	147	25	18	94	131	300
2002134891	2034251	1002581	82 TEX	12/4/2003	3.6	158	150	22	18	85	72	293
2002151844	2036317	1002581	82TEX	11/20/2003	3.7	153	149	24	19	81	125	280
2002151845	2036317	1002581	82TEX	11/22/2003	3.6	166	146	23	19	83	89	330
2002151846	2036317	1002581	82TEX	11/24/2003	3.3	165	137	25	20	84	95	297
2002151857	2036318	1002581	82TEX	11/20/2003	3.4	156	143	25	18	74	106	310
2002151858	2036318	1002581	82TEX	11/25/2003	3.6	150	143	24	16	85	118	320
2002151865	2036318	1002581	82TEX	11/23/2003	3.6	157	142	24	20	78	87	335
2002188845	2036316	1002581	82TEX	11/28/2003	3.6	157	158	21	18	63	103	318
2002188846	2036316	1002581	82TEX	11/25/2003	3.6	164	152	25	19	87	116	300
2002188847	2036316	1002581	82 TEX	11/30/2003	3.5	163	154	24	19	78	133	300
2002193991	2037887	1002581	82 TEX	11/30/2003	3.5	165	148	26	19	84	189	297
2002193992	2037887	1002581	82TEX	12/3/2003	3.7	152	171	22	21	86	143	318
2002193998	2037887	1002581	82TEX	11/25/2003	3.5	158	152	24	19	85	178	300
2002246420	2038787	1002581	82 TEX	12/5/2003	3.4	135	138	29	25	91	119	297
2002246421	2038787	1002581	82TEX	12/7/2003	3.6	149	155	25	20	85	101	340
2002274598	2037953	1002581	82TEX	12/7/2003	3.5	146	139	25	19	74	75	313



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HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2001647177	2027101	1002581	82TEX	9/15/2003	3.4	157	150	24	19	81	91	303
2001656378	2028191	1002581	82TEX	9/11/2003	3.6	153	142	22	17	73	80	320
2001662745	2028195	1002581	82TEX	9/11/2003	3.4	158	163	23	16	77	87	310
2001662747	2028195	1002581	82TEX	9/13/2003	3.6	150	153	23	18	71	80	323
2001676615	2028836	1002581	82TEX	9/10/2003	3.6	162	140	24	18	75	77	287
2001677781	2028838	1002581	82TEX	9/10/2003	3.5	142	136	19	18	76	82	320
2001677782	2028838	1002581	82TEX	9/12/2003	3.6	172	158	23	17	88	135	337
2001678454	2028833	1002581	82TEX	9/14/2003	3.6	155	140	23	17	71	70	332
2001678455	2028833	1002581	82TEX	9/11/2003	3.6	144	155	20	16	69	97	337
2001684525	2028840	1002581	82TEX	9/11/2003	3.6	164	155	24	18	80	107	297
2001684526	2028840	1002581	82TEX	9/13/2003	3.7	159	164	22	20	74	101	343
2001684527	2028840	1002581	82TEX	9/15/2003	3.5	165	163	22	18	74	92	343
2001696391	2028841	1002581	82TEX	9/11/2003	3.6	161	142	24	15	81	75	280
2001696392	2028841	1002581	82TEX	9/14/2003	3.7	163	141	26	15	85	99	317
2001696393	2028841	1002581	82TEX	9/17/2003	3.4	164	143	27	15	77	78	273
2001698698	2028844	1002581	82TEX	9/12/2003	3.5	157	158	22	17	82	138	317
2001698699	2028844	1002581	82TEX	9/15/2003	3.5	156	135	24	17	64	67	318
2001698700	2028844	1002581	82TEX	9/17/2003	3.6	146	146	20	17	73	85	333
2001700943	2028832	1002581	82TEX	9/15/2003	3.6	155	155	21	17	66	96	310
2001700947	2028832	1002581	82TEX	9/13/2003	3.6	148	150	22	16	74	95	327
2001703297	2028830	1002581	82TEX	9/13/2003	3.4	167	165	26	20	76	118	322
2001703298	2028830	1002581	82TEX	9/15/2003	3.6	166	141	24	16	68	91	328
2001703305	2028830	1002581	82TEX	9/11/2003	3.8	171	153	25	19	81	104	322
2001714197	2028829	1002581	82TEX	9/11/2003	3.5	147	149	22	17	79	105	307
2001714198	2028829	1002581	82TEX	9/12/2003	3.6	159	166	22	16	70	94	337
2001714199	2028829	1002581	82TEX	9/15/2003	3.5	172	144	25	17	74	73	343
2001724728	2028834	1002581	82TEX	9/15/2003	3.6	180	153	27	17	88	130	320
2001724730	2028834	1002581	82TEX	9/14/2003	3.6	170	151	27	17	87	61	352
2001730620	2028839	1002581	82TEX	9/15/2003	3.5	166	169	23	20	77	101	327
2001730637	2028836	1002581	82TEX	9/17/2003	3.4	162	173	24	21	67	79	353
2001730646	2028836	1002581	82TEX	9/15/2003	3.7	156	165	21	18	61	73	330
2001730647	2028837	1002581	82TEX	9/15/2003	3.6	149	150	21	16	65	102	320
2001730649	2028837	1002581	82TEX	9/17/2003	3.6	162	166	25	17	66	95	347
2001741078	2028842	1002581	82TEX	9/17/2003	3.3	146	139	22	19	76	88	297
2001741798	2029690	1002581	82TEX	9/17/2003	3.4	174	165	25	19	90	99	317

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187982

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002611436		3.4	168.2
LO-WOVEN-ST	2002441786		3.6	172.8

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187983

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	000060698A		6.1	69.2

TOTAL PAGES 1

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Thantex Specialties, Inc.**

PRODUCTION
Facility: **Thantex**
94 Glenn Bridge Road
Arden, NC. 28704

Contact: Furman Drake, 828-687-0940

Brand Name:

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187981, 187982, 187983
Ship Date:	20-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT ST** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187982

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs mARV ASTM D 4632
LO-N/W-WHITE-ST	200420VR	00001659	6.3	48.4
LO-N/W-WHITE-ST	200420VR	00001671	6.3	76.7
LO-N/W-WHITE-ST	200421VR	00001697	6.3	58.3
LO-N/W-WHITE-ST	200421VR	00001710	6.3	75.3
LO-N/W-WHITE-ST	200425VR	00002135	6.6	51.9
LO-N/W-WHITE-ST	200425VR	00002176	6.8	62.2
LO-N/W-WHITE-ST	200427VR	00002277	6.8	51.5
LO-N/W-WHITE-ST	200428VR	00002362	6.9	64.9

TOTAL PAGES 1

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187981

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs mARV ASTM D 4632
LO-N/W-WHITE-ST	200420VR	00001622	6.8	61.8
LO-N/W-WHITE-ST	200420VR	00001659	6.3	48.4
LO-N/W-WHITE-ST	200420VR	00001671	6.3	76.7
LO-N/W-WHITE-ST	200422VR	00001790	6.8	66.8
LO-N/W-WHITE-ST	200425VR	00002135	6.6	51.9
LO-N/W-WHITE-ST	200425VR	00002176	6.8	62.2
LO-N/W-WHITE-ST	200426VR	00002210	7.0	71.8

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

QCG#TF3 QCT#TF3
7/21/04 10:37:49

CETCO
GEOTEXTILE QC DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

O R D E R # 000187983

MATERIAL	LOT#	ROLL#	GEOTEXTILE 6.0oz/sy mv ASTM D 5261	GRAB STRENGTH 6.0 lbs marv ASTM D 4632
LO-N/W-WHITE-ST	200420VR	00001622	6.8	61.8
LO-N/W-WHITE-ST	200420VR	00001659	6.3	48.4
LO-N/W-WHITE-ST	200421VR	00001702	6.8	66.1
LO-N/W-WHITE-ST	200422VR	00001790	6.8	66.8
LO-N/W-WHITE-ST	200422VR	00001811	6.5	44.1
LO-N/W-WHITE-ST	200426VR	00002210	7.0	71.8
LO-N/W-WHITE-ST	200427VR	00002250	6.8	44.8
LO-N/W-WHITE-ST	200427VR	00002281	6.8	51.5
LO-N/W-WHITE-ST	200427VR	00002287	7.2	60.3

TOTAL PAGES 1

OCG#FT2 OCT#FT2
7/21/04 10:38:34

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187981

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200429LO	00006496	.93	248.90	27.60
LO-BENTOMAT ST	200429LO	00006495	.93	248.90	27.60
LO-BENTOMAT ST	200429LO	00006492	.93	248.90	27.60
LO-BENTOMAT ST	200429LO	00006489	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006486	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006483	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006481	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006479	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006478	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006476	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006475	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006077	.82	268.60	24.40
LO-BENTOMAT ST	200429LO	00006065	.82	268.60	24.40
LO-BENTOMAT ST	200429LO	00006032	.99	268.60	28.80
LO-BENTOMAT ST	200429LO	00006001	.83	268.60	36.50
LO-BENTOMAT ST	200429LO	00005996	.83*	268.60*	36.50*

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

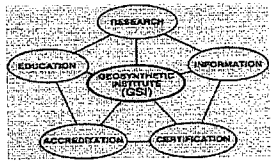
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187981, 187982, 187983
Ship Date:	20-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shaine Wagner
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
7/21/04 10:37:49

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187983

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200429LO	00006473	.85*	248.90*	22.20*
LO-BENTOMAT ST	200429LO	00006076	.82	268.60	24.40
LO-BENTOMAT ST	200429LO	00006063	.82	268.60	31.50
LO-BENTOMAT ST	200429LO	00006033	.99	268.60	28.80
LO-BENTOMAT ST	200429LO	00006026	.83	268.60	30.30
LO-BENTOMAT ST	200429LO	00006025	.83	268.60	30.30
LO-BENTOMAT ST	200429LO	00006017	.83	268.60	30.30
LO-BENTOMAT ST	200429LO	00006016	.83	268.60	30.30
LO-BENTOMAT ST	200429LO	00006009	.83	268.60	36.50
LO-BENTOMAT ST	200429LO	00006008	.83	268.60	36.50
LO-BENTOMAT ST	200428LO	00005831	.82	236.30	27.20
LO-BENTOMAT ST	200428LO	00005778	.85*	236.30	29.90*
LO-BENTOMAT ST	200427LO	00005595	.80*	271.10*	23.60*
LO-BENTOMAT ST	200427LO	00005587	.84	234.80	25.90
LO-BENTOMAT ST	200427LO	00005586	.84	234.80	25.90
LO-BENTOMAT ST	200427LO	00005585	.84	234.80	25.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/21/04 10:38:13

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187982

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200429LO	00006590	.84	225.50	38.30
LO-BENTOMAT ST	200429LO	00006585	.84	225.50	38.30
LO-BENTOMAT ST	200429LO	00006582	.84	225.50	38.30
LO-BENTOMAT ST	200429LO	00006578	.84	225.50	38.30
LO-BENTOMAT ST	200429LO	00006572	.88	263.70	24.10
LO-BENTOMAT ST	200429LO	00006497	.93	248.90	27.60
LO-BENTOMAT ST	200429LO	00006493	.93	248.90	27.60
LO-BENTOMAT ST	200429LO	00006490	.95*	248.90	27.60*
LO-BENTOMAT ST	200429LO	00006487	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006477	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006474	.85	248.90	22.20
LO-BENTOMAT ST	200429LO	00006002	.83	268.60	36.50

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/21/04 10:38:34

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187981

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200429LO									
00005996	LO-BENTOMAT ST	150	2250	2783	200425VR	00002135	2001662749		070604A
00006001	LO-BENTOMAT ST	150	2250	2780	200425VR	00002135	2001662749		070604A
00006032	LO-BENTOMAT ST	150	2250	2675	200426VR	00002210	2001786294		070604A
00006065	LO-BENTOMAT ST	150	2250	2650	200420VR	00001622	2001756547		070604B
00006077	LO-BENTOMAT ST	150	2250	2620	200422VR	00001790	2001756547		070604B
00006475	LO-BENTOMAT ST	250	2250	2624	200420VR	00001659	2002134883		071204D
00006476	LO-BENTOMAT ST	250	2250	2620	200420VR	00001659	2002134883		071204D
00006478	LO-BENTOMAT ST	250	2250	2619	200420VR	00001659	2002134883		071204D
00006479	LO-BENTOMAT ST	250	2250	2623	200420VR	00001659	2002134883		071204D
00006481	LO-BENTOMAT ST	250	2250	2640	200420VR	00001659	2002134883		071204D
00006483	LO-BENTOMAT ST	250	2250	2633	200420VR	00001671	2002134883		071204D
00006486	LO-BENTOMAT ST	150	2250	2633	200420VR	00001671	2001786291		071204E
00006489	LO-BENTOMAT ST	150	2250	2634	200420VR	00001671	2001786291		071204E
00006492	LO-BENTOMAT ST	150	2250	2629	200425VR	00002176	2001786291		071204E
00006495	LO-BENTOMAT ST	150	2250	2634	200425VR	00002176	2001786291		071204E
00006496	LO-BENTOMAT ST	150	2250	2640	200425VR	00002176	2001786291		071204E

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
7/21/04 10:37:48

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187983

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200427LO									
00005585	LO-BENTOMAT ST	150	2250	2541	000060700A		2001741073		062504B
00005586	LO-BENTOMAT ST	150	2250	2550	000060700A		2001741073		062504B
00005587	LO-BENTOMAT ST	150	2250	2544	000060700A		2001741073		062504B
00005595	LO-BENTOMAT ST	150	2250	2528	000060698A		2001677784		062504B
LOT# 200428LO									
00005778	LO-BENTOMAT ST	150	2250	2566	200427VR	00002281	2001656377		063004A
00005831	LO-BENTOMAT ST	150	2250	2540	200427VR	00002250	2001696396		063004B
LOT# 200429LO									
00006008	LO-BENTOMAT ST	150	2250	2779	200422VR	00001811	2002441790		070604A
00006009	LO-BENTOMAT ST	150	2250	2786	200422VR	00001811	2002441790		070604A
00006016	LO-BENTOMAT ST	150	2250	2680	200421VR	00001702	2002441790		070604A
00006017	LO-BENTOMAT ST	150	2250	2665	200421VR	00001702	2002441790		070604A
00006025	LO-BENTOMAT ST	150	2250	2674	200427VR	00002287	2002441790		070604A
00006026	LO-BENTOMAT ST	150	2250	2680	200427VR	00002287	2002441790		070604A
00006033	LO-BENTOMAT ST	150	2250	2666	200426VR	00002210	2001786294		070604A
00006063	LO-BENTOMAT ST	150	2250	2650	200420VR	00001622	2001756547		070604B
00006076	LO-BENTOMAT ST	150	2250	2627	200422VR	00001790	2001756547		070604B
00006473	LO-BENTOMAT ST	250	2250	2620	200420VR	00001659	2002134883		071204D

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
7/21/04 10:38:13

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187982

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200429LO									
00006002	LO-BENTOMAT ST	150	2250	2784	200425VR	00002135	2001662749		070604A
00006474	LO-BENTOMAT ST	250	2250	2629	200420VR	00001659	2002134883		071204D
00006477	LO-BENTOMAT ST	250	2250	2635	200420VR	00001659	2002134883		071204D
00006487	LO-BENTOMAT ST	150	2250	2641	200420VR	00001671	2001786291		071204E
00006490	LO-BENTOMAT ST	150	2250	2630	200420VR	00001671	2001786291		071204E
00006493	LO-BENTOMAT ST	150	2250	2622	200425VR	00002176	2001786291		071204E
00006497	LO-BENTOMAT ST	150	2250	2642	200425VR	00002176	2001786291		071204E
00006572	LO-BENTOMAT ST	150	2250	2633	200421VR	00001710	2001635713		071304A
00006578	LO-BENTOMAT ST	150	2250	2626	200427VR	00002277	2001601975		071404E
00006582	LO-BENTOMAT ST	150	2250	2623	200421VR	00001697	2001601975		071404E
00006585	LO-BENTOMAT ST	150	2250	2652	200421VR	00001697	2001601975		071404E
00006590	LO-BENTOMAT ST	150	2250	2621	200428VR	00002362	2002611441		071404E

TOTAL SQUARE FEET..... 27,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-8521 • Fax (307) 548-6413

Date: July 23, 2004
PO: 9656-00
Order #: 187984, 187985

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on July 22, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187984, 187985
Ship Date:	22-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187984
ORDER DATE: 5/17/2004
SHIP DATE:. 7/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200430LO	00006991	150.0	15.0	2250.0	2750.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006992	150.0	15.0	2250.0	2739.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006993	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006994	150.0	15.0	2250.0	2732.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006995	150.0	15.0	2250.0	2744.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006996	150.0	15.0	2250.0	2736.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006997	150.0	15.0	2250.0	2728.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006998	150.0	15.0	2250.0	2717.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006999	150.0	15.0	2250.0	2745.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007000	150.0	15.0	2250.0	2751.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007001	150.0	15.0	2250.0	2733.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007002	150.0	15.0	2250.0	2740.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007003	150.0	15.0	2250.0	2723.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007004	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007005	150.0	15.0	2250.0	2742.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007006	150.0	15.0	2250.0	2738.0
ORDER TOTALS.....							36000.0	43768.0
TOTAL ITEMS.....	16							

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187985
ORDER DATE: 5/17/2004
SHIP DATE:. 7/22/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200430LO	00007008	150.0	15.0	2250.0	2780.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007022	150.0	15.0	2250.0	2752.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007033	150.0	15.0	2250.0	2770.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007034	150.0	15.0	2250.0	2768.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007035	150.0	15.0	2250.0	2761.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007036	150.0	15.0	2250.0	2759.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007037	150.0	15.0	2250.0	2755.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007038	150.0	15.0	2250.0	2758.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007039	150.0	15.0	2250.0	2750.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007040	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007041	150.0	15.0	2250.0	2736.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007042	150.0	15.0	2250.0	2721.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007043	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007044	150.0	15.0	2250.0	2715.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007045	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007046	150.0	15.0	2250.0	2711.0
							36000.0	43916.0

ORDER TOTALS.....

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187984, 187985
Ship Date:	22-Jul

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187984, 187985
Ship Date:	22-Jul

This statement is to certify that all components of the **BENTOMAT ST** manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Sherri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (**CETCO**)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **17-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071704B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	10.4
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	28.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.2

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1633	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1634	2003431544	2058077	1002581	82TEX	7/5/2004	3.5	147	143	24	19	82	119	313	
1635	2003483674	2058078	1002581	82TEX	7/4/2004	3.4	150	150	23	18	65	68	315	
1636	2003486139	2058075	1002581	82TEX	7/5/2004	3.6	145	143	23	19	58	69	323	
1637	2003492868	2059070	1002581	82TEX	7/4/2004	3.6	162	162	25	19	81	70	313	
1638	2003492969	2059070	1002581	82TEX	7/8/2004	3.5	149	157	22	19	64	66	305	
1639	2003492970	2059070	1002581	82 TEX	7/12/2004	3.4	148	142	23	18	69	474	333	
1640	2003514794	2059552	1002581	82TEX	7/4/2004	3.4	155	152	24	19	69	79	312	
1641	2003531548	2058077	1002581	82 TEX	7/16/2004	3.6	161	150	24	19	63	82	338	
1642	2003541773	2059586	1002581	82 TEX	7/15/2004	3.6	164	149	26	19	75	87	320	
1643	2003541777	2059586	1002581	82TEX	7/19/2004	3.5	147	139	25	19	97	93	300	
1644	2003541778	2059586	1002581	82TEX	7/3/2004	3.6	160	167	23	19	72	104	322	
1645	2003548737	2059587	1002581	82TEX	7/7/2004	3.4	162	149	24	18	72	88	318	
1646	2003548739	2059587	1002581	82TEX	7/16/2004	3.6	168	153	27	19	66	93	317	
1647	2003590768	2060382	1002581	82 TEX	7/11/2004	3.4	163	135	26	18	74	62	347	
1648	2003592252	2060385	1002581	82TEX	7/16/2004	3.5	158	143	26	19	72	81	297	
1649	2003608704	2059071	1002581	82TEX	7/17/2004	3.5	152	151	21	15	59	82	273	
1650	2003627711	2060386	1002581	82TEX	7/16/2004	3.2	160	140	24	17	75	72	310	
1651	2003628244	2061093	1002581	82TEX	7/16/2004	3.7	153	148	24	19	64	76	310	
1652	2003641286	2061686	1002581	82TEX	7/18/2004	3.6	156	157	25	19	78	77	293	
1653	2003649984	2060472	1002581	82 TEX	7/20/2004	3.4	153	139	28	19	74	91	280	
1654														
1655														
1656														
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1668														
1669														

SI® Geosolutions

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION
Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187985

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	072204W1		3.2	151.2

12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2488	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2489	2003588571	2061488	1004557	650	7/10/2004	6.2	141	100	113	126	124				
2490	2003588574	2061488	1004557	650	7/10/2004	5.9	133	134		125					
2491	2003588604	2061488	1004557	650	7/11/2004	6.4	160	58	68	130	126				
2492	2003588599	2061488	1004557	650	7/11/2004	6.3	155	61	58	133	127				
2493	2003654715	2060900	1004557	650	7/20/2004	6.8	164	68	75	116	131				
2494	2003588559	2061488	1004557	650	7/10/2004	6.3	153	72	89	116	129				
2495	2003601517	2060900	1004557	650	7/13/2004	6.0	146	52	65	124	118				
2496	2003601820	2060900	1004557	650	7/19/2004	6.5	156	59	75	116	132				
2497	2003654698	2060900	1004557	650	7/20/2004	7.0	182	61	78	121	127				
2498	2003588592	2061488	1004557	650	7/11/2004	6.2	150	59	61	108	137				
2499	2003588610	2061488	1004557	650	7/11/2004	7.2	172	73	85	115	121				
2500	2003588596	2061488	1004557	650	7/11/2004	6.5	160	62	64	118	122				
2501	2003601811	2060900	1004557	650	7/19/2004	6.4	159	68	70	120	136				
2502	2003588623	2061488	1004557	650	7/12/2004	6.3	161	65	66	121	136				
2503	2003601556	2060900	1004557	650	7/14/2004	5.9	155	57	115	117	122				
2504	2003588665	2061488	1004557	650	7/13/2004	6.2	156	64	67	105	116				
2505	2003588551	2061488	1004557	650	7/10/2004	6.3	154	77	80	116	122				
2506	2003601570	2060900	1004557	650	7/14/2004	6.6	156	73	68	131	127				
2507	2003601580	2060900	1004557	650	7/14/2004	6.4	156	67	92	132	134				
2508	2003601763	2060900	1004557	650	7/18/2004	6.5	166	66	85	103	120				
2509	2003588568	2061488	1004557	650	7/10/2004	6.7	147	103	153	116	117				
2510	2003588565	2061488	1004557	650	7/10/2004	6.4	140	99	134	119	132				
2511	2003601629	2060900	1004557	650	7/15/2004	6.9	163	83	120	126	125				
2512	2003588586	2061488	1004557	650	7/11/2004	6.6	168	65	70	130	139				
2513	2003588555	2061488	1004557	650	7/10/2004	6.3	152	81	104	111	127				
2514	2003601563	2060900	1004557	650	7/14/2004	6.5	158	68	83	119	130				
2515	2003588601	2061488	1004557	650	7/11/2004	7.0	167	68	90	113	122				
2516	2003601826	2060900	1004557	650	7/19/2004	6.4	162	60	88	125	130				
2517	2003601816	2060900	1004557	650	7/19/2004	6.8	169	70	104	126	124				
2518	2003588702	2061488	1004557	650	7/14/2004	6.6	155	59	66	140	125				
2519	2003601717	2060900	1004557	650	7/17/2004	6.8	161	66	89	113	115				
2520	2003617958	2061488	1004557	650	7/15/2004	7.2	165	64	91	132	128				
2521	2003601611	2060900	1004557	650	7/15/2004	7.3	176	80	87	120	127				
2522	2003601839	2060900	1004557	650	7/20/2004	6.7	171	64	82	118	118				
2523	2003588708	2061488	1004557	650	7/14/2004	6.7	162	70	79	133	131				
2524	2003601575	2060900	1004557	650	7/14/2004	7.1	157	82	103	138	136				
2525	2003588713	2061488	1004557	650	7/14/2004	6.4	149	56	62	128	128				
2526	2003601586	2060900	1004557	650	7/14/2004	6.9	166	68	95	133	134				
2527	2003654704	2060900	1004557	650	7/20/2004	6.9	170	59	81	110	117				
2528	2003601527	2060900	1004557	650	7/13/2004	6.4	157	68	115	110	112				
2529	2003601712	2060900	1004557	650	7/17/2004	6.6	158	60	76	114	122				
2530	2003601806	2060900	1004557	650	7/19/2004	7.0	171	68	69	116	130				
2531	2003654722	2060900	1004557	650	7/20/2004	6.0	153	55	68	116	125				
2532	2003588659	2061488	1004557	650	7/13/2004	6.3	153	56	55	111	114				
2533	2003601558	2060900	1004557	650	7/14/2004	7.1	169	74	107	137	129				

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION FACILITY: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

CONTACT: Sid Weiser

BRAND NAME: Geotex 650

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

SI® Geosolutions

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2534	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2535	2003601768	2060900	1004557	650	7/18/2004	6.6	164	55	74	116	122				
2536	2003618173	2061488	1004557	650	7/16/2004	7.1	173	72	72	122	122				
2537	2003601521	2060900	1004557	650	7/13/2004	6.8	167	81	87	103	108				
2538	2003601622	2060900	1004557	650	7/16/2004	7.2	170	84	97	130	128				
2539	2003601773	2060900	1004557	650	7/18/2004	7.0	166	68	90	123	113				
2540	2003617952	2061488	1004557	650	7/14/2004	6.6	161	62	69	134	129				
2541	2003601753	2060900	1004557	650	7/18/2004	6.9	172	68	73	133	122				
2542	2003601533	2060900	1004557	650	7/13/2004	6.7	155	65	84	119	123				
2543	2003601681	2060900	1004557	650	7/16/2004	6.9	162	59	86	124	124				
2544	2003601637	2060900	1004557	650	7/15/2004	6.7	160	67	97	125	125				
2545	2003588681	2061488	1004557	650	7/13/2004	6.3	156	56	67	110	112				
2546	2003601676	2060900	1004557	650	7/16/2004	7.2	168	61	103	119	128				
2547	2003588543	2061488	1004557	650	7/9/2004	7.0	167	82	124	111	130				
2548	2003588676	2061488	1004557	650	7/13/2004	7.0	165	78	91	118	116				
2549	2003601617	2060900	1004557	650	7/15/2004	7.1	172	72	98	113	120				
2550	2003588717	2061488	1004557	650	7/14/2004	6.5	158	63	79	123	111				
2551	2003601758	2060900	1004557	650	7/18/2004	7.2	169	67	93	126	123				
2552	2003601667	2060900	1004557	650	7/16/2004	6.1	161	63	101	111	117				
2553	2003601778	2060900	1004557	650	7/18/2004	6.4	161	58	68	128	138				
2554	2003588632	2061488	1004557	650	7/12/2004	6.7	169	62	74	130	113				
2555	2003601687	206900	1004557	650	7/17/2004	6.5	159	57	88	131					
2556	2003601662	2060900	1004557	650	7/16/2004	6.7	169	67	94	105	119				
2557	2003601707	2060900	1004557	650	7/17/2004	7.3	171	78	101	115	123				
2558	2003588671	2061488	1004557	650	7/13/2004	6.8	167	73	72	104	116				
2559	2003601672	2060900	1004557	650	7/16/2004	7.2	180	70	104	106	109				
2560	2003601736	2060900	1004557	650	7/18/2004	6.7	166	67	112	115	94				
2561	2003601740	2060900	1004557	650	7/18/2004	6.4	162	67	78	126	116				
2562	2003601699	2060900	1004557	650	7/17/2004	7.2	168	62	116	119	119				
2563	2003601693	2060900	1004557	650	7/17/2004	6.9	171	58	100	121	125				
2564	2003601748	2060900	1004557	650	7/18/2004	6.3	170	51	76	129	123				
2565	2003601731	2060900	1004557	650	7/17/2004	6.8	170	56	113	100	91				
2566	2003654710	2060900	1004557	650	7/20/2004	8.2	192	73	109	121	136				
2567	2003601744	2060900	1004557	650	7/18/2004	6.4	169	53	65	118	123				
2568	97130401	2060900	1004557	650	7/13/2004	7.2	158	77	166	112	91				
2569	2003588547	2061488	1004557	650	7/9/2004	6.1	150	66	70	99	119				
2570	2003588698	2061488	1004557	650	7/14/2004	6.4	158	62	78	91	119				
2571	2003601548	2060900	1004557	650	7/14/2004	6.9	177	74	97	109	111				
2572	2003618169	2061488	1004557	650	7/15/2004	6.7	167	64	69	111	118				
2573	2003588655	2061488	1004557	650	7/13/2004	6.1	159	55	70	111	121				
2574	2003601606	2060900	1004557	650	7/15/2004	7.2	177	67	92	111	119				
2575	2003654690	2060900	1004557	650	7/20/2004	7.0	179	67	71	112	110				
2576	2003588620	2061488	1004557	650	7/11/2004	6.5	160	54	55	112	119				
2577	2003601833	2060900	1004557	650	7/20/2004	7.2	176	71	88	115	124				
2578	2003601657	2060900	1004557	650	7/16/2004	7.7	178	72	98	115	133				
2579	2003588686	2061488	1004557	650	7/14/2004	6.7	161	61	74	115	119				

QCG#FT2 QCT#FT2
7/23/04 9:24:26

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187984

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007006	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007005	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007004	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007003	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007002	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007001	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00007000	.85	226.00	35.50
LO-BENTOMAT ST	200430LO	00006999	.85*	226.00	35.50*
LO-BENTOMAT ST	200430LO	00006998	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006997	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006996	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006995	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006994	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006993	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006992	.99	226.00	37.60
LO-BENTOMAT ST	200430LO	00006991	.99	226.00	37.60

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

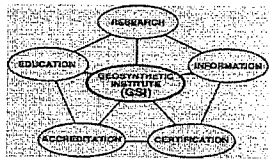
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187984, 187985
Ship Date:	22-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 QCT#FT2
7/23/04 9:21:59

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187985

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007046	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007045	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007044	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007043	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007042	.85*	249.10	34.80*
LO-BENTOMAT ST	200430LO	00007041	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007040	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007039	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007038	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007037	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007036	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007035	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007034	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007033	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007022	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00007008	.97*	249.10*	36.70*

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/23/04 9:41:03

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187985

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00007008	LO-BENTOMAT ST	150	2250	2780	2003601652		2003590767		071904B
00007022	LO-BENTOMAT ST	150	2250	2752	2003548739		2003531546		071904B
00007033	LO-BENTOMAT ST	150	2250	2770	2003601571		2003531546		071904B
00007034	LO-BENTOMAT ST	150	2250	2768	2003601571		2003531546		071904B
00007035	LO-BENTOMAT ST	150	2250	2761	2003601571		2003531546		071904B
00007036	LO-BENTOMAT ST	150	2250	2759	2003601571		2003531546		071904B
00007037	LO-BENTOMAT ST	150	2250	2755	2003601571		2003531546		071904B
00007038	LO-BENTOMAT ST	150	2250	2758	2003601571		2003531546		071904B
00007039	LO-BENTOMAT ST	150	2250	2750	2003601571		2003531546		071904B
00007040	LO-BENTOMAT ST	150	2250	2730	2003601564		2003531546		071904B
00007041	LO-BENTOMAT ST	150	2250	2736	2003601564		072204W1		071904B
00007042	LO-BENTOMAT ST	150	2250	2721	2003601564		072204W1		071904B
00007043	LO-BENTOMAT ST	150	2250	2730	2003601564		072204W1		071904B
00007044	LO-BENTOMAT ST	150	2250	2715	2003601564		072204W1		071904B
00007045	LO-BENTOMAT ST	150	2250	2720	2003601564		072204W1		071904B
00007046	LO-BENTOMAT ST	150	2250	2711	2003601564		072204W1		071904B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
7/23/04 9:24:25

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187984

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006991	LO-BENTOMAT ST	150	2250	2750	2003601654		2003486143		071704B
00006992	LO-BENTOMAT ST	150	2250	2739	2003601654		2003486143		071704B
00006993	LO-BENTOMAT ST	150	2250	2720	2003601654		2003486143		071704B
00006994	LO-BENTOMAT ST	150	2250	2732	2003601565		2003486143		071704B
00006995	LO-BENTOMAT ST	150	2250	2744	2003601565		2003486143		071704B
00006996	LO-BENTOMAT ST	150	2250	2736	2003601565		2003486143		071704B
00006997	LO-BENTOMAT ST	150	2250	2728	2003601565		2003486143		071704B
00006998	LO-BENTOMAT ST	150	2250	2717	2003601565		2003486143		071704B
00006999	LO-BENTOMAT ST	150	2250	2745	2003601565		2003548738		071704B
00007000	LO-BENTOMAT ST	150	2250	2751	2003601565		2003548738		071704B
00007001	LO-BENTOMAT ST	150	2250	2733	2003601565		2003548738		071704B
00007002	LO-BENTOMAT ST	150	2250	2740	2003601565		2003548738		071704B
00007003	LO-BENTOMAT ST	150	2250	2723	2003588706		2003548738		071704B
00007004	LO-BENTOMAT ST	150	2250	2730	2003588706		2003548738		071704B
00007005	LO-BENTOMAT ST	150	2250	2742	2003588706		2003548738		071704B
00007006	LO-BENTOMAT ST	150	2250	2738	2003588706		2003548738		071704B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 26, 2004
PO: 9656-00
Order #: 187986, 187987

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. . These shipments left our CETCO - Lovell, Wy. plant on July 24, 2004 .

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187986, 187987
Ship Date:	24-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

P A C K I N G L I S T

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187986
ORDER DATE: 5/17/2004
SHIP DATE:. 7/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200430LO	00006882	150.0	15.0	2250.0	2659.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007057	150.0	15.0	2250.0	2729.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007058	150.0	15.0	2250.0	2731.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007059	150.0	15.0	2250.0	2727.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007067	150.0	15.0	2250.0	2722.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007068	150.0	15.0	2250.0	2710.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007069	150.0	15.0	2250.0	2725.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007077	150.0	15.0	2250.0	2733.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007088	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007112	150.0	15.0	2250.0	2723.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007122	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007124	150.0	15.0	2250.0	2726.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007131	150.0	15.0	2250.0	2728.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007132	150.0	15.0	2250.0	2724.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007134	150.0	15.0	2250.0	2721.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007135	150.0	15.0	2250.0	2722.0
ORDER TOTALS.....							36000.0	43530.0
TOTAL ITEMS.....	16							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187987
ORDER DATE: 5/17/2004
SHIP DATE:. 7/24/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200430LO	00007078	150.0	15.0	2250.0	2738.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007090	150.0	15.0	2250.0	2740.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007100	150.0	15.0	2250.0	2717.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007101	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007107	150.0	15.0	2250.0	2724.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007136	150.0	15.0	2250.0	2725.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007137	150.0	15.0	2250.0	2721.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007138	150.0	15.0	2250.0	2726.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007139	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007140	150.0	15.0	2250.0	2719.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007141	150.0	15.0	2250.0	2722.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007148	150.0	15.0	2250.0	2721.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007149	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007152	150.0	15.0	2250.0	2726.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007159	150.0	15.0	2250.0	2736.0
							33750.0	40885.0

ORDER TOTALS.....

TOTAL ITEMS..... 15

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187986, 187987
Ship Date:	24-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187986, 187987
Ship Date:	24-Jul

This statement is to certify that all components of the **BENTOMAT ST** manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **16-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071604C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**11.2**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **20-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072004A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**9.6**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1633	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1634	2003431544	2058077	1002581	82TEX	7/5/2004	3.5	147	143	24	19	82	119	313	
1635	2003483674	2058078	1002581	82TEX	7/4/2004	3.4	150	150	23	18	65	88	315	
1636	2003486139	2058075	1002581	82TEX	7/5/2004	3.6	145	143	23	19	58	69	323	
1637	2003492868	2059070	1002581	82TEX	7/4/2004	3.6	162	162	25	19	81	70	313	
1638	2003492969	2059070	1002581	82TEX	7/8/2004	3.5	149	157	22	19	64	66	305	
1639	2003492970	2059070	1002581	82 TEX	7/12/2004	3.4	148	142	23	18	69	474	333	
1640	2003514794	2059552	1002581	82TEX	7/4/2004	3.4	155	152	24	19	69	79	312	
1641	2003531548	2058077	1002581	82 TEX	7/16/2004	3.6	161	150	24	19	63	82	338	
1642	2003541773	2059586	1002581	82 TEX	7/15/2004	3.6	164	149	26	19	75	87	320	
1643	2003541777	2059586	1002581	82TEX	7/19/2004	3.5	147	139	25	19	97	93	300	
1644	2003541778	2059586	1002581	82TEX	7/3/2004	3.6	160	167	23	19	72	104	322	
1645	2003548737	2059587	1002581	82TEX	7/7/2004	3.4	162	149	24	18	72	88	318	
1646	2003548739	2059587	1002581	82TEX	7/16/2004	3.6	168	153	27	19	66	93	317	
1647	2003590768	2060382	1002581	82 TEX	7/11/2004	3.4	163	135	26	18	74	62	347	
1648	2003592252	2060385	1002581	82TEX	7/16/2004	3.5	158	143	26	19	72	81	297	
1649	2003608704	2059071	1002581	82TEX	7/17/2004	3.5	152	151	21	15	59	82	273	
1650	2003627711	2060386	1002581	82TEX	7/16/2004	3.2	160	140	24	17	75	72	310	
1651	2003628244	2061093	1002581	82TEX	7/16/2004	3.7	153	148	24	19	64	76	310	
1652	2003641286	2061686	1002581	82TEX	7/18/2004	3.6	156	157	25	19	78	77	293	
1653	2003649984	2060472	1002581	82 TEX	7/20/2004	3.4	153	139	28	19	74	91	280	
1654														
1655														
1656														
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1663														
1664														
1665														
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1667														
1668														
1669														

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION
Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

NON-WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187986

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	072204W1		3.2	151.2

12

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2488	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2489	2003588571	2061488	1004557	650	7/10/2004	6.2	141	100	113	126	124				
2490	2003588574	2061488	1004557	650	7/10/2004	5.9	133	134		125					
2491	2003588604	2061488	1004557	650	7/11/2004	6.4	160	58	68	130	126				
2492	2003588599	2061488	1004557	650	7/11/2004	6.3	155	61	58	133	127				
2493	2003654715	2060900	1004557	650	7/20/2004	6.8	164	68	75	116	131				
2494	2003588559	2061488	1004557	650	7/10/2004	6.3	153	72	89	116	129				
2495	2003601517	2060900	1004557	650	7/13/2004	6.0	146	52	65	124	118				
2496	2003601820	2060900	1004557	650	7/19/2004	6.5	156	59	75	116	132				
2497	2003654698	2060900	1004557	650	7/20/2004	7.0	182	61	78	121	127				
2498	2003588592	2061488	1004557	650	7/11/2004	6.2	150	59	61	108	137				
2499	2003588610	2061488	1004557	650	7/11/2004	7.2	172	73	85	115	121				
2500	2003588596	2061488	1004557	650	7/11/2004	6.5	160	62	64	118	122				
2501	2003601811	2060900	1004557	650	7/19/2004	6.4	159	68	70	120	136				
2502	2003588623	2061488	1004557	650	7/12/2004	6.3	161	65	66	121	136				
2503	2003601556	2060900	1004557	650	7/14/2004	5.9	155	57	115	117	122				
2504	2003588665	2061488	1004557	650	7/13/2004	6.2	156	64	67	105	116				
2505	2003588551	2061488	1004557	650	7/10/2004	6.3	154	77	80	116	122				
2506	2003601570	2060900	1004557	650	7/14/2004	6.6	156	73	68	131	127				
2507	2003601580	2060900	1004557	650	7/14/2004	6.4	156	67	92	132	134				
2508	2003601763	2060900	1004557	650	7/18/2004	6.5	166	66	85	103	120				
2509	2003588568	2061488	1004557	650	7/10/2004	6.7	147	103	153	116	117				
2510	2003588565	2061488	1004557	650	7/10/2004	6.4	140	99	134	119	132				
2511	2003601629	2060900	1004557	650	7/15/2004	6.9	163	83	120	126	125				
2512	2003588586	2061488	1004557	650	7/11/2004	6.6	168	65	70	130	139				
2513	2003588555	2061488	1004557	650	7/10/2004	6.3	152	81	104	111	127				
2514	2003601563	2060900	1004557	650	7/14/2004	6.5	158	68	83	119	130				
2515	2003588601	2061488	1004557	650	7/11/2004	7.0	167	68	90	113	122				
2516	2003601826	2060900	1004557	650	7/19/2004	6.4	162	60	88	125	130				
2517	2003601816	2060900	1004557	650	7/19/2004	6.8	169	70	104	126	124				
2518	2003588702	2061488	1004557	650	7/14/2004	6.6	155	59	66	140	125				
2519	2003601717	2060900	1004557	650	7/17/2004	6.8	161	66	89	113	115				
2520	2003617958	2061488	1004557	650	7/15/2004	7.2	165	64	91	132	128				
2521	2003601611	2060900	1004557	650	7/15/2004	7.3	176	80	87	120	127				
2522	2003601839	2060900	1004557	650	7/20/2004	6.7	171	64	82	118	118				
2523	2003588708	2061488	1004557	650	7/14/2004	6.7	162	70	79	133	131				
2524	2003601575	2060900	1004557	650	7/14/2004	7.1	157	82	103	138	136				
2525	2003588713	2061488	1004557	650	7/14/2004	6.4	149	56	62	128	128				
2526	2003601586	2060900	1004557	650	7/14/2004	6.9	166	68	95	133	134				
2527	2003654704	2060900	1004557	650	7/20/2004	6.9	170	59	81	110	117				
2528	2003601527	2060900	1004557	650	7/13/2004	6.4	157	68	115	110	112				
2529	2003601712	2060900	1004557	650	7/17/2004	6.6	158	60	76	114	122				
2530	2003601806	2060900	1004557	650	7/19/2004	7.0	171	68	69	116	130				
2531	2003654722	2060900	1004557	650	7/20/2004	6.0	163	55	68	116	125				
2532	2003588659	2061488	1004557	650	7/13/2004	6.3	153	56	55	111	114				
2533	2003601558	2060900	1004557	650	7/14/2004	7.1	169	74	107	137	129				

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION FACILITY: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

CONTACT: Sid Weiser

BRAND NAME: Geotex 650

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187986

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	072204NWA		6.1	89.3

TOTAL PAGES 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2534	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2535	2003601768	2060900	1004557	650	7/18/2004	6.6	164	55	74	116	122				
2536	2003618173	2061488	1004557	650	7/15/2004	7.1	173	72	72	122	122				
2537	2003601521	2060900	1004557	650	7/13/2004	6.8	167	81	87	103	108				
2538	2003601622	2060900	1004557	650	7/15/2004	7.2	170	84	97	130	128				
2539	2003601773	2060900	1004557	650	7/18/2004	7.0	166	68	90	123	113				
2540	2003617952	2061488	1004557	650	7/14/2004	6.6	161	62	69	134	129				
2541	2003601753	2060900	1004557	650	7/18/2004	6.9	172	68	73	133	122				
2542	2003601533	2060900	1004557	650	7/13/2004	6.7	155	65	84	119	123				
2543	2003601681	2060900	1004557	650	7/16/2004	6.9	162	59	86	124	124				
2544	2003601637	2060900	1004557	650	7/15/2004	6.7	160	67	97	125	125				
2545	2003588681	2061488	1004557	650	7/13/2004	6.3	156	56	67	110	112				
2546	2003601676	2060900	1004557	650	7/16/2004	7.2	168	61	103	119	128				
2547	2003588543	2061488	1004557	650	7/9/2004	7.0	167	82	124	111	130				
2548	2003588676	2061488	1004557	650	7/13/2004	7.0	165	78	91	118	116				
2549	2003601617	2060900	1004557	650	7/15/2004	7.1	172	72	98	113	120				
2550	2003588717	2061488	1004557	650	7/14/2004	6.5	158	63	79	123	111				
2551	2003601758	2060900	1004557	650	7/18/2004	7.2	169	67	93	126	123				
2552	2003601667	2060900	1004557	650	7/16/2004	6.1	161	63	101	111	117				
2553	2003601778	2060900	1004557	650	7/18/2004	6.4	161	58	68	128	138				
2554	2003588632	2061488	1004557	650	7/12/2004	6.7	169	62	74	130	113				
2555	2003601687	206900	1004557	650	7/17/2004	6.5	159	57	88	131					
2556	2003601662	2060900	1004557	650	7/16/2004	6.7	169	67	94	105	119				
2557	2003601707	2060900	1004557	650	7/17/2004	7.3	171	78	101	115	123				
2558	2003588671	2061488	1004557	650	7/13/2004	6.8	167	73	72	104	116				
2559	2003601672	2060900	1004557	650	7/16/2004	7.2	180	70	104	106	109				
2560	2003601736	2060900	1004557	650	7/18/2004	6.7	166	67	112	115	94				
2561	2003601740	2060900	1004557	650	7/18/2004	6.4	162	67	78	126	116				
2562	2003601699	2060900	1004557	650	7/17/2004	7.2	168	62	116	119	119				
2563	2003601693	2060900	1004557	650	7/17/2004	6.9	171	58	100	121	125				
2564	2003601748	2060900	1004557	650	7/18/2004	6.3	170	51	76	129	123				
2565	2003601731	2060900	1004557	650	7/17/2004	6.8	170	56	113	100	91				
2566	2003654710	2060900	1004557	650	7/20/2004	8.2	192	73	109	121	136				
2567	2003601744	2060900	1004557	650	7/18/2004	6.4	169	53	65	118	123				
2568	97130401	2060900	1004557	650	7/13/2004	7.2	158	77	166	112	91				
2569	2003588547	2061488	1004557	650	7/9/2004	6.1	150	66	70	99	119				
2570	2003588698	2061488	1004557	650	7/14/2004	6.4	158	62	78	91	119				
2571	2003601548	2060900	1004557	650	7/14/2004	6.9	177	74	97	109	111				
2572	2003618169	2061488	1004557	650	7/15/2004	6.7	167	54	69	111	118				
2573	2003588655	2061488	1004557	650	7/13/2004	6.1	159	55	70	111	121				
2574	2003601606	2060900	1004557	650	7/15/2004	7.2	177	67	92	111	119				
2575	2003654690	2060900	1004557	650	7/20/2004	7.0	179	67	71	112	110				
2576	2003588620	2061488	1004557	650	7/11/2004	6.5	160	54	55	112	119				
2577	2003601833	2060900	1004557	650	7/20/2004	7.2	176	71	88	115	124				
2578	2003601657	2060900	1004557	650	7/16/2004	7.7	178	72	98	115	133				
2579	2003588686	2061488	1004557	650	7/14/2004	6.7	161	61	74	115	119				

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

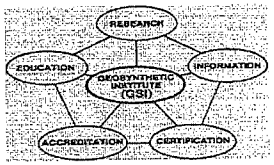
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187986, 187987
Ship Date:	24-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
7/26/04 14:39:15

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187987

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007159	.87	252.30	31.60
LO-BENTOMAT ST	200430LO	00007152	.87	252.30	31.60
LO-BENTOMAT ST	200430LO	00007149	.87	252.30	31.60
LO-BENTOMAT ST	200430LO	00007148	.87	252.30	31.60
LO-BENTOMAT ST	200430LO	00007141	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007140	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007139	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007138	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007137	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007136	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007107	.81	252.30	37.30
LO-BENTOMAT ST	200430LO	00007101	.81	252.30	37.30
LO-BENTOMAT ST	200430LO	00007100	.81	252.30	37.30
LO-BENTOMAT ST	200430LO	00007090	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007078	.87	249.10	42.50

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/26/04 14:57:59

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187986

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007135	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007134	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007132	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007131	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007124	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007122	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007112	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007088	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007077	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007069	.85	249.10	38.30
LO-BENTOMAT ST	200430LO	00007068	.85	249.10	38.30
LO-BENTOMAT ST	200430LO	00007067	.85	249.10	38.30
LO-BENTOMAT ST	200430LO	00007059	.85*	249.10	38.30*
LO-BENTOMAT ST	200430LO	00007058	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007057	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00006882	.89	202.30	48.30

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/26/04 14:57:59

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187986

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006882	LO-BENTOMAT ST	150	2250	2659	2003601578		2003541774		071604C
00007057	LO-BENTOMAT ST	150	2250	2729	2003601563		072204W1		071904C
00007058	LO-BENTOMAT ST	150	2250	2731	2003601563		072204W1		071904C
00007059	LO-BENTOMAT ST	150	2250	2727	2003601563		072204W1		071904C
00007067	LO-BENTOMAT ST	150	2250	2722	2003601552		2003592251		071904C
00007068	LO-BENTOMAT ST	150	2250	2710	2003601552		2003592251		071904C
00007069	LO-BENTOMAT ST	150	2250	2725	2003601552		2003592251		071904C
00007077	LO-BENTOMAT ST	150	2250	2733	2003588712		2003592251		071904C
00007088	LO-BENTOMAT ST	150	2250	2730	2003588705		2003592251		071904C
00007112	LO-BENTOMAT ST	150	2250	2723	072204NWA		2003486141		071904D
00007122	LO-BENTOMAT ST	150	2250	2720	2003588672		2003486141		071904D
00007124	LO-BENTOMAT ST	150	2250	2726	2003588672		2003531544		071904D
00007131	LO-BENTOMAT ST	150	2250	2728	2003588645		2003531544		071904D
00007132	LO-BENTOMAT ST	150	2250	2724	2003588645		2003531544		071904D
00007134	LO-BENTOMAT ST	150	2250	2721	2003601498		2003531544		071904D
00007135	LO-BENTOMAT ST	150	2250	2722	2003601498		2003531544		071904D

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
7/26/04 14:39:15

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187987

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00007078	LO-BENTOMAT ST	150	2250	2738	2003588712		2003592251		071904C
00007090	LO-BENTOMAT ST	150	2250	2740	2003601553		2003592251		071904C
00007100	LO-BENTOMAT ST	150	2250	2717	2003588710		2003486141		071904D
00007101	LO-BENTOMAT ST	150	2250	2730	2003588710		2003486141		071904D
00007107	LO-BENTOMAT ST	150	2250	2724	072204NWA		2003486141		071904D
00007136	LO-BENTOMAT ST	150	2250	2725	2003601498		2003531544		071904D
00007137	LO-BENTOMAT ST	150	2250	2721	2003601498		2003531544		071904D
00007138	LO-BENTOMAT ST	150	2250	2726	2003601498		2003531544		071904D
00007139	LO-BENTOMAT ST	150	2250	2720	2003601498		2003531544		071904D
00007140	LO-BENTOMAT ST	150	2250	2719	2003601498		2003531544		071904D
00007141	LO-BENTOMAT ST	150	2250	2722	2003601498		2003531544		071904D
00007148	LO-BENTOMAT ST	150	2250	2721	2003601569		2003531544		072004A
00007149	LO-BENTOMAT ST	150	2250	2720	2003601569		2003531544		072004A
00007152	LO-BENTOMAT ST	150	2250	2726	2003601527		2003591544		072004A
00007159	LO-BENTOMAT ST	150	2250	2736	2003601527		2003588647		072004A

TOTAL SQUARE FEET..... 33,750

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 27, 2004
PO: 9656-00
Order #: 187988, 187989, 187990

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc.. These shipments left our CETCO - Lovell, Wy. plant on July 26, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187988, 187989, 187990
Ship Date:	26-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187988
ORDER DATE: 5/17/2004
SHIP DATE:. 7/26/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200430LO	00006909	150.0	15.0	2250.0	2725.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006976	150.0	15.0	2250.0	2724.0
LO-BENTOMAT ST		SFT	SF 200430LO	00006979	150.0	15.0	2250.0	2734.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007017	150.0	15.0	2250.0	2765.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007018	150.0	15.0	2250.0	2769.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007025	150.0	15.0	2250.0	2789.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007026	150.0	15.0	2250.0	2790.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007047	150.0	15.0	2250.0	2722.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007049	150.0	15.0	2250.0	2724.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007079	150.0	15.0	2250.0	2728.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007091	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007113	150.0	15.0	2250.0	2727.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007123	150.0	15.0	2250.0	2725.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007142	150.0	15.0	2250.0	2725.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007319	150.0	15.0	2250.0	2636.0
LO-BENTOMAT ST		SFT	SF 200430LO	00007320	150.0	15.0	2250.0	2624.0
ORDER TOTALS.....							36000.0	43637.0

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187989
ORDER DATE: 5/17/2004
SHIP DATE:. 7/26/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200431LO	00007369	150.0	15.0	2250.0	2627.0
LO-BENTOMAT ST	SFT SF	200431LO	00007370	150.0	15.0	2250.0	2615.0
LO-BENTOMAT ST	SFT SF	200431LO	00007371	150.0	15.0	2250.0	2633.0
LO-BENTOMAT ST	SFT SF	200431LO	00007373	150.0	15.0	2250.0	2617.0
LO-BENTOMAT ST	SFT SF	200431LO	00007374	150.0	15.0	2250.0	2608.0
LO-BENTOMAT ST	SFT SF	200431LO	00007375	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST	SFT SF	200431LO	00007376	150.0	15.0	2250.0	2626.0
LO-BENTOMAT ST	SFT SF	200431LO	00007377	150.0	15.0	2250.0	2633.0
LO-BENTOMAT ST	SFT SF	200431LO	00007378	150.0	15.0	2250.0	2641.0
LO-BENTOMAT ST	SFT SF	200431LO	00007379	150.0	15.0	2250.0	2630.0
LO-BENTOMAT ST	SFT SF	200431LO	00007380	150.0	15.0	2250.0	2627.0
LO-BENTOMAT ST	SFT SF	200431LO	00007381	150.0	15.0	2250.0	2638.0
LO-BENTOMAT ST	SFT SF	200431LO	00007382	150.0	15.0	2250.0	2642.0
LO-BENTOMAT ST	SFT SF	200431LO	00007383	150.0	15.0	2250.0	2631.0
LO-BENTOMAT ST	SFT SF	200431LO	00007384	150.0	15.0	2250.0	2610.0
LO-BENTOMAT ST	SFT SF	200431LO	00007385	150.0	15.0	2250.0	2619.0
						36000.0	42007.0

ORDER TOTALS.....

TOTAL ITEMS..... 16

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187990
ORDER DATE: 5/17/2004
SHIP DATE:. 7/26/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200430LO	00006953	150.0	15.0	2250.0	2723.0
LO-BENTOMAT ST	SFT SF	200430LO	00006954	150.0	15.0	2250.0	2737.0
LO-BENTOMAT ST	SFT SF	200430LO	00006980	150.0	15.0	2250.0	2737.0
LO-BENTOMAT ST	SFT SF	200430LO	00006981	150.0	15.0	2250.0	2744.0
LO-BENTOMAT ST	SFT SF	200430LO	00007013	150.0	15.0	2250.0	2788.0
LO-BENTOMAT ST	SFT SF	200430LO	00007019	150.0	15.0	2250.0	2760.0
LO-BENTOMAT ST	SFT SF	200430LO	00007020	150.0	15.0	2250.0	2755.0
LO-BENTOMAT ST	SFT SF	200430LO	00007027	150.0	15.0	2250.0	2787.0
LO-BENTOMAT ST	SFT SF	200430LO	00007028	150.0	15.0	2250.0	2769.0
LO-BENTOMAT ST	SFT SF	200430LO	00007053	150.0	15.0	2250.0	2732.0
LO-BENTOMAT ST	SFT SF	200430LO	00007092	150.0	15.0	2250.0	2727.0
LO-BENTOMAT ST	SFT SF	200430LO	00007093	150.0	15.0	2250.0	2733.0
LO-BENTOMAT ST	SFT SF	200430LO	00007102	150.0	15.0	2250.0	2724.0
LO-BENTOMAT ST	SFT SF	200430LO	00007103	150.0	15.0	2250.0	2730.0
LO-BENTOMAT ST	SFT SF	200430LO	00007114	150.0	15.0	2250.0	2726.0
LO-BENTOMAT ST	SFT SF	200430LO	00007115	150.0	15.0	2250.0	2720.0
						36000.0	43892.0

ORDER TOTALS.....

TOTAL ITEMS..... 16

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Projcct Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187988, 187989, 187990
Ship Date:	26-Jul

Colloid Environmental Technologies Company (**CETCO**) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187988, 187989, 187990
Ship Date:	26-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **16-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071604D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **17-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071704A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204B**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204E**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
1633	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST	
1634	2003431544	2058077	1002581	82TEX	7/5/2004	3.5	147	143	24	19	82	119	313	
1635	2003483674	2058078	1002581	82TEX	7/4/2004	3.4	150	150	23	18	65	68	315	
1636	2003486139	2058075	1002581	82TEX	7/5/2004	3.6	145	143	23	19	58	69	323	
1637	2003492868	2059070	1002581	82TEX	7/4/2004	3.6	162	162	25	19	81	70	313	
1638	2003492969	2059070	1002581	82TEX	7/8/2004	3.5	149	157	22	19	64	66	305	
1639	2003492970	2059070	1002581	82 TEX	7/12/2004	3.4	148	142	23	18	69	474	333	
1640	2003514794	2059552	1002581	82TEX	7/4/2004	3.4	155	152	24	19	69	79	312	
1641	2003531548	2058077	1002581	82 TEX	7/16/2004	3.6	161	150	24	19	63	82	338	
1642	2003541773	2059586	1002581	82 TEX	7/15/2004	3.6	164	149	26	19	75	87	320	
1643	2003541777	2059586	1002581	82TEX	7/19/2004	3.5	147	139	25	19	97	93	300	
1644	2003541778	2059586	1002581	82TEX	7/3/2004	3.6	160	167	23	19	72	104	322	
1645	2003548737	2059587	1002581	82TEX	7/7/2004	3.4	162	149	24	18	72	88	318	
1646	2003548739	2059587	1002581	82TEX	7/16/2004	3.6	168	153	27	19	66	93	317	
1647	2003590768	2060382	1002581	82 TEX	7/11/2004	3.4	163	135	26	18	74	62	347	
1648	2003592252	2060385	1002581	82TEX	7/16/2004	3.5	158	143	26	19	72	81	297	
1649	2003608704	2059071	1002581	82TEX	7/17/2004	3.5	152	151	21	15	59	82	273	
1650	2003627711	2060386	1002581	82TEX	7/16/2004	3.2	160	140	24	17	75	72	310	
1651	2003628244	2061093	1002581	82TEX	7/16/2004	3.7	153	148	24	19	64	76	310	
1652	2003641286	2061686	1002581	82TEX	7/18/2004	3.6	156	157	25	19	78	77	293	
1653	2003649984	2060472	1002581	82 TEX	7/20/2004	3.4	153	139	28	19	74	91	280	
1654														
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SI® Geosolutions

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION

Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 00187988

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	072204W1		3.2	151.2

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SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC
2534	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC
2535	2003601768	2060900	1004557	650	7/18/2004	6.6	164	55	74	116	122
2536	2003618173	2061488	1004557	650	7/15/2004	7.1	173	72	72	122	122
2537	2003601521	2060900	1004557	650	7/13/2004	6.8	167	81	87	103	108
2538	2003601622	2060900	1004557	650	7/15/2004	7.2	170	84	97	130	128
2539	2003601773	2060900	1004557	650	7/18/2004	7.0	166	68	90	123	113
2540	2003617952	2061488	1004557	650	7/14/2004	6.6	161	62	69	134	129
2541	2003601753	2060900	1004557	650	7/18/2004	6.9	172	68	73	133	122
2542	2003601533	2060900	1004557	650	7/13/2004	6.7	165	65	84	119	123
2543	2003601681	2060900	1004557	650	7/16/2004	6.9	162	59	86	124	124
2544	2003601637	2060900	1004557	650	7/15/2004	6.7	160	67	97	125	125
2545	2003588681	2061488	1004557	650	7/13/2004	6.3	156	56	67	110	112
2546	2003601676	2060900	1004557	650	7/16/2004	7.2	168	61	103	119	128
2547	2003588543	2061488	1004557	650	7/9/2004	7.0	167	82	124	111	130
2548	2003588676	2061488	1004557	650	7/13/2004	7.0	165	78	91	118	116
2549	2003601617	2060900	1004557	650	7/15/2004	7.1	172	72	98	113	120
2550	2003588717	2061488	1004557	650	7/14/2004	6.5	158	63	79	123	111
2551	2003601758	2060900	1004557	650	7/18/2004	7.2	169	67	93	126	123
2552	2003601667	2060900	1004557	650	7/16/2004	6.1	161	63	101	111	117
2553	2003601778	2060900	1004557	650	7/18/2004	6.4	161	58	68	128	138
2554	2003588632	2061488	1004557	650	7/12/2004	6.7	169	62	74	130	113
2555	2003601687	206900	1004557	650	7/17/2004	6.5	159	57	88	131	
2556	2003601662	2060900	1004557	650	7/16/2004	6.7	169	67	94	105	119
2557	2003601707	2060900	1004557	650	7/17/2004	7.3	171	78	101	115	123
2558	2003588671	2061488	1004557	650	7/13/2004	6.8	167	73	72	104	116
2559	2003601672	2060900	1004557	650	7/16/2004	7.2	180	70	104	106	109
2560	2003601736	2060900	1004557	650	7/18/2004	6.7	166	67	112	115	94
2561	2003601740	2060900	1004557	650	7/18/2004	6.4	162	67	78	126	116
2562	2003601699	2060900	1004557	650	7/17/2004	7.2	168	62	116	119	119
2563	2003601693	2060900	1004557	650	7/17/2004	6.9	171	58	100	121	125
2564	2003601748	2060900	1004557	650	7/18/2004	6.3	170	51	76	129	123
2565	2003601731	2060900	1004557	650	7/17/2004	6.8	170	56	113	100	91
2566	2003654710	2060900	1004557	650	7/20/2004	8.2	192	73	109	121	136
2567	2003601744	2060900	1004557	650	7/18/2004	6.4	169	53	85	118	123
2568	97130401	2060900	1004557	650	7/13/2004	7.2	158	77	166	112	91
2569	2003588547	2061488	1004557	650	7/9/2004	6.1	150	66	70	99	119
2570	2003588698	2061488	1004557	650	7/14/2004	6.4	158	62	78	91	119
2571	2003601548	2060900	1004557	650	7/14/2004	6.9	177	74	97	109	111
2572	2003618169	2061488	1004557	650	7/15/2004	6.7	167	54	69	111	118
2573	2003588655	2061488	1004557	650	7/13/2004	6.1	159	55	70	111	121
2574	2003601606	2060900	1004557	650	7/15/2004	7.2	177	67	92	111	119
2575	2003654690	2060900	1004557	650	7/20/2004	7.0	179	67	71	112	110
2576	2003588620	2061488	1004557	650	7/11/2004	6.5	160	54	55	112	119
2577	2003601833	2060900	1004557	650	7/20/2004	7.2	176	71	88	115	124
2578	2003601657	2060900	1004557	650	7/16/2004	7.7	178	72	98	115	133
2579	2003588686	2061488	1004557	650	7/14/2004	6.7	161	61	74	115	119

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION FACILITY: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

CONTACT: Sid Weiser

BRAND NAME: Geotex 650

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187988, 187989, 187990
Ship Date:	26-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT ST** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Sheri McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMBRICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187988

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	072204NWA		6.1	89.3
LO-N/W-WHITE-ST	2.23949		6.4	78.2
LO-N/W-WHITE-ST	2003548739		6.5	82.1
LO-N/W-WHITE-ST	200427VR	00002325	6.8	75.8
LO-N/W-WHITE-ST	200430VR	00002487	6.6	109.7
LO-N/W-WHITE-ST	200430VR	00002545	6.6	53.9

QCG#FT2 QCT#FT2
7/27/04 11:32:20

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 42B
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187988

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007320	.81	246.80	54.00
LO-BENTOMAT ST	200430LO	00007319	.81	246.80	54.00
LO-BENTOMAT ST	200430LO	00007142	.84	252.30	36.50
LO-BENTOMAT ST	200430LO	00007123	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007113	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007091	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007079	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007049	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007047	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007026	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007025	.95*	249.10	42.30*
LO-BENTOMAT ST	200430LO	00007018	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00007017	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00006979	.80	226.00	52.10
LO-BENTOMAT ST	200430LO	00006976	.80	226.00	52.10
LO-BENTOMAT ST	200430LO	00006909	.91	202.30	36.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

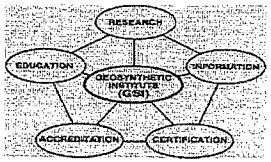
Project Name: Sherco Generating Plant
Prepared For: Geo-Synthetics, Inc.
Customer PO: 9656-00
Order Number: 187988, 187989, 187990

Ship Date: 26-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
7/27/04 11:31:32

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187990

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200430LO	00007115	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007114	.84	252.30	28.20
LO-BENTOMAT ST	200430LO	00007103	.81	252.30	37.30
LO-BENTOMAT ST	200430LO	00007102	.81	252.30	37.30
LO-BENTOMAT ST	200430LO	00007093	.81*	252.30*	37.30*
LO-BENTOMAT ST	200430LO	00007092	.87	249.10	42.50
LO-BENTOMAT ST	200430LO	00007053	.85	249.10	34.80
LO-BENTOMAT ST	200430LO	00007028	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007027	.95	249.10	42.30
LO-BENTOMAT ST	200430LO	00007020	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00007019	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00007013	.97	249.10	36.70
LO-BENTOMAT ST	200430LO	00006981	.80	226.00	52.10
LO-BENTOMAT ST	200430LO	00006980	.80	226.00	52.10
LO-BENTOMAT ST	200430LO	00006954	.86	226.00	31.80
LO-BENTOMAT ST	200430LO	00006953	.86	226.00	31.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/27/04 11:32:00

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187989

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200431LO	00007385	.79*	236.80	52.70*
LO-BENTOMAT ST	200431LO	00007384	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007383	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007382	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007381	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007380	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007379	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007378	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007377	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007376	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007375	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007374	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007373	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007371	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007370	.84	236.80	47.90
LO-BENTOMAT ST	200431LO	00007369	.84	236.80	47.90

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/27/04 11:39:31

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187988

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006909	LO-BENTOMAT ST	150	2250	2725	2003601620		2003541774		071604D
00006976	LO-BENTOMAT ST	150	2250	2724	2003617948		2003590920		071704A
00006979	LO-BENTOMAT ST	150	2250	2734	2003617948		2003486143		071704A
00007017	LO-BENTOMAT ST	150	2250	2765	200427VR	00002325	2003531546		071904B
00007018	LO-BENTOMAT ST	150	2250	2769	200427VR	00002325	2003531546		071904B
00007025	LO-BENTOMAT ST	150	2250	2789	2003548739		2003531546		071904B
00007026	LO-BENTOMAT ST	150	2250	2790	2003548739		2003531546		071904B
00007047	LO-BENTOMAT ST	150	2250	2722	2003601564		072204W1		071904B
00007049	LO-BENTOMAT ST	150	2250	2724	2003601564		072204W1		071904B
00007079	LO-BENTOMAT ST	150	2250	2728	2003588705		2003592251		071904C
00007091	LO-BENTOMAT ST	150	2250	2730	2003601553		2003592251		071904C
00007113	LO-BENTOMAT ST	150	2250	2727	072204NWA		2003486141		071904D
00007123	LO-BENTOMAT ST	150	2250	2725	2003588672		2003486141		071904D
00007142	LO-BENTOMAT ST	150	2250	2725	2003601569		2003531544		071904D
00007319	LO-BENTOMAT ST	150	2250	2636	2.23949		2003541770		072204B
00007320	LO-BENTOMAT ST	150	2250	2624	2.23949		2003541770		072204B

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1
7/27/04 11:31:32

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187990

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006953	LO-BENTOMAT ST	150	2250	2723	2003601655		2003590920		071704A
00006954	LO-BENTOMAT ST	150	2250	2737	2003601655		2003590920		071704A
00006980	LO-BENTOMAT ST	150	2250	2737	2003617948		2003486143		071704A
00006981	LO-BENTOMAT ST	150	2250	2744	2003617948		2003486143		071704A
00007013	LO-BENTOMAT ST	150	2250	2788	200427VR	00002325	2003531546		071904B
00007019	LO-BENTOMAT ST	150	2250	2760	200427VR	00002325	2003531546		071904B
00007020	LO-BENTOMAT ST	150	2250	2755	200427VR	00002325	2003531546		071904B
00007027	LO-BENTOMAT ST	150	2250	2787	2003548739		2003531546		071904B
00007028	LO-BENTOMAT ST	150	2250	2769	2003548739		2003531546		071904B
00007053	LO-BENTOMAT ST	150	2250	2732	2003601563		072204W1		071904B
00007092	LO-BENTOMAT ST	150	2250	2727	2003601553		2003592251		071904C
00007093	LO-BENTOMAT ST	150	2250	2733	2003601553		2003592251		071904C
00007102	LO-BENTOMAT ST	150	2250	2724	2003588710		2003486141		071904D
00007103	LO-BENTOMAT ST	150	2250	2730	2003588710		2003486141		071904D
00007114	LO-BENTOMAT ST	150	2250	2726	072204NWA		2003486141		071904D
00007115	LO-BENTOMAT ST	150	2250	2720	072204NWA		2003486141		071904D

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

QCG#TF1 QCT#TF1
7/27/04 11:32:00

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187989

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200431LO									
00007369	LO-BENTOMAT ST	150	2250	2627	200430VR	00002545	2003531545		072204E
00007370	LO-BENTOMAT ST	150	2250	2615	200430VR	00002545	2003531545		072204E
00007371	LO-BENTOMAT ST	150	2250	2633	200430VR	00002545	2003531545		072204E
00007373	LO-BENTOMAT ST	150	2250	2617	200430VR	00002545	2003531545		072204E
00007374	LO-BENTOMAT ST	150	2250	2608	200430VR	00002545	2003531545		072204E
00007375	LO-BENTOMAT ST	150	2250	2610	200430VR	00002545	2003531545		072204E
00007376	LO-BENTOMAT ST	150	2250	2626	200430VR	00002487	2003531545		072204E
00007377	LO-BENTOMAT ST	150	2250	2633	200430VR	00002487	2003531545		072204E
00007378	LO-BENTOMAT ST	150	2250	2641	200430VR	00002487	2003531545		072204E
00007379	LO-BENTOMAT ST	150	2250	2630	200430VR	00002487	2003531545		072204E
00007380	LO-BENTOMAT ST	150	2250	2627	200430VR	00002487	2003531545		072204E
00007381	LO-BENTOMAT ST	150	2250	2638	200430VR	00002487	2003531545		072204E
00007382	LO-BENTOMAT ST	150	2250	2642	200430VR	00002487	2003531545		072204E
00007383	LO-BENTOMAT ST	150	2250	2631	200430VR	00002487	2003531545		072204E
00007384	LO-BENTOMAT ST	150	2250	2610	200430VR	00002487	2003531545		072204E
00007385	LO-BENTOMAT ST	150	2250	2619	200430VR	00002487	2003531545		072204E

TOTAL SQUARE FEET..... 36,000

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 6, 2004
PO: 9656-00
Order #: 187991

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on July 6, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

Printed on recycled paper.

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187991
Ship Date:	6-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000187991
ORDER DATE: 5/17/2004
SHIP DATE:. 7/06/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT SF	200427LO	00005487	150.0	15.0	2250.0	2559.0
LO-BENTOMAT ST		SFT SF	200427LO	00005488	150.0	15.0	2250.0	2552.0
LO-BENTOMAT ST		SFT SF	200427LO	00005489	150.0	15.0	2250.0	2557.0
LO-BENTOMAT ST		SFT SF	200427LO	00005490	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT SF	200427LO	00005491	150.0	15.0	2250.0	2556.0
LO-BENTOMAT ST		SFT SF	200427LO	00005492	150.0	15.0	2250.0	2551.0
LO-BENTOMAT ST		SFT SF	200427LO	00005493	150.0	15.0	2250.0	2548.0
ORDER TOTALS.....							15750.0	17873.0
TOTAL ITEMS.....	7							

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187991
Ship Date:	6-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187991
Ship Date:	6-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: CETCO - LOVELL PLANT
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: 21-Jun-04

ATTN: Roger B. Wilkerson

Dear Sirs:

A shipment of CG 50
left our Lovell, WY plant on 062104B
in TANK A
as requested on your order no. VERBAL

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	. 0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.4
Moisture	ASTM D 2216	12.0 % (MAX)	8.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: **Synthetic Industries Inc.**

PRODUCTION

Facility: **Synthetic Industries**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187991

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2002441786		3.6	172.8

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Thantex Specialties, Inc.**

PRODUCTION FACILITY: **Thantex**
94 Glenn Bridge Road
Arden, NC. 28704

CONTACT: Furman Drake, 828-687-0940

BRAND NAME:

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187991
Ship Date:	6-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT ST** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

TOTAL PAGES 1

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

PAGE: 1

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000187991

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs marv ASTM D 4632
LO-NW-WHITE-ST	0000060167A	6.3		72.5

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

GEOSYNTHETIC CLAY LINER

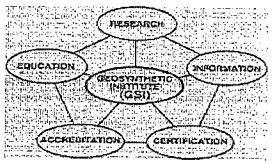
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	187991
Ship Date:	6-Jul

CETCO hereby affirms and certifies that the BENTOMAT ST material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* .75 lb/sq.ft. (Min.)
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	1.0 x 10 (-8) m(3)/m(2)/sec.

* Reported at 0 % moisture content.
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#FT2 QCT#FT2
7/06/04 12:23:10

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000187991

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200427LO	00005493	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005492	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005491	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005490	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005489	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005488	.90	229.10	27.20
LO-BENTOMAT ST	200427LO	00005487	.90*	229.10*	27.20*

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/06/04 12:23:10

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000187991

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200427LO									
00005487	LO-BENTOMAT ST	150	2250	2559	000060167A		2002441789		062104B
00005488	LO-BENTOMAT ST	150	2250	2552	000060167A		2002441789		062104B
00005489	LO-BENTOMAT ST	150	2250	2557	000060167A		2002441789		062104B
00005490	LO-BENTOMAT ST	150	2250	2550	000060167A		2002441789		062104B
00005491	LO-BENTOMAT ST	150	2250	2556	000060167A		2002441789		062104B
00005492	LO-BENTOMAT ST	150	2250	2551	000060167A		2002441789		062104B
00005493	LO-BENTOMAT ST	150	2250	2548	000060167A		2002441789		062104B

TOTAL SQUARE FEET..... 15,750

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 29, 2004
PO: 9656-00
Order #: 191679, 191683

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on July 28, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679, 191683
Ship Date:	28-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000191679
ORDER DATE: 7/26/2004
SHIP DATE:. 7/28/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERICO LOGISTICS

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT DN		SFT SF	200430LO	00005156	150.0	14.6	2190.0	2740.0
LO-BENTOMAT DN		SFT SF	200430LO	00005157	150.0	14.6	2190.0	2736.0
LO-BENTOMAT DN		SFT SF	200430LO	00005158	150.0	14.6	2190.0	2708.0
LO-BENTOMAT DN		SFT SF	200430LO	00005159	150.0	14.6	2190.0	2720.0
LO-BENTOMAT DN		SFT SF	200430LO	00005160	150.0	14.6	2190.0	2703.0
LO-BENTOMAT DN		SFT SF	200430LO	00005161	150.0	14.6	2190.0	2700.0
LO-BENTOMAT DN		SFT SF	200430LO	00005162	150.0	14.6	2190.0	2730.0
LO-BENTOMAT DN		SFT SF	200430LO	00005163	150.0	14.6	2190.0	2724.0
LO-BENTOMAT DN		SFT SF	200430LO	00005164	150.0	14.6	2190.0	2733.0
LO-BENTOMAT ST		SFT SF	200431LO	00007686	150.0	15.0	2250.0	2550.0
LO-BENTOMAT ST		SFT SF	200431LO	00007696	150.0	15.0	2250.0	2545.0
LO-BENTOMAT ST		SFT SF	200431LO	00007701	150.0	15.0	2250.0	2539.0
LO-BENTOMAT ST		SFT SF	200431LO	00007702	150.0	15.0	2250.0	2561.0
ORDER TOTALS.....							28710.0	34689.0
TOTAL ITEMS.....	13							

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000191683
ORDER DATE: 7/26/2004
SHIP DATE:. 7/28/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200430LO	00006774	150.0	15.0	2250.0	2650.0
LO-BENTOMAT ST	SFT SF	200431LO	00007667	150.0	15.0	2250.0	2514.0
LO-BENTOMAT ST	SFT SF	200431LO	00007673	150.0	15.0	2250.0	2530.0
LO-BENTOMAT ST	SFT SF	200431LO	00007679	150.0	15.0	2250.0	2566.0
LO-BENTOMAT ST	SFT SF	200431LO	00007680	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST	SFT SF	200431LO	00007681	150.0	15.0	2250.0	2525.0
LO-BENTOMAT ST	SFT SF	200431LO	00007682	150.0	15.0	2250.0	2538.0
LO-BENTOMAT ST	SFT SF	200431LO	00007683	150.0	15.0	2250.0	2544.0
LO-BENTOMAT ST	SFT SF	200431LO	00007693	150.0	15.0	2250.0	2566.0
LO-BENTOMAT ST	SFT SF	200431LO	00007694	150.0	15.0	2250.0	2540.0
LO-BENTOMAT ST	SFT SF	200431LO	00007695	150.0	15.0	2250.0	2555.0
LO-BENTOMAT ST	SFT SF	200431LO	00007697	150.0	15.0	2250.0	2560.0
LO-BENTOMAT ST	SFT SF	200431LO	00007698	150.0	15.0	2250.0	2540.0
ORDER TOTALS.....						29250.0	33188.0

TOTAL ITEMS..... 13

GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679
Ship Date:	28-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT DN** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679, 191683
Ship Date:	28-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679
Ship Date:	28-Jul

This statement is to certify that all components of the BENTOMAT DN manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679, 191683
Ship Date:	28-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **15-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071504C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.5
Moisture	ASTM D 2216	12.0 % (MAX)	10.0
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	26.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	16.0

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **23-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072304E**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**26.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**16.4**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **24-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072404A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.2**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**16.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **20-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072004C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **20-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072004C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	0
Passing 200 Mesh	ASTM C 136	1 % (Max)	0.3
Moisture	ASTM D 2216	12.0 % (MAX)	10.8
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	27.0
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	15.6

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our
Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer:	**Synthetic Industries Inc.**
PRODUCTION	
Facility:	**Synthetic Industries** **4019 Industry Drive** **Chattanooga, TN. 37416**
Contact:	Randy Johnson
Brand Name:	82 Tex.

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2003431544	2058077	1002581	82TEX	7/5/2004	3.5	147	143	24	19	82	119	313
2003483674	2058078	1002581	82TEX	7/4/2004	3.4	150	150	23	18	65	68	315
2003486139	2058075	1002581	82TEX	7/5/2004	3.6	145	143	23	19	58	69	323
2003492868	2059070	1002581	82TEX	7/4/2004	3.6	162	162	25	19	81	70	313
2003492969	2059070	1002581	82TEX	7/8/2004	3.5	149	157	22	19	64	66	305
2003492970	2059070	1002581	82 TEX	7/12/2004	3.4	148	142	23	18	69	474	333
2003514794	2059552	1002581	82TEX	7/4/2004	3.4	155	152	24	19	69	79	312
2003531548	2058077	1002581	82 TEX	7/16/2004	3.6	161	150	24	19	63	82	338
2003541773	2059586	1002581	82 TEX	7/15/2004	3.6	164	149	26	19	75	87	320
2003541777	2059586	1002581	82TEX	7/19/2004	3.5	147	139	25	19	97	93	300
2003541778	2059586	1002581	82TEX	7/3/2004	3.6	160	167	23	19	72	104	322
2003548737	2059587	1002581	82TEX	7/7/2004	3.4	162	149	24	18	72	88	318
2003548739	2059587	1002581	82TEX	7/16/2004	3.6	168	153	27	19	66	93	317
2003590768	2060382	1002581	82 TEX	7/11/2004	3.4	163	135	26	18	74	62	347
2003592252	2060385	1002581	82TEX	7/16/2004	3.5	158	143	26	19	72	81	297
2003608704	2059071	1002581	82TEX	7/17/2004	3.5	152	151	21	15	59	82	273
2003627711	2060386	1002581	82TEX	7/16/2004	3.2	160	140	24	17	75	72	310
2003628244	2061093	1002581	82TEX	7/16/2004	3.7	153	148	24	19	64	76	310
2003641286	2061686	1002581	82TEX	7/18/2004	3.6	156	157	25	19	78	77	293
2003649984	2060472	1002581	82 TEX	7/20/2004	3.4	153	139	28	19	74	91	280

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2003380722	2058074	1002581	82TEX	6/26/2004	3.5	160	150	25	21	66	73	337
2003380725	2058074	1002581	82TEX	6/17/2004	3.5	156	141	25	18	79	75	357
2003380727	2058074	1002581	82TEX	6/12/2004	3.6	157	154	25	21	75	90	350
2003413170	2058076	1002581	82TEX	6/16/2004	3.6	159	147	28	20	76	96	327
2003413172	2058076	1002581	82TEX	6/23/2004	3.6	155	149	19	15	67	100	312
2003428029	2058079	1002581	82TEX	6/26/2004	3.6	162	153	25	20	80	73	317
2003428035	2058079	1002581	82TEX	6/18/2004	3.2	166	160	27	19	87	96	303
2003483681	2058078	1002581	82TEX	6/26/2004	3.6	161	155	26	18	61	81	333
2003514792	2059552	1002581	82TEX	6/30/2004	3.5	158	136	26	17	69	77	287

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 0001987007

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	2003617953		3.4	156.7
LO-WOVEN-ST	072004W1		3.3	145.2

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR
2003180763	2052354	1006612	HH65L	5/14/2004	6.7	179	225
2003180767	2052354	1006612	HH65L	5/15/2004	6.6	170	
2003180769	2052354	1006612	HH65L	5/15/2004	6.4	183	
2003180771	2052354	1006612	HH65L	5/15/2004	6.4	156	
2003180772	2052354	1006612	HH65L	5/15/2004	6.9	199	
2003180773	2052354	1006612	HH65L	5/15/2004	6.7	193	
2003180776	2052354	1006612	HH65L	5/15/2004	6.4	175	203
2003180779	2052354	1006612	HH65L	5/15/2004	6.5	178	210
2003180783	2052354	1006612	HH65L	5/15/2004	7.0	166	236
2003180788	2052354	1006612	HH65L	5/15/2004	7.1	175	233
2003180793	2055218	1006612	HH65L	5/17/2004	6.2	206	237
2003180797	2055218	1006612	HH65L	5/17/2004	6.9	170	221
2003180800	2055218	1006612	HH65L	5/17/2004	6.6	182	235
2003180803	2055218	1006612	HH65L	5/17/2004	6.7	167	224
2003180806	2055218	1006612	HH65L	5/17/2004	6.6	168	200
2003180808	2055218	1006612	HH65L	5/17/2004	7.0	183	245
2003180810	2055218	1006612	HH65L	5/17/2004	7.2	190	233
2003180813	2055218	1006612	HH65L	5/17/2004	7.4	161	242
2003180816	2055218	1006612	HH65L	5/17/2004	7.4	205	261
2003180820	2055218	1006612	HH65L	5/17/2004	6.9	177	223
2003180824	2055218	1006612	HH65L	5/17/2004	7.1	197	247
2003180828	2055218	1006612	HH65L	5/18/2004	6.4	174	229
2003180831	2055218	1006612	HH65L	5/18/2004	7.0	176	229
2003180834	2055218	1006612	HH65L	5/18/2004	6.6	162	210
2003180837	2055218	1006612	HH65L	5/18/2004	6.6	163	235
2003180840	2055218	1006612	HH65L	5/18/2004	7.2	181	233
2003180843	2055218	1006612	HH65L	5/18/2004	6.2	176	222
2003180847	2055218	1006612	HH65L	5/18/2004	6.1	170	213
2003180855	2055218	1006612	HH65L	5/18/2004	6.8	185	223
2003180857	2055218	1006612	HH65L	5/18/2004	6.6	165	216
2003180861	2055218	1006612	HH65L	5/18/2004	7.0	163	216
2003180864	2055218	1006612	HH65L	5/19/2004	6.4	164	188
2003180867	2055218	1006612	HH65L	5/19/2004	6.8	166	224
2003180870	2055218	1006612	HH65L	5/19/2004	6.6	168	222
2003231117	2055218	1006612	HH65L	5/19/2004	6.5	177	230
2003231534	2055218	1006612	HH65L	5/20/2004	6.9	160	235

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **SI Geosolutions**

PRODUCTION
Facility: **SI Corporation**
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Jack Rooke

Brand Name: HH65L

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SI® Geosolutions														
2488	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2489	2003588571	2061488	1004557	650	7/10/2004	6.2	141	100	113	126	124				
2490	2003588574	2061488	1004557	650	7/10/2004	5.9	133	134		125					
2491	2003588604	2061488	1004557	650	7/11/2004	6.4	160	58	68	130	126				
2492	2003588599	2061488	1004557	650	7/11/2004	6.3	155	61	58	133	127				
2493	2003654715	2060900	1004557	650	7/20/2004	6.8	164	68	75	116	131				
2494	2003588559	2061488	1004557	650	7/10/2004	6.3	153	72	89	116	129				
2495	2003601517	2060900	1004557	650	7/13/2004	6.0	146	52	65	124	118				
2496	2003601820	2060900	1004557	650	7/19/2004	6.5	156	59	75	116	132				
2497	2003654698	2060900	1004557	650	7/20/2004	7.0	182	61	78	121	127				
2498	2003588592	2061488	1004557	650	7/11/2004	6.2	150	59	61	108	137				
2499	2003588610	2061488	1004557	650	7/11/2004	7.2	172	73	85	115	121				
2500	2003588596	2061488	1004557	650	7/11/2004	6.5	160	62	64	118	122				
2501	2003601811	2060900	1004557	650	7/19/2004	6.4	159	68	70	120	136				
2502	2003588623	2061488	1004557	650	7/12/2004	6.3	161	65	66	121	136				
2503	2003601556	2060900	1004557	650	7/14/2004	5.9	155	57	115	117	122				
2504	2003588665	2061488	1004557	650	7/13/2004	6.2	156	64	67	105	116				
2505	2003588551	2061488	1004557	650	7/10/2004	6.3	154	77	80	116	122				
2506	2003601570	2060900	1004557	650	7/14/2004	6.6	156	73	68	131	127				
2507	2003601580	2060900	1004557	650	7/14/2004	6.4	156	67	92	132	134				
2508	2003601763	2060900	1004557	650	7/18/2004	6.5	166	66	85	103	120				
2509	2003588568	2061488	1004557	650	7/10/2004	6.7	147	103	153	116	117				
2510	2003588565	2061488	1004557	650	7/10/2004	6.4	140	99	134	119	132				
2511	2003601629	2060900	1004557	650	7/15/2004	6.9	163	83	120	126	125				
2512	2003588586	2061488	1004557	650	7/11/2004	6.6	168	65	70	130	139				
2513	2003588555	2061488	1004557	650	7/10/2004	6.3	152	81	104	111	127				
2514	2003601563	2060900	1004557	650	7/14/2004	6.5	158	68	83	119	130				
2515	2003588601	2061488	1004557	650	7/11/2004	7.0	167	68	90	113	122				
2516	2003601826	2060900	1004557	650	7/19/2004	6.4	162	60	88	125	130				
2517	2003601816	2060900	1004557	650	7/19/2004	6.8	169	70	104	126	124				
2518	2003588702	2061488	1004557	650	7/14/2004	6.6	155	59	66	140	125				
2519	2003601717	2060900	1004557	650	7/17/2004	6.8	161	66	89	113	115				
2520	2003617958	2061488	1004557	650	7/15/2004	7.2	165	64	91	132	128				
2521	2003601611	2060900	1004557	650	7/15/2004	7.3	176	80	87	120	127				
2522	2003601839	2060900	1004557	650	7/20/2004	6.7	171	64	82	118	118				
2523	2003588708	2061488	1004557	650	7/14/2004	6.7	162	70	79	133	131				
2524	2003601575	2060900	1004557	650	7/14/2004	7.1	157	82	103	138	136				
2525	2003588713	2061488	1004557	650	7/14/2004	6.4	149	56	62	128	128				
2526	2003601686	2060900	1004557	650	7/14/2004	6.9	166	68	95	133	134				
2527	2003654704	2060900	1004557	650	7/20/2004	6.9	170	59	81	110	117				
2528	2003601527	2060900	1004557	650	7/13/2004	6.4	157	68	115	110	112				
2529	2003601712	2060900	1004557	650	7/17/2004	6.6	158	60	76	114	122				
2530	2003601806	2060900	1004557	650	7/19/2004	7.0	171	68	69	116	130				
2531	2003654722	2060900	1004557	650	7/20/2004	6.0	153	55	68	116	125				
2532	2003588659	2061488	1004557	650	7/13/2004	6.3	153	56	55	111	114				
2533	2003601558	2060900	1004557	650	7/14/2004	7.1	169	74	107	137	129				

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Sid Weiser

Brand Name: Geotex 650

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

SI® Geosolutions

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2580	2003588649	2061488	1004557	650	7/13/2004	6.3	158	53	55	117	116				
2581	2003588691	2061488	1004557	650	7/14/2004	6.8	162	67	92	119	130				
2582	2003588691	2060900	1004557	650	7/15/2004	6.0	148	63	110	119	117				
2583	2003601593	2060900	1004557	650	7/19/2004	6.7	164	54	83	119	126				
2584	2003601784	2060900	1004557	650	7/19/2004	6.5	162	62	94	120	124				
2585	2003601934	2060900	1004557	650	7/19/2004	7.0	170	67	96	120	132				
2586	2003601801	2060900	1004557	650	7/17/2004	7.2	166	70	98	120	120				
2587	2003601722	2060900	1004557	650	7/12/2004	6.6	160	64	79	121	121				
2588	2003601493	2061488	1004557	650	7/12/2004	6.3	162	60	54	123	124				
2589	2003588637	2060900	1004557	650	7/13/2004	5.9	150	54	63	123	124				
2590	2003601496	2060900	1004557	650	7/16/2004	6.7	166	69	83	123	126				
2591	2003601643	2060900	1004557	650	7/16/2004	6.2	157	63	84	126	128				
2592	2003601649	2060900	1004557	650	7/18/2004	6.8	164	49	78	127	127				
2593	2003601763	2060900	1004557	650	7/13/2004	6.3	154	50	69	128	137				
2594	2003601502	2060900	1004557	650	7/12/2004	6.5	159	53	55	129	137				
2595	2003588643	2061488	1004557	650	7/12/2004	6.4	157	65	75	129	127				
2596	2003601546	2060900	1004557	650	7/14/2004	5.9	149	59	79	131	140				
2597	2003601539	2060900	1004557	650	7/13/2004	7.4	159	81	134	132	138				
2598	2003601600	2060900	1004557	650	7/15/2004	6.7	162	65	69	139	125				
2599	2003617963	2061488	1004557	650	7/15/2004										
2600															
2601															
2602															
2603															
2604															
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2624															
2625															

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679
Ship Date:	28-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT DN** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679, 191683
Ship Date:	28-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the **BENTOMAT ST** product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000191679

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	2003428032		6.6	93.5
LO-N/W-WHITE-ST	200428VR	00002384	7.0	74.5
LO-N/W-WHITE-DN	200430VR	00002528	6.4	108.1
LO-N/W-WHITE-DN	200430VR	00002529	6.5	56.6

GEOSYNTHETIC CLAY LINER

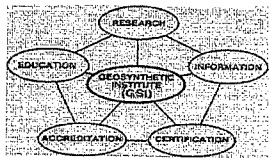
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679
Ship Date:	28-Jul

CETCO hereby affirms and certifies that the **BENTOMAT DN** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	**15 lbs**
Bentonite Free Swell	ASTM D 5890	**24 mL / 2g MIN.**
Bentonite Fluid Loss	ASTM D 5891	**18.0 mL (MAX)**
Bentonite Mass / Area	ASTM D 5993	*** .80 lb/sq.ft. (Min.)**
Grab Strength	ASTM D 4632	**150 lbs.**
Permeability	ASTM D 5887	**5 x 10 (-9) cm/sec. (Max)**
Index Flux	ASTM D 5887	**1.0 x 10 (-8) m(3)/m(2)/sec.**

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER

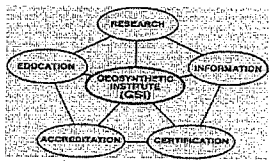
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191679, 191683
Ship Date:	28-Jul

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	**15 lbs**
Bentonite Free Swell	ASTM D 5890	**24 mL / 2g MIN.**
Bentonite Fluid Loss	ASTM D 5891	**18.0 mL (MAX)**
Bentonite Mass / Area	ASTM D 5993	*** .80 lb/sq.ft. (Min.)**
Grab Strength	ASTM D 4632	**90 lbs.**
Permeability	ASTM D 5887	**5 x 10 (-9) cm/sec. (Max)**
Index Flux	ASTM D 5887	**5 x 10 (-9) cm/sec. (Max)**

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Aren.



Marc Jordan
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

QCG#FT2 QCT#FT2
7/29/04 10:44:32

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000191683

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 75lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200431LO	00007698	.84	261.10	30.80
LO-BENTOMAT ST	200431LO	00007697	.84	261.10	30.80
LO-BENTOMAT ST	200431LO	00007695	.84*	261.10	30.80*
LO-BENTOMAT ST	200431LO	00007694	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007693	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007683	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007682	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007681	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007680	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007679	.91	261.10	36.20
LO-BENTOMAT ST	200431LO	00007673	.83	261.10	39.60
LO-BENTOMAT ST	200431LO	00007667	.83	261.10	39.60
LO-BENTOMAT ST	200430LO	00006774	1.12	239.90	26.40

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/29/04 8:28:24

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000191679

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 75 lbs ASTM D 5993	GRAB STRENGTH 150lbs marv MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200431LO	00007702	.84	261.10	30.80
LO-BENTOMAT ST	200431LO	00007701	.84	261.10	30.80
LO-BENTOMAT ST	200431LO	00007696	.84	261.10	30.80
LO-BENTOMAT ST	200431LO	00007686	.91	261.10	36.20
LO-BENTOMAT DN	200430LO	00005164	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005163	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005162	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005161	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005160	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005159	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005158	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005157	.92	307.20	43.50
LO-BENTOMAT DN	200430LO	00005156	.92	307.20	43.50

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#TF1 QCT#TF1
7/29/04 8:28:24

CETCO
GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000191679

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00005156	LO-BENTOMAT DN	150	2190	2740	200430VR	00002528	2003180788		072004C
00005157	LO-BENTOMAT DN	150	2190	2736	200430VR	00002528	2003180788		072004C
00005158	LO-BENTOMAT DN	150	2190	2708	200430VR	00002528	2003180788		072004C
00005159	LO-BENTOMAT DN	150	2190	2720	200430VR	00002528	2003180788		072004C
00005160	LO-BENTOMAT DN	150	2190	2703	200430VR	00002528	2003180788		072004C
00005161	LO-BENTOMAT DN	150	2190	2700	200430VR	00002528	2003180788		072004C
00005162	LO-BENTOMAT DN	150	2190	2730	200430VR	00002528	2003180864		072004C
00005163	LO-BENTOMAT DN	150	2190	2724	200430VR	00002529	2003180864		072004C
00005164	LO-BENTOMAT DN	150	2190	2733	200430VR	00002529	2003180864		072004C
LOT# 200431LO									
00007686	LO-BENTOMAT ST	150	2250	2550	2003601580		2003428032		072404A
00007696	LO-BENTOMAT ST	150	2250	2545	2003617953		2003428032		072404A
00007701	LO-BENTOMAT ST	150	2250	2539	2003617953		2003428032		072404A
00007702	LO-BENTOMAT ST	150	2250	2561	2003428032		2003617953		072404A

TOTAL SQUARE FEET..... 28,710

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

QCG#TF1 QCT#TF1 CETCO PAGE: 1
7/29/04 10:44:32 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000191683

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006774	LO-BENTOMAT ST	150	2250	2650	200428VR	00002384	072004W1		071504C
LOT# 200431LO									
00007667	LO-BENTOMAT ST	150	2250	2514	2003588667		2003492970		072304E
00007673	LO-BENTOMAT ST	150	2250	2530	2003588667		2003492970		072304E
00007679	LO-BENTOMAT ST	150	2250	2566	2003588648		2003492970		072404A
00007680	LO-BENTOMAT ST	150	2250	2560	2003588648		2003428032		072404A
00007681	LO-BENTOMAT ST	150	2250	3525	2003588648		2003428032		072404A
00007682	LO-BENTOMAT ST	150	2250	2538	2003588648		2003428032		072404A
00007683	LO-BENTOMAT ST	150	2250	2544	2003588648		2003428032		072404A
00007693	LO-BENTOMAT ST	150	2250	2566	2003601580		2003428032		072404A
00007694	LO-BENTOMAT ST	150	2250	2540	2003601580		2003428032		072404A
00007695	LO-BENTOMAT ST	150	2250	2555	2003601580		2003428032		072404A
00007697	LO-BENTOMAT ST	150	2250	2560	2003617953		2003428032		072404A
00007698	LO-BENTOMAT ST	150	2250	2540	2003617953		2003428032		072404A

TOTAL SQUARE FEET..... 29,250

TOTAL PAGES 1

CETCO
COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
P.O. Box 428 • Lovell, Wyoming 82431
(307) 548-6521 • Fax (307) 548-6413

Date: July 28, 2004
PO: 9656-00
Order #: 191680, 191681, 191682

Trevor Simmons,
Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979
tsimmons@geo-synthetics.com

Dear Trevor Simmons,

Please find enclosed the MQA/MQC Data Package for GCL shipments to Geo-Synthetics, Inc. These shipments left our CETCO - Lovell, Wy. plant on July 27, 2004.

If you have any questions regarding the enclosed QA/QC information, please contact me at (800)322-1149 ext:423.

Sincerely,

Roger B. Wilkerson
Quality Assurance

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA PACKAGE

PROJECT NAME: Sherco Generating Plant
Becker MN 55308

CUSTOMER P.O.: 9656-00

PREPARED FOR: Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha, WI 53188
Telephone # : 262-524-7979
Email Address: tsimmons@geo-synthetics.com

PREPARED BY: Roger B. Wilkerson
Quality Assurance
CETCO
P.O. Box 428
92 Hwy. 37
Lovell, Wy. 82431
Telephone #: 800-322-1149 (Ext. 423)
Fax #: (307)548-6927, (307)548-6413
E-Mail: rwilke@cetco.com

GEOSYNTHETIC CLAY LINER

MANUFACTURING
QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191680, 191681, 191682
Ship Date:	27-Jul

CONTENTS:

PACKING LIST
DAILY GCL PRODUCTION CERTIFICATION
NEEDLE DETECTION CERTIFICATION
BENTONITE CLAY CERTIFICATION
WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
GCL MQA TRACKING FORM

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000191680
ORDER DATE: 7/26/2004
SHIP DATE:. 7/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE	U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST		SFT	SF 200431LO	00007464	150.0	15.0	2250.0	2368.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007470	150.0	15.0	2250.0	2353.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007471	150.0	15.0	2250.0	2395.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007472	150.0	15.0	2250.0	2286.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007481	150.0	15.0	2250.0	2463.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007482	150.0	15.0	2250.0	2325.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007483	150.0	15.0	2250.0	2314.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007484	150.0	15.0	2250.0	2403.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007485	150.0	15.0	2250.0	2310.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007494	150.0	15.0	2250.0	2351.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007495	150.0	15.0	2250.0	2411.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007496	150.0	15.0	2250.0	2376.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007539	150.0	15.0	2250.0	2462.0
LO-BENTOMAT ST		SFT	SF 200431LO	00007540	150.0	15.0	2250.0	2429.0
ORDER TOTALS.....							31500.0	33246.0

TOTAL ITEMS..... 14

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000191681
ORDER DATE: 7/26/2004
SHIP DATE:. 7/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200430LO	00006919	150.0	15.0	2250.0	2700.0
LO-BENTOMAT ST	SFT SF	200430LO	00007024	150.0	15.0	2250.0	2781.0
LO-BENTOMAT ST	SFT SF	200430LO	00007066	150.0	15.0	2250.0	2720.0
LO-BENTOMAT ST	SFT SF	200431LO	00007431	150.0	15.0	2250.0	2353.0
LO-BENTOMAT ST	SFT SF	200431LO	00007432	150.0	15.0	2250.0	2399.0
LO-BENTOMAT ST	SFT SF	200431LO	00007433	150.0	15.0	2250.0	2419.0
LO-BENTOMAT ST	SFT SF	200431LO	00007443	150.0	15.0	2250.0	2310.0
LO-BENTOMAT ST	SFT SF	200431LO	00007444	150.0	15.0	2250.0	2379.0
LO-BENTOMAT ST	SFT SF	200431LO	00007445	150.0	15.0	2250.0	2334.0
LO-BENTOMAT ST	SFT SF	200431LO	00007446	150.0	15.0	2250.0	2336.0
LO-BENTOMAT ST	SFT SF	200431LO	00007452	150.0	15.0	2250.0	2362.0
LO-BENTOMAT ST	SFT SF	200431LO	00007453	150.0	15.0	2250.0	2390.0
LO-BENTOMAT ST	SFT SF	200431LO	00007454	150.0	15.0	2250.0	2398.0
LO-BENTOMAT ST	SFT SF	200431LO	00007455	150.0	15.0	2250.0	2367.0
						31500.0	34248.0

ORDER TOTALS.....

TOTAL ITEMS..... 14

PACKING LIST

CETCO
1500 WEST SHURE DRIVE
ARLINGTON HEIGHTS IL 60004

ORDER NO:.. 000191682
ORDER DATE: 7/26/2004
SHIP DATE:. 7/27/2004

SOLD TO: 2741
GEO-SYNTHETICS, INC.
W239 N428 PEWAUKEE RD.

SHIP FROM:. CETCO LOVELL PLANT
FRT TERMS:. PREPAID & ABSORBED
SHIP VIA:.. AMERI-CO

WAUKESHA WI 53188-6904

SHIP TO: 46
GSI
SHERCO GENERATING PLANT
13700 SHERBURNE AVENUE
KEVIN KLIMMEK
BECKER MN

PO: 9656-00

PRODUCT	SIZE U/M	LOT #	ROLL#	LNGTH	WIDTH	SHIP QTY	WEIGHT
LO-BENTOMAT ST	SFT SF	200430LO	00006963	150.0	15.0	2250.0	2751.0
LO-BENTOMAT ST	SFT SF	200431LO	00007407	150.0	15.0	2250.0	2352.0
LO-BENTOMAT ST	SFT SF	200431LO	00007408	150.0	15.0	2250.0	2350.0
LO-BENTOMAT ST	SFT SF	200431LO	00007409	150.0	15.0	2250.0	2437.0
LO-BENTOMAT ST	SFT SF	200431LO	00007413	150.0	15.0	2250.0	2441.0
LO-BENTOMAT ST	SFT SF	200431LO	00007414	150.0	15.0	2250.0	2404.0
LO-BENTOMAT ST	SFT SF	200431LO	00007435	150.0	15.0	2250.0	2357.0
LO-BENTOMAT ST	SFT SF	200431LO	00007436	150.0	15.0	2250.0	2449.0
LO-BENTOMAT ST	SFT SF	200431LO	00007448	150.0	15.0	2250.0	2325.0
LO-BENTOMAT ST	SFT SF	200431LO	00007449	150.0	15.0	2250.0	2330.0
LO-BENTOMAT ST	SFT SF	200431LO	00007450	150.0	15.0	2250.0	2337.0
LO-BENTOMAT ST	SFT SF	200431LO	00007479	150.0	15.0	2250.0	2386.0
LO-BENTOMAT ST	SFT SF	200431LO	00007480	150.0	15.0	2250.0	2399.0
LO-BENTOMAT ST	SFT SF	200431LO	00007541	150.0	15.0	2250.0	2433.0
						31500.0	33751.0

ORDER TOTALS.....

TOTAL ITEMS..... 14

GEOSYNTHETIC CLAY LINER
MANUFACTURING CERTIFICATION

GEOSYNTHETIC CLAY LINER

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191680, 191681, 191682
Ship Date:	27-Jul

Colloid Environmental Technologies Company (CETCO) hereby affirms and certifies that all of the **BENTOMAT ST** manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

NEEDLE DETECTION CERTIFICATION

CERTIFICATION STATEMENT

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191680, 191681, 191682
Ship Date:	27-Jul

This statement is to certify that all components of the BENTOMAT ST manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

BENTONITE CLAY CERTIFICATIONS

TECHNICAL DATA SHEET

ORIGIN INFORMATION

BENTONITE

Manufacturer: **AMERICAN COLLOID COMPANY**

PRODUCTION

Facility: **AMERICAN COLLOID COMPANY**
92 HWY. 37
Lovell, WY 82431

Contact: **Moses Briseno**
Quality Assurance Coordinator
(800)-322-1160

Brand Name: **CG 50**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **16-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071604D**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.7**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **17-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071704A**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**30.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **19-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **071904C**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.2**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204E**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204F**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.5**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.8**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**14.8**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204G**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.6**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.4**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**27.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: DM., BM., JS., SK., JB.

Approved By: MOSES BRISENO
ACC

In any correspondence regarding this shipment, please refer to our Order Number NA

BENTONITE
CERTIFICATE OF ANALYSIS

AMERICAN COLLOID COMPANY
92 HWY. 37
LOVELL, WY 82431

TO: **CETCO - LOVELL PLANT**
P.O. BOX 428
92 HWY 37
LOVELL, WY. 82431

DATE: **22-Jul-04**

ATTN: **Roger B. Wilkerson**

Dear Sirs:

A shipment of **CG 50**
left our Lovell, WY plant on **072204H**
in **TANK A**
as requested on your order no. **VERBAL**

A sample from this shipment was tested, and gave the following results:

TEST	METHOD	REQ. SPECIFICATION	ACTUAL RESULTS
RET. 8 MESH	ASTM C 136	0 PERCENT	**0**
Passing 200 Mesh	ASTM C 136	1 % (Max)	**0.8**
Moisture	ASTM D 2216	12.0 % (MAX)	**10.0**
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.	**28.0**
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)	**15.0**

We hereby certify that the results shown above represent this shipment.
Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.
Product made in the U.S.A.

Tests Conducted By: **DM., BM., JS., SK., JB.**

Approved By: **MOSES BRISENO**
ACC

In any correspondence regarding this shipment, please refer to our Order Number **NA**

WOVEN GEOTEXTILE
MANUFACTURER'S CERTIFICATION

SI® Geosolutions

HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	TENSMA	TENSCR	ELONGM	ELONGC	TTEARM	TTEARC	BURST
2003431544	2058077	1002581	82TEX	7/5/2004	3.5	147	143	24	19	82	119	313
2003483674	2058078	1002581	82TEX	7/4/2004	3.4	150	150	23	18	65	68	315
2003486139	2058075	1002581	82TEX	7/5/2004	3.6	145	143	23	19	58	69	323
2003492868	2059070	1002581	82TEX	7/4/2004	3.6	162	162	25	19	81	70	313
2003492969	2059070	1002581	82TEX	7/8/2004	3.5	149	157	22	19	64	66	305
2003492970	2059070	1002581	82 TEX	7/12/2004	3.4	148	142	23	18	69	474	333
2003514794	2059552	1002581	82TEX	7/4/2004	3.4	155	152	24	19	69	79	312
2003531548	2058077	1002581	82 TEX	7/16/2004	3.6	161	150	24	19	63	82	338
2003541773	2059586	1002581	82 TEX	7/15/2004	3.6	164	149	26	19	75	87	320
2003541777	2059586	1002581	82TEX	7/19/2004	3.5	147	139	25	19	97	93	300
2003541778	2059586	1002581	82TEX	7/3/2004	3.6	160	167	23	19	72	104	322
2003548737	2059587	1002581	82TEX	7/7/2004	3.4	162	149	24	18	72	88	318
2003548739	2059587	1002581	82TEX	7/16/2004	3.6	168	153	27	19	66	93	317
2003590768	2060382	1002581	82 TEX	7/11/2004	3.4	163	135	26	18	74	62	347
2003592252	2060385	1002581	82TEX	7/16/2004	3.5	158	143	26	19	72	81	297
2003608704	2059071	1002581	82TEX	7/17/2004	3.5	152	151	21	15	59	82	273
2003627711	2060386	1002581	82TEX	7/16/2004	3.2	160	140	24	17	75	72	310
2003628244	2061093	1002581	82TEX	7/16/2004	3.7	153	148	24	19	64	76	310
2003641286	2061686	1002581	82TEX	7/18/2004	3.6	156	157	25	19	78	77	293
2003649984	2060472	1002581	82 TEX	7/20/2004	3.4	153	139	28	19	74	91	280

TECHNICAL DATA SHEET

ORIGIN INFORMATION

WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Randy Johnson

Brand Name: 82 Tex.

NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000191681

Material	Lot #	Roll #	Geotextile Mass/Area ASTM D 5261	Grab Strength ASTM D 4632
LO-WOVEN-ST	072204W1		3.2	151.2

SI® Geosolutions

	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC
2488	2003588571	2061488	1004557	650	7/10/2004	6.2	141	100	113	126	124
2489	2003588574	2061488	1004557	650	7/10/2004	5.9	133	134		125	
2490	2003588604	2061488	1004557	650	7/11/2004	6.4	160	58	68	130	126
2491	2003588599	2061488	1004557	650	7/11/2004	6.3	155	61	58	133	127
2492	2003654715	2060900	1004557	650	7/20/2004	6.8	164	68	75	116	131
2493	2003588559	2061488	1004557	650	7/10/2004	6.3	153	72	89	116	129
2494	2003601617	2060900	1004557	650	7/13/2004	6.0	146	52	65	124	118
2495	2003601820	2060900	1004557	650	7/19/2004	6.5	156	59	75	116	132
2496	2003654698	2060900	1004557	650	7/20/2004	7.0	182	61	78	121	127
2497	2003588592	2061488	1004557	650	7/11/2004	6.2	150	59	61	108	137
2498	2003588610	2061488	1004557	650	7/11/2004	7.2	172	73	85	115	121
2499	2003588596	2061488	1004557	650	7/11/2004	6.5	160	62	64	118	122
2500	2003601811	2060900	1004557	650	7/19/2004	6.4	159	68	70	120	136
2501	2003588623	2061488	1004557	650	7/12/2004	6.3	161	65	66	121	136
2502	2003601556	2060900	1004557	650	7/14/2004	5.9	155	57	115	117	122
2503	2003588665	2061488	1004557	650	7/13/2004	6.2	156	64	67	105	116
2504	2003588551	2061488	1004557	650	7/10/2004	6.3	154	77	80	116	122
2505	2003601570	2060900	1004557	650	7/14/2004	6.6	158	73	68	131	127
2506	2003601580	2060900	1004557	650	7/14/2004	6.4	156	67	92	132	134
2507	2003601763	2060900	1004557	650	7/18/2004	6.5	166	66	85	103	120
2508	2003588568	2061488	1004557	650	7/10/2004	6.7	147	103	153	116	117
2509	2003588565	2061488	1004557	650	7/10/2004	6.4	140	99	134	119	132
2510	2003601629	2060900	1004557	650	7/15/2004	6.9	163	83	120	126	125
2511	2003588586	2061488	1004557	650	7/11/2004	6.6	168	65	70	130	139
2512	2003588555	2061488	1004557	650	7/10/2004	6.3	152	81	104	111	127
2513	2003601563	2060900	1004557	650	7/14/2004	6.5	158	68	83	119	130
2514	2003588601	2061488	1004557	650	7/11/2004	7.0	167	68	90	113	122
2515	2003601826	2060900	1004557	650	7/19/2004	6.4	162	60	88	125	130
2516	2003601816	2060900	1004557	650	7/19/2004	6.8	169	70	104	126	124
2517	2003588702	2061488	1004557	650	7/14/2004	6.6	155	59	66	140	125
2518	2003601717	2060900	1004557	650	7/17/2004	6.8	161	66	89	113	115
2519	2003617958	2061488	1004557	650	7/15/2004	7.2	165	64	91	132	128
2520	2003601611	2060900	1004557	650	7/15/2004	7.3	176	80	87	120	127
2521	2003601839	2060900	1004557	650	7/20/2004	6.7	171	64	82	118	118
2522	2003588708	2061488	1004557	650	7/14/2004	6.7	162	70	79	133	131
2523	2003601575	2060900	1004557	650	7/14/2004	7.1	157	82	103	138	136
2524	2003588713	2061488	1004557	650	7/14/2004	6.4	149	56	62	128	128
2525	2003601586	2060900	1004557	650	7/14/2004	6.9	166	68	95	133	134
2526	2003654704	2060900	1004557	650	7/20/2004	6.9	170	59	81	110	117
2527	2003601527	2060900	1004557	650	7/13/2004	6.4	157	68	115	110	112
2528	2003601712	2060900	1004557	650	7/17/2004	6.6	158	60	76	114	122
2529	2003601806	2060900	1004557	650	7/19/2004	7.0	171	68	69	116	130
2530	2003654722	2060900	1004557	650	7/20/2004	6.0	153	55	68	116	125
2531	2003588659	2061488	1004557	650	7/13/2004	6.3	153	56	55	111	114
2532	2003601558	2060900	1004557	650	7/14/2004	7.1	169	74	107	137	129
2533											

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: Synthetic Industries Inc.

PRODUCTION
Facility: Synthetic Industries
4019 Industry Drive
Chattanooga, TN. 37416

Contact: Sid Weiser

Brand Name: Geotex 650

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2580	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2581	2003588649	2061488	1004557	650	7/13/2004	6.3	158	53	55	117	116				
2582	2003588691	2061488	1004557	650	7/14/2004	6.8	162	67	92	119	130				
2583	2003601593	2060900	1004557	650	7/15/2004	6.0	148	63	110	119	117				
2584	2003601784	2060900	1004557	650	7/19/2004	6.7	164	54	83	119	126				
2585	2003601994	2060900	1004557	650	7/19/2004	6.5	162	62	94	120	124				
2586	2003601801	2060900	1004557	650	7/19/2004	7.0	170	67	96	120	132				
2587	2003601722	2060900	1004557	650	7/17/2004	7.2	166	70	98	120	120				
2588	2003601493	2060900	1004557	650	7/12/2004	6.6	160	54	79	121	121				
2589	2003588637	2061488	1004557	650	7/12/2004	6.3	162	60	54	123	124				
2590	2003601496	2060900	1004557	650	7/13/2004	5.9	150	54	63	123	124				
2591	2003601643	2060900	1004557	650	7/16/2004	6.7	166	69	83	123	126				
2592	2003601649	2060900	1004557	650	7/16/2004	6.2	157	63	84	126	128				
2593	2003601783	2060900	1004557	650	7/18/2004	6.8	164	49	78	127	127				
2594	2003601502	2060900	1004557	650	7/13/2004	6.3	154	50	69	128	137				
2595	2003588643	2061488	1004557	650	7/12/2004	6.5	159	53	55	129	137				
2596	2003601546	2060900	1004557	650	7/14/2004	6.4	167	65	75	129	127				
2597	2003601539	2060900	1004557	650	7/13/2004	5.9	149	59	79	131	140				
2598	2003601600	2060900	1004557	650	7/15/2004	7.4	159	81	134	132	138				
2599	2003617963	2061488	1004557	650	7/15/2004	6.7	162	65	69	139	125				
2600															
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1															
2534	HandUnit	ProdOrd	Product	STYLE	DOFFED	WEIGHT	THICK	TENSMA	TENSCR	ELONGM	ELONGC				
2535	2003601768	2060900	1004557	650	7/18/2004	6.6	164	55	74	116	122				
2536	2003618173	2061488	1004557	650	7/15/2004	7.1	173	72	72	122	122				
2537	2003601521	2060900	1004557	650	7/13/2004	6.8	167	81	87	103	108				
2538	2003601622	2060900	1004557	650	7/15/2004	7.2	170	84	97	130	128				
2539	2003601773	2060900	1004557	650	7/18/2004	7.0	166	68	90	123	113				
2540	2003617952	2061488	1004557	650	7/14/2004	6.6	161	62	69	134	129				
2541	2003601753	2060900	1004557	650	7/18/2004	6.9	172	68	73	133	122				
2542	2003601533	2060900	1004557	650	7/13/2004	6.7	155	65	84	119	123				
2543	2003601681	2060900	1004557	650	7/16/2004	6.9	162	59	86	124	124				
2544	2003601637	2060900	1004557	650	7/15/2004	6.7	160	67	97	125	125				
2545	2003588681	2061488	1004557	650	7/13/2004	6.3	156	56	67	110	112				
2546	2003601676	2060900	1004557	650	7/16/2004	7.2	168	61	103	119	128				
2547	2003588543	2061488	1004557	650	7/9/2004	7.0	167	82	124	111	130				
2548	2003588676	2061488	1004557	650	7/13/2004	7.0	165	78	91	118	116				
2549	2003601617	2060900	1004557	650	7/15/2004	7.1	172	72	98	113	120				
2550	2003588717	2061488	1004557	650	7/14/2004	6.5	158	63	79	123	111				
2551	2003601758	2060900	1004557	650	7/18/2004	7.2	169	67	93	126	123				
2552	2003601667	2060900	1004557	650	7/16/2004	6.1	161	63	101	111	117				
2553	2003601778	2060900	1004557	650	7/18/2004	6.4	161	58	68	128	138				
2554	2003588632	2061488	1004557	650	7/12/2004	6.7	169	62	74	130	113				
2555	2003601687	206900	1004557	650	7/17/2004	6.5	159	57	88	131					
2556	2003601662	2060900	1004557	650	7/16/2004	6.7	169	67	94	105	119				
2557	2003601707	2060900	1004557	650	7/17/2004	7.3	171	78	101	115	123				
2558	2003588671	2061488	1004557	650	7/13/2004	6.8	167	73	72	104	116				
2559	2003601672	2060900	1004557	650	7/16/2004	7.2	180	70	104	106	109				
2560	2003601736	2060900	1004557	650	7/18/2004	6.7	166	67	112	115	94				
2561	2003601740	2060900	1004557	650	7/18/2004	6.4	162	67	78	126	116				
2562	2003601699	2060900	1004557	650	7/17/2004	7.2	168	62	116	119	119				
2563	2003601693	2060900	1004557	650	7/17/2004	6.9	171	58	100	121	125				
2564	2003601748	2060900	1004557	650	7/18/2004	6.3	170	51	76	129	123				
2565	2003601731	2060900	1004557	650	7/17/2004	6.8	170	56	113	100	91				
2566	2003654710	2060900	1004557	650	7/20/2004	8.2	192	73	109	121	136				
2567	2003601744	2060900	1004557	650	7/18/2004	6.4	169	53	65	118	123				
2568	97130401	2060900	1004557	650	7/13/2004	7.2	158	77	166	112	91				
2569	2003588547	2061488	1004557	650	7/9/2004	6.1	150	66	70	99	119				
2570	2003588698	2061488	1004557	650	7/14/2004	6.4	158	62	78	91	119				
2571	2003601548	2060900	1004557	650	7/14/2004	6.9	177	74	97	109	111				
2572	2003618169	2061488	1004557	650	7/15/2004	6.7	167	54	69	111	118				
2573	2003588655	2061488	1004557	650	7/13/2004	6.1	159	55	70	111	121				
2574	2003601606	2060900	1004557	650	7/15/2004	7.2	177	67	92	111	119				
2575	2003654690	2060900	1004557	650	7/20/2004	7.0	179	67	71	112	110				
2576	2003588620	2061488	1004557	650	7/11/2004	6.5	160	54	55	112	119				
2577	2003601833	2060900	1004557	650	7/20/2004	7.2	176	71	88	115	124				
2578	2003601657	2060900	1004557	650	7/16/2004	7.7	178	72	98	115	133				
2579	2003588686	2061488	1004557	650	7/14/2004	6.7	161	61	74	115	119				

TECHNICAL DATA SHEET

ORIGIN INFORMATION

NON-WOVEN GEOTEXTILE

Manufacturer: **Colloid Environmental Technologies Co.**

PRODUCTION
FACILITY: **CETCO**
102 Conners Road
Villa Rica, GA 30180

CONTACT: Debbie Bivins 404-459-4995

BRAND NAME: Standard

NON-WOVEN GEOTEXTILE

MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191680, 191681, 191682
Ship Date:	27-Jul

CETCO hereby affirms and certifies that the Non-Woven geotextile in the BENTOMAT ST product for the above project has been manufactured to meet the following physical properties.

PROPERTY	TEST METHOD	MINIMUM VALUE
Mass / Area	ASTM D-5261	6.0 oz/sqyd (Min.)
Grab Strength	ASTM D-4632	6.0 Lbs MARV (MD)

Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

GEOSYNTHETIC CLAY LINER
QUALITY TEST RESULTS

COLLOID ENVIRONMENTAL TECH. CO.
GEOTEXTILE QC DATA

LOVELL AMERICAN COLLOID
PO BOX 428
LOVELL, WY. 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER: 000191681

Material	Lot #	Roll #	Geotextile Mass/Area 6.0 oz/sy marv ASTM D 5261	Grab Strength 6.0 lbs. marv ASTM D 4632
LO-N/W-WHITE-ST	072604NWA		6.1	65.8
LO-N/W-WHITE-ST	072604NWB		6.5	69.8
LO-N/W-WHITE-ST	072604NWC		6.2	72.5
LO-N/W-WHITE-ST	072604NWD		6.3	77.8
LO-N/W-WHITE-ST	072604NWE		6.5	98.5
LO-N/W-WHITE-ST	072604NWF		6.6	78.9
LO-N/W-WHITE-ST	072604NWG		6.2	76.5
LO-N/W-WHITE-ST	072604NWH		6.3	77.9
LO-N/W-WHITE-ST	072604NWI		6.8	86.5
LO-N/W-WHITE-ST	072604NWJ		6.2	88.5
LO-N/W-WHITE-ST	072604NWK		6.8	75.2
LO-N/W-WHITE-ST	072604NWL		6.1	69.8
LO-N/W-WHITE-ST	072604NWM		6.6	92.6
LO-N/W-WHITE-ST	200430VR		6.4	108.1
LO-N/W-WHITE-ST	2003548739		6.5	82.1

GEOSYNTHETIC CLAY LINER

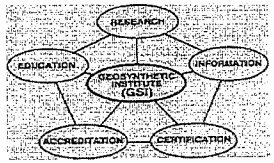
MANUFACTURING CERTIFICATION

Project Name:	Sherco Generating Plant
Prepared For:	Geo-Synthetics, Inc.
Customer PO:	9656-00
Order Number:	191680, 191681, 191682
Ship Date:	27-Jul

CETCO hereby affirms and certifies that the **BENTOMAT ST** material supplied to this project will meet the physical and chemical criteria listed below.

PROPERTY	TEST METHOD	MINIMUM VALUE
Peel Strength	ASTM D 4632 (Modified)	15 lbs
Bentonite Free Swell	ASTM D 5890	24 mL / 2g MIN.
Bentonite Fluid Loss	ASTM D 5891	18.0 mL (MAX)
Bentonite Mass / Area	ASTM D 5993	* 1.0 lb/sq.ft. (Min.) @ 0.0% Moisture
Grab Strength	ASTM D 4632	90 lbs.
Permeability	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)
Index Flux	ASTM D 5887	5 x 10 (-9) cm/sec. (Max)

*** Reported at 0 % moisture content.**
GAI Lab Accredited Test Methods were followed during conformance testing for:
ASTM D 4632 - Grab Strength and Grab Elongation.
ASTM D 5993 - Bentonite Mass/Area.



Shem McArthur
Production Coordinator
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

OC#FT2
7/28/04 OC#FT2
9:58:47

CETCO
GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL NY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000191680

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 1.0 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	20043110	00007540	.82	220.70	38.50
LO-BENTOMAT ST	20043110	00007539	.83	220.70	38.50
LO-BENTOMAT ST	20043110	00007496	.83	239.70	44.10
LO-BENTOMAT ST	20043110	00007495	.83	239.70	44.10
LO-BENTOMAT ST	20043110	00007494	.83	239.70	44.10
LO-BENTOMAT ST	20043110	00007485	.82	239.70	43.20
LO-BENTOMAT ST	20043110	00007484	.82	239.70	43.20
LO-BENTOMAT ST	20043110	00007483	.82	239.70	43.20
LO-BENTOMAT ST	20043110	00007482	.82	239.70	43.20
LO-BENTOMAT ST	20043110	00007471	.82	239.70	43.20
LO-BENTOMAT ST	20043110	00007470	.82*	239.70	43.20*
LO-BENTOMAT ST	20043110	00007464	.82	239.70	48.40

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 40,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/28/04 9:56:07

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000191682

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200431LO	00007541	.82	220.70	38.50
LO-BENTOMAT ST	200431LO	00007480	.82	239.70	43.20
LO-BENTOMAT ST	200431LO	00007479	.82	239.70	43.20
LO-BENTOMAT ST	200431LO	00007450	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007449	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007448	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007436	.90*	236.80	45.10*
LO-BENTOMAT ST	200431LO	00007435	.88	236.80	59.60
LO-BENTOMAT ST	200431LO	00007414	.86	236.80	49.40
LO-BENTOMAT ST	200431LO	00007413	.86	236.80	49.40
LO-BENTOMAT ST	200431LO	00007409	.86	236.80	49.40
LO-BENTOMAT ST	200431LO	00007408	.86	236.80	49.40
LO-BENTOMAT ST	200431LO	00007407	.86	236.80	49.40
LO-BENTOMAT ST	200430LO	00006963	.86	226.00	31.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCG#FT2 QCT#FT2
7/28/04 9:57:22

CETCO

GCL QUALITY DATA

CETCO LOVELL PLANT
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GEN
BECKER

O R D E R # 000191681

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA .75 lbs ASTM D 5993	GRAB STRENGTH 90 lbs MOD ASTM D 4632	PEEL STRENGTH 15 lbs MOD ASTM D 4632
LO-BENTOMAT ST	200431LO	00007455	.82	239.70	48.40
LO-BENTOMAT ST	200431LO	00007454	.82	239.70	48.40
LO-BENTOMAT ST	200431LO	00007453	.82*	239.70*	48.40*
LO-BENTOMAT ST	200431LO	00007452	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007446	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007445	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007444	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007443	.90	236.80	45.10
LO-BENTOMAT ST	200431LO	00007433	.88	236.80	59.60
LO-BENTOMAT ST	200431LO	00007432	.88	236.80	59.60
LO-BENTOMAT ST	200431LO	00007431	.88	236.80	59.60
LO-BENTOMAT ST	200430LO	00007066	.85	249.10	39.30
LO-BENTOMAT ST	200430LO	00007024	.97	249.10	39.70
LO-BENTOMAT ST	200430LO	00006919	.93	202.30	45.80

NOTE:
An asterisk indicates the actual test done on the roll and the roll tested.
If an asterisk is not present, test results are based on the previous roll tested.
Bentonite Mass/Area and Moisture content are tested a minimum of every 40,000sf.
Bentonite Mass/Area is reported at 0% moisture content.
Grab Strength is tested a minimum of every 200,000sf.
Peel Strength is tested a minimum of every 40,000sf.
All tensile testing is in the machine direction

*** End of Report ***

QCC#TF1 QCT#TF1 CETCO PAGE: 1
7/28/04 9:58:47 GCL MQA/MQC TRACKING FORM

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000191680

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200431LO									
00007464	LO-BENTOMAT ST	150	2250	2368	072604NWE		2003514794		072204G
00007470	LO-BENTOMAT ST	150	2250	2353	072604NWE		2003514794		072204G
00007471	LO-BENTOMAT ST	150	2250	2395	072604NWF		2003514794		072204G
00007472	LO-BENTOMAT ST	150	2250	2286	072604NWF		2003514794		072204G
00007481	LO-BENTOMAT ST	150	2250	2463	072604NWG		2003492868		072204G
00007482	LO-BENTOMAT ST	150	2250	2325	072604NWG		2003492868		072204G
00007483	LO-BENTOMAT ST	150	2250	2314	072604NWG		2003492868		072204G
00007484	LO-BENTOMAT ST	150	2250	2403	072604NWG		2003492868		072204G
00007485	LO-BENTOMAT ST	150	2250	2310	072604NWG		2003492868		072204G
00007494	LO-BENTOMAT ST	150	2250	2351	072604NWH		2003492868		072204G
00007495	LO-BENTOMAT ST	150	2250	2411	072604NWH		2003492868		072204G
00007496	LO-BENTOMAT ST	150	2250	2376	072604NWH		2003492868		072204G
00007539	LO-BENTOMAT ST	150	2250	2462	072604NWM		2003514795		072204H
00007540	LO-BENTOMAT ST	150	2250	2429	072604NWM		2003514795		072204H

TOTAL SQUARE FEET..... 31,500

TOTAL PAGES 1

GEOSYNTHETIC CLAY LINER
MQA TRACKING FORMS

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000191682

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006963	LO-BENTOMAT ST	150	2250	2751	2003601560		2003590920		071704A
LOT# 200431LO									
00007407	LO-BENTOMAT ST	150	2250	2352	200430VR	00002523	2003486142		072204E
00007408	LO-BENTOMAT ST	150	2250	2350	200430VR	00002523	2003486142		072204E
00007409	LO-BENTOMAT ST	150	2250	2437	2003588601		2003486142		072204E
00007413	LO-BENTOMAT ST	150	2250	2441	2003588601		2003486142		072204F
00007414	LO-BENTOMAT ST	150	2250	2404	2003588601		2003486142		072204F
00007435	LO-BENTOMAT ST	150	2250	2357	072604NWB		2003486142		072204F
00007436	LO-BENTOMAT ST	150	2250	2449	072604NWB		2003486142		072204F
00007448	LO-BENTOMAT ST	150	2250	2325	072604NWC		2003514794		072204F
00007449	LO-BENTOMAT ST	150	2250	2330	072604NWC		2003514794		072204F
00007450	LO-BENTOMAT ST	150	2250	2337	072604NWC		2003514794		072204F
00007479	LO-BENTOMAT ST	150	2250	2386	072604NWF		2003514794		072204G
00007480	LO-BENTOMAT ST	150	2250	2399	072604NWG		2003492868		072204G
00007541	LO-BENTOMAT ST	150	2250	2433	072604NWM		2003514795		072204H

TOTAL SQUARE FEET..... 31,500

TOTAL PAGES 1

CETCO
P.O. BOX 428
LOVELL WY 82431

SHIP TO: GSI
SHERCO GENERATING PLANT
BECKER MN

ORDER NUMBER 000191681

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOTEXTILE TOP LOT#	GEOTEXTILE TOP ROLL#	GEOTEXTILE BOTTOM LOT#	GEOTEXTILE BOTTOM ROLL#	CLAY LOT#
LOT# 200430LO									
00006919	LO-BENTOMAT ST	150	2250	2700	2003617961		2003548737		071604D
00007024	LO-BENTOMAT ST	150	2250	2781	2003548739		2003531546		071904B
00007066	LO-BENTOMAT ST	150	2250	2720	2003601552		072204W1		071904C
LOT# 200431LO									
00007431	LO-BENTOMAT ST	150	2250	2353	072604NWA		2003486142		072204F
00007432	LO-BENTOMAT ST	150	2250	2399	072604NWA		2003486142		072204F
00007433	LO-BENTOMAT ST	150	2250	2419	072604NWA		2003486142		072204F
00007443	LO-BENTOMAT ST	150	2250	2310	072604NWB		2003486142		072204F
00007444	LO-BENTOMAT ST	150	2250	2379	072604NWC		2003514794		072204F
00007445	LO-BENTOMAT ST	150	2250	2334	072604NWC		2003514794		072204F
00007446	LO-BENTOMAT ST	150	2250	2336	072604NWC		2003514794		072204F
00007452	LO-BENTOMAT ST	150	2250	2362	072604NWC		2003514794		072204F
00007453	LO-BENTOMAT ST	150	2250	2390	072604NWC		2003514794		072204F
00007454	LO-BENTOMAT ST	150	2250	2398	072604NWD		2003514794		072204F
00007455	LO-BENTOMAT ST	150	2250	2367	072604NWD		2003514794		072204F

TOTAL SQUARE FEET..... 31,500

TOTAL PAGES 1

Subgrade Acceptance Forms

Certificate of Acceptance of ~~Geomembrane~~ GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address:

Authorized Representative: Bounyoung

Project:

Location: Becker, MN
Project: Sherco Pond 3N Construction
Area Accepted: North & East

Owner: Xcel Energy

Description of Area to Be Certified P1-P10

Certification

The undersigned, Bounyoug, certifies that he/she is a representative of GSI (Company), duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 5/27/04 (Date) and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI (Company) makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 5/27/04

Signature: [signature]
Name: Bounyoug
Title:

Certificate Received by Contractor:

Date: 5-27-04
Company: AMES
Signature: Curtis A. Rudolph Jr.
Name: Curtis A. Rudolph Jr.
Title: Supt

Certificate Received by Owner: Representative

Date: 5/27/04
Company: McCain
Signature: [signature]
Name: James C. Berkas
Title: Inspector

Certificate of Acceptance of Geomembrane GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: _____
_____
Authorized Representative: Bounyong

Project:

Location: Becker, MN
Project: Sherco Pond 3N Construction
Area Accepted: North
Owner: Xcel Energy

Description of Area to Be Certified ~~P10 - P35 - TOB~~ P11 - P35

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI (Company), duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 5/28/04 (Date) and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI (Company) makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 5/28/04

Signature: Bounyong-C
Name: Bounyong-C
Title: Site Superintendent

Certificate Received by Contractor:

Date: 5-28-04
Company: AMES
Signature: Curtis A. Rudolph Jr.
Name: Curtis A. Rudolph Jr.
Title: Supt

Certificate Received by Owner: Representative

Date: 5/28/04
Company: McCain
Signature: JCB
Name: James C. Bericas
Title: Inspector

Certificate of Acceptance of ~~Geomembrane~~ GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: _____
_____
Authorized Representative: Bounyong

Project:

Location: Becker, MN
Project: SHERCO POND 3N CONSTRUCTION
Area Accepted: NE CELL FLOOR
Owner: Xcel Energy

Description of Area to Be Certified P36 - P43

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI (Company), duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/2/04 (Date) and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI (Company) makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6/2/04

Signature: [signature]
Name: Bounyong, Chanthavirthy
Title: _____

Certificate Received by Contractor:

Date: 6-2-04
Company: AMES
Signature: Curtis A. Rudolph Jr.
Name: Curtis A. Rudolph Jr.
Title: Supt.

Certificate Received by Owner: Representative

Date: 6/2/04
Company: McCain
Signature: [signature]
Name: James C. Berkas
Title: 6/2/04

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: NE Quadrant

Owner: XCEL Energy

Description of Area to Be Certified P-44 through 61

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/3/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6-5-04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-3-04
Company: Ames
Signature: Curtis A. Rudolph Sr.
Name: Curtis A. Rudolph Sr.
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6/4/04
Company: McCain and Associates
Signature: [signature]
Name: ISAAC J. FUHR
Title: Inspector

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: NE Quadrant

Owner: XCEL Energy

Description of Area to Be Certified P-62 through 69

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/4/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6/4/04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-4-04
Company: Ames
Signature: [signature]
Name: [illegible]
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6/4/04
Company: McCain and Associates
Signature: [signature]
Name: ISAAC S. FLATS
Title: INSPECTOR

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: NE Quadrant

Owner: XCEL Energy

Description of Area to Be Certified P-70 thru P-78

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/7-8 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6/8/04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-8-04
Company: Ames
Signature: [signature]
Name: Curtis A. Rudolph Jr.
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6-8-04
Company: McCain and Associates
Signature: [signature]
Name: Nick Brown
Title: Inspector

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: NE Quadrant

Owner: XCEL Energy

Description of Area to Be Certified NE Quadrant from S. edge of P-77 and 78 to 100' South

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/10/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6-10-04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-10-04
Company: Ames
Signature: Curtis A. Rudolph Jr.
Name: Curtis A. Rudolph Jr.
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6/11/04
Company: McCain and Associates
Signature: Isaac J Fuhr
Name: ISAAC J. FUHR
Title:

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: NE + SE Quadrants

Owner: XCEL Energy

Description of Area to Be Certified 1) ON E. sideslope from P-101 to P-114
2) ON Pond Floor, remainder of NE quadrant

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/16/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6/16/04

Signature: Bounyong C
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-16-04
Company: Ames
Signature: Curtis A. Rudolph Jr.
Name: Curtis A. Rudolph Jr.
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6/16/04
Company: McCain and Associates
Signature: Isaac J. Fuhr
Name: Isaac J. Fuhr
Title: Inspector

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: SE Quad.

Owner: XCEL Energy

Description of Area to Be Certified N. half of SE Quadrant pond floor and Remainder of E. slope.

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/21/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 6/21/04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 6-21-04
Company: Ames
Signature: [signature]
Name: Curtis A. Rudolph Jr.
Title: Supt.

Certificate Received by Owner's Representative:

Date: 6/21/04
Company: McCain and Associates
Signature: [signature]
Name: [illegible]
Title: INSP.

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: _____

Owner: XCEL Energy

Description of Area to Be Certified SE Quadrant - Remainder of Floor and Slopes.

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 6/30/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 7/1/04

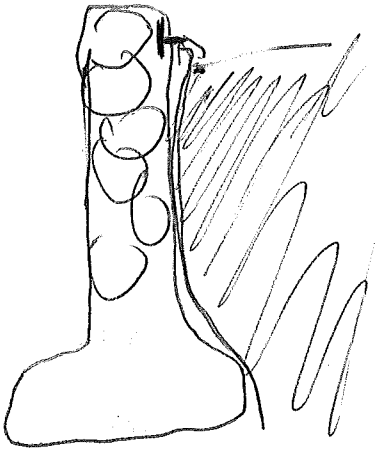
Signature: B Chanthaviroun
Name: Bounyong Chanthaviroun
Title: Superintendent

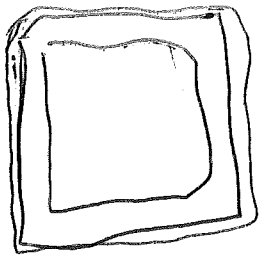
Certificate Received by Contractor:

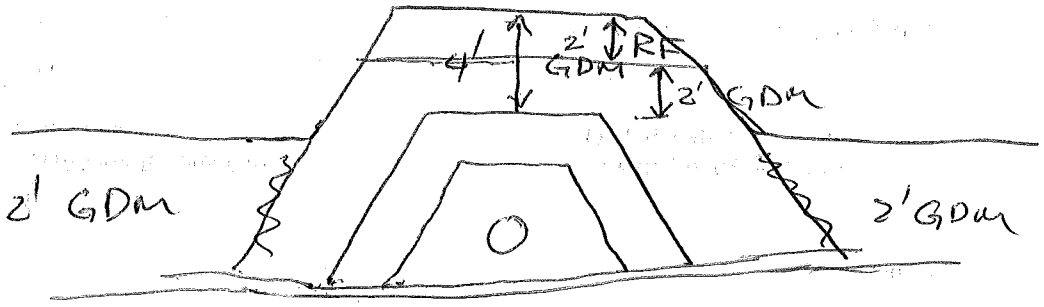
Date: _____
Company: Ames
Signature: _____
Name: _____
Title: _____

Certificate Received by Owner's Representative:

Date: _____
Company: McCain and Associates
Signature: _____
Name: _____
Title: _____






4'
2'
RF
GDM
2'
GDM
2' GDM
3' GDM

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: SW Quadrant

Owner: XCEL Energy

Description of Area to Be Certified SW Quadrant, West of 944 contour of Pond floor, South of south dewatering pipe. Care to be taken on moist clay subgrade at west toe.

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 7/8/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 7/8/04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 7-8-04
Company: Ames
Signature: Paul Rasmussen
Name: Paul Rasmussen
Title: Laborer

Certificate Received by Owner's Representative:

Date: 7/8/04
Company: McCain and Associates
Signature: Isaac J Fuhr
Name: ISAAC J. FUHR
Title: Inspector

Mike's 952 · 472-4477
474-5933

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: west half of pond

Owner: XCEL Energy

Description of Area to Be Certified West halves of NW + SW quadrants

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 7/14/09 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 7/23/09

Signature: B. Gs. C
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 7-23-09
Company: Ames
Signature: Curtis A. Rudolph Jr.
Name: AMES
Title: Supt.

Certificate Received by Owner's Representative:

Date: 7/23/09
Company: McCain and Associates
Signature: Isaac J. Fuhr
Name: ISAAC J. FUHR
Title: Inspector

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: West half of Pond

Owner: XCEL Energy

Description of Area to Be Certified East half of NW quadrant and NE quarter of SW quadrant.

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 7/23/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 7/23/04

Signature: [signature]
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 7-23-04
Company: Ames
Signature: [signature]
Name: AMES.
Title: Supt

Certificate Received by Owner's Representative:

Date: 7/23/04
Company: McCain and Associates
Signature: [signature]
Name: ISAAC J. FUHR
Title: Inspector

Certificate of Acceptance of GCL Subgrade Surface by Installer

Installer:

Name: GSI
Address: W239 N428 Pewaukee Rd
Waukesha, WI 53188
Authorized Representative: Bounyong Chanthaviroun

Project:

Location: Becker, MN
Project: Sherco Pond 3N
Area Accepted: SW quadrant

Owner: XCEL Energy

Description of Area to Be Certified Remainder of SW quadrant

Certification

The undersigned, Bounyong, certifies that he/she is a representative of GSI duly authorized to execute this certificate, that he/she visually inspected the subgrade surface described above on 8/3/04 and found the surface to be acceptable for installation of the geosynthetic clay liner.

This certification is based on observations of the surface of the subgrade only. No subsurface inspections or tests have been performed and GSI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

Date: 8/3/04

Signature:
Name: Bounyong Chanthaviroun
Title: Superintendent

Certificate Received by Contractor:

Date: 8-4-04
Company: Ames
Signature:
Name: Curtis C. Ruehlow
Title: Supt

Certificate Received by Owner's Representative:

Date: 8/4/04
Company: McCain and Associates
Signature:
Name: ISAAC J. FUHR
Title: Inspector

Warranty

RECEIVED DEC 0 8 2004

File 440245, 1100
P.O. M 61089-10
C:-60 Certs

LETTER OF TRANSMITTAL

GEO-SYNTHETICS, INC.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979 800-444-5523 FAX (262) 524-7961
www.geo-synthetics.com

DATE: 11/19/14	JOB NO.: 24016
ATTENTION: Kevin Klimmek	
RE: Sherburne County Generating Plant	
GCL Warranties	

TO: Ames Construction, Inc.
2000 Ames Drive
Burnsville, MN 55306
Phone (952) 435-7106
Fax (952) 435-0913

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Proposal ☒ Submittals ☐ Change order ☒ _____

NO.	DATE	COPIES	DESCRIPTION
1	11/19/04	1	Bentomat ST Warranty
2	11/19/04	1	Bentomat DN Warranty
3	11/19/04	1	Claymax 200R Warranty

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____, 20_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS:

COPY TO: _____ SIGNED: Thomas Heasley

If enclosures are not as noted, kindly notify us at once.

CETCO

CETCO BENTOMAT® DN LIMITED WARRANTY

Project Name:	Excel Energy- Sherburne County
Location:	Becker, MN
Installing Contractor:	GSI
Certificate Number:	031148
Effective Date:	7/28/04

LIMITED WARRANTY. Subject to the terms and conditions set forth below, Colloid Environmental Technologies Company ("CETCO") warrants to the owner of the construction project identified above (Excel Energy- Sherburne County) that the Bentomat® geosynthetic clay liner product supplied by CETCO (Bentomat DN) will at the time of delivery by CETCO be free from defects in material.

CLAIMS. The foregoing warranty shall remain in effect for a period of five (5) years from the "Effective Date" specified above. During the Warranty Period, CETCO will replace or, at its option refund the purchase price for, any Products failing to meet the foregoing warranty. Any claim by Owner for any claimed defect hereunder for any cause shall be deemed waived by Owner unless submitted to CETCO in writing within thirty (30) days from the date Owner discovers, or should have discovered any claimed breach.

EXCLUSIONS. CETCO shall have no liability for breach of the warranty caused by (A) accident, neglect, abuse or mishandling of the Product, including failure of Owner to use reasonable care in maintaining the Product, or (B) natural occurrences and acts of God, including without limitation, earthquakes, floods, piecing hail, tornadoes or explosions.

LIMITATIONS. THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CETCO does not authorize any person, including its representatives, to make any representations or warranty, condition or guaranty other than this warranty. Without limitation to the foregoing, any warranty concerning workmanship or non-CETCO materials provided by the installing contractor of the Product or any other subsequent contractor performing work on or to the Product is enforceable against such contractor, and is not provided by, and is not enforceable against, CETCO.

UNDER NO CIRCUMSTANCES SHALL CETCO BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES OR EXPENSES, WHETHER ARISING DIRECTLY OR INDIRECTLY FROM THE FAILURE OF ANY PRODUCT TO PERFORM AS WARRANTED OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER SUCH CLAIM IS BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER LEGAL THEORY. **CETCO's LIABILITY HEREUNDER SHALL IN ANY CASE BE LIMITED TO THE COST OF REPLACEMENT (IN THE FORM ORIGINALLY SHIPPED) OF DEFECTIVE PRODUCTS, OR, AT CETCO'S ELECTION, THE REPAYMENT OR OR CREDITING TO OWNER OF AN AMOUNT EQUAL TO THE PURCHASE PRICE OF SUCH PRODUCTS.** The foregoing states the sole and exclusive liability of CETCO and the sole and exclusive remedy of Owner.

MISCELLANEOUS. CETCO's failure at any time to enforce or rely upon any of the terms of conditions stated herein should not be construed to be a waiver of its rights hereunder. This warranty may not be assigned without the prior written approval of CETCO. This warranty shall be interpreted in accordance with the internal laws of the State of Illinois, without regard to the provisions concerning the conflicts of laws.

CETCO

CETCO

CETCO CLAYMAX® 200R LIMITED WARRANTY

Project Name:	Excel Energy- Sherburne County
Location:	Becker, MN
Installing Contractor:	GSI
Certificate Number:	031149
Effective Date:	7/28/04

LIMITED WARRANTY. Subject to the terms and conditions set forth below, Colloid Environmental Technologies Company ("CETCO") warrants to the owner of the construction project identified above (Excel Energy- Sherburne County) that the Claymax® geosynthetic clay liner product supplied by CETCO (Claymax 200R) will at the time of delivery by CETCO be free from defects in material.

CLAIMS. The foregoing warranty shall remain in effect for a period of five (5) years from the "Effective Date" specified above. During the Warranty Period, CETCO will replace or, at its option refund the purchase price for, any Products failing to meet the foregoing warranty. Any claim by Owner for any claimed defect hereunder for any cause shall be deemed waived by Owner unless submitted to CETCO in writing within thirty (30) days from the date Owner discovers, or should have discovered any claimed breach.

EXCLUSIONS. CETCO shall have no liability for breach of the warranty caused by (A) accident, neglect, abuse or mishandling of the Product, including failure of Owner to use reasonable care in maintaining the Product; or (B) natural occurrences and acts of God, including without limitation, earthquakes, floods, piecing hail, tornadoes or explosions.

LIMITATIONS. THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CETCO does not authorize any person, including its representatives, to make any representations or warranty, condition or guaranty other than this warranty. Without limitation to the foregoing, any warranty concerning workmanship or non-CETCO materials provided by the installing contractor of the Product or any other subsequent contractor performing work on or to the Product is enforceable against such contractor, and is not provided by, and is not enforceable against, CETCO.

UNDER NO CIRCUMSTANCES SHALL CETCO BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES OR EXPENSES, WHETHER ARISING DIRECTLY OR INDIRECTLY FROM THE FAILURE OF ANY PRODUCT TO PERFORM AS WARRANTED OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER SUCH CLAIM IS BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER LEGAL THEORY. CETCO's LIABILITY HEREUNDER SHALL IN ANY CASE BE LIMITED TO THE COST OF REPLACEMENT (IN THE FORM ORIGINALLY SHIPPED) OF DEFECTIVE PRODUCTS, OR, AT CETCO'S ELECTION, THE REPAYMENT OF OR CREDITING TO OWNER OF AN AMOUNT EQUAL TO THE PURCHASE PRICE OF SUCH PRODUCTS. The foregoing states the sole and exclusive liability of CETCO and the sole and exclusive remedy of Owner.

MISCELLANEOUS. CETCO's failure at any time to enforce or rely upon any of the terms of conditions stated herein should not be construed to be a waiver of its rights hereunder. This warranty may not be assigned without the prior written approval of CETCO. This warranty shall be interpreted in accordance with the internal laws of the State of Illinois, without regard to the provisions concerning the conflicts of laws.

CETCO

CETCO

CETCO BENTOMAT® ST LIMITED WARRANTY

Project Name:	Excel Energy- Sherburne County
Location:	Becker, MN
Installing Contractor:	GSI
Certificate Number:	031161
Effective Date:	7/28/04

LIMITED WARRANTY. Subject to the terms and conditions set forth below, Colloid Environmental Technologies Company ("CETCO") warrants to the owner of the construction project identified above (Excel Energy- Sherburne County) that the Bentomat® geosynthetic clay liner product supplied by CETCO (Bentomat ST) will at the time of delivery by CETCO be free from defects in material.

CLAIMS. The foregoing warranty shall remain in effect for a period of five (5) years from the "Effective Date" specified above. During the Warranty Period, CETCO will replace or, at its option refund the purchase price for, any Products failing to meet the foregoing warranty. Any claim by Owner for any claimed defect hereunder for any cause shall be deemed waived by Owner unless submitted to CETCO in writing within thirty (30) days from the date Owner discovers, or should have discovered any claimed breach.

EXCLUSIONS. CETCO shall have no liability for breach of the warranty caused by (A) accident, neglect, abuse or mishandling of the Product, including failure of Owner to use reasonable care in maintaining the Product, or (B) natural occurrences and acts of God, including without limitation, earthquakes, floods, piecing hail, tornadoes or explosions.

LIMITATIONS. THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CETCO does not authorize any person, including its representatives, to make any representations or warranty, condition or guaranty other than this warranty. Without limitation to the foregoing, any warranty concerning workmanship or non-CETCO materials provided by the installing contractor of the Product or any other subsequent contractor performing work on or to the Product is enforceable against such contractor, and is not provided by, and is not enforceable against, CETCO.

UNDER NO CIRCUMSTANCES SHALL CETCO BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, OR EXPENSES, WHETHER ARISING DIRECTLY OR INDIRECTLY FROM THE FAILURE OF ANY PRODUCT TO PERFORM AS WARRANTED OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER SUCH CLAIM IS BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER LEGAL THEORY. **CETCO's LIABILITY HEREUNDER SHALL IN ANY CASE BE LIMITED TO THE COST OF REPLACEMENT (IN THE FORM ORIGINALLY SHIPPED) OF DEFECTIVE PRODUCTS, OR, AT CETCO'S ELECTION, THE REPAYMENT OF OR CREDITING TO OWNER OF AN AMOUNT EQUAL TO THE PURCHASE PRICE OF SUCH PRODUCTS.** The foregoing states the sole and exclusive liability of CETCO and the sole and exclusive remedy of Owner.

MISCELLANEOUS. CETCO's failure at any time to enforce or rely upon any of the terms of conditions stated herein should not be construed to be a waiver of its rights hereunder. This warranty may not be assigned without the prior written approval of CETCO. This warranty shall be interpreted in accordance with the internal laws of the State of Illinois, without regard to the provisions concerning the conflicts of laws.

CETCO

RECEIVED DEC 09 2004

GEO-SYNTHETICS, INC.
W239 N428 Pewaukee Road
Waukesha, WI 53188
262-524-7979 800-444-5523 FAX (262) 524-7961
www.geo-synthetics.com

LETTER OF TRANSMITTAL

DATE: 11/30/04	JOB NO.: 24016
ATTENTION: Kevin Klimmek	
RE: Sherburne County Generating Plant	
GCL Installation Warranty	

TO: **Ames Construction, Inc.**
2000 Ames Drive
Burnsville, MN 55306
Phone (952) 435-7106
Fax (952) 435-0913

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Proposal ☒ Submittals ☐ Change order ☒ _____

NO.	DATE	COPIES	DESCRIPTION
1	11/30/04	2	GCL Installation Warranty - Clay Liner

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____, 20_____. ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS:
Pleas Sign and Return One Installation Warranty to GSI

COPY TO:

SIGNED: Thomas Heasley

If enclosures are not as noted, kindly notify us at once.

RECEIVED DEC 0 9 2004

GEO-SYNTHETICS, INC.

5 YEAR INSTALLATION WARRANTY FOR GEO-SYNTHETICS, INC. GEOSYNTHETIC CLAY LINER

PROJECT:

SHERBURNE COUNTY GENERATING PLANT

BECKER, MINNESOTA

Subject to the terms and conditions set forth below, Geo-Synthetics, Inc., warrants to Purchaser, EXCEL ENERGY, the GEOSYNTHETIC clay Liner installed at the Sherburne County Generating Plant in Becker, Minnesota, was installed by Geo-Synthetics, Inc., in accordance with specifications in a good and workmanlike manner and that the installation of the liner is free from defects in workmanship for a period of 5 year from the date upon which the material was installed.

This warranty covers only defects in workmanship occurring during the installation of the liner. This warranty does not cover any damage to, or defects in the liner found to have been a result of misuse, abuse or conditions existing after it was installed, including, but not limited to, rough handling; malicious mischief; vandalism; sabotage; fire; acts of God; acts of the public enemy; acts of war, public rebellion, severe weather conditions of all types; damage due to ice; excessive stress from any source; floating debris; damage due to machinery; foreign objects or animals. Nor does this warranty cover any defects which are found to have been a result of improper of defective design or engineering unless the design or engineering was performed by Geo-Synthetics, Inc.

In the event circumstances are found to exist which purchaser believes may give rise to a claim under this warranty, the following procedure shall be followed.

a) Purchaser shall give Geo-Synthetics, Inc. written notice of the facts and circumstances of said claim within ten (10) days of becoming aware of said facts and circumstances.

   Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Construction Manager, Geo-Synthetics, Inc., W239 N428 N. Pewaukee Road, Waukesha, WI 53188. The words "WARRANTY CLAIM" shall be clearly marked on the face of envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the name and address of the installer, the date upon which the material was purchased and the facts known to Purchaser upon which the claim is based. Failure to strictly comply with all the requirements of this paragraph shall void this warranty.

b) Within twenty days after receipt of the notice described in paragraph a., above, Geo-Synthetics, Inc. shall notify Purchaser either that it will send a representative to inspect the allegedly defective liner or that it does not wish to do so. Purchaser shall pay the expenses incurred by Geo-Synthetics, Inc. in

making the inspection, including current per diem rates for personnel involved in making the inspection, in the event Geo-Synthetics, Inc. determines that the claim is not covered by this warranty.

c) Purchaser SHALL NOT REPAIR, REPLACE, REMOVE, ALTER OR DISTURB ANY LINER, NOR SHALL Purchaser ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER PRIOR TO SUCH INSPECTION OR RECEIPT OF GEO-SYNTHETICS INC.'S NOTICE THAT IT ELECTS NOT TO INSPECT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THIS WARRANTY OR MAY LEAD TO A DETERMINATION THAT THE ALLEGED DEFECTS ARE NOT WITHIN THE SCOPE OF THIS WARRANTY.

d) If Geo-Synthetics, Inc. determines that the alleged defects are covered by this warranty, Geo-Synthetics, Inc. shall, in its sole discretion, either repair the defective liner or provide Purchaser with replacement liner. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY. Any determination as to whether a particular defect is covered by this warranty will be made by Geo-Synthetics, Inc. in its sole and complete discretion.

e) Purchaser agrees that it shall provide Geo-Synthetics, Inc. with clean, dry and unobstructed access to the liner in order for Geo-Synthetics, Inc. to perform the inspections and warranty work which may be required pursuant to this warranty.

THE REMEDIES PROVIDED TO Purchaser HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF Purchaser. NEITHER THIS WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE. GEO-SYNTHETICS, INC. SHALL HAVE NO LIABILITY UNDER THIS WARRANTY TO THIRD PARTIES OR STRANGERS TO THIS AGREEMENT. THE WARRANTY SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL GEO-SYNTHETICS, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, ANY LOSS RESULTING FROM THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN IT ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, Purchaser SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS
GEO-SYNTHETICS, INC. DETERMINES IN ITS SOLE DISCRETION, TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN. EXCEPT FOR THE WARRANTY SET FORTH ABOVE, NO REPRESENTATION OR WARRANTY MADE BY ANY SALES OR OTHER REPRESENTATIVE GEO-SYNTHETICS, INC., OR ANY OTHER PERSON, CONCERNING THE LINER SHALL BE BINDING UPON GEO-SYNTHETICS, INC.

Any waiver of the terms and conditions of this warranty shall be in writing signed by GEO-SYNTHETICS, INC. the failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions or this warranty and shall not operate as a waiver as to any of the terms and conditions of this warranty as to future claims under this warranty.

GEO-SYNTHETICS INC

BY: _____
Robert Grob / President

I have read and agree to be bound by the terms and conditions of the foregoing warranty.

By: _____

Title: _____

Company: _____

Date: _____

Appendix L

Manufacturer's Textured Geomembrane Certifications

SOLMAX INTERNATIONAL

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
41674	Solmax 460T	MM188937	520	22	28/February/2004
41677	Solmax 460T	MM188937	520	22	28/February/2004
41682	Solmax 460T	MM188938	520	22	29/February/2004
41683	Solmax 460T	MM188938	520	22	29/February/2004
41684	Solmax 460T	MM188938	520	22	29/February/2004
41685	Solmax 460T	MM188938	520	22	29/February/2004
41686	Solmax 460T	MM188938	520	22	29/February/2004
41690	Solmax 460T	MM188938	520	22	29/February/2004
41711	Solmax 460T	MM188938	520	22	01/March/2004
41715	Solmax 460T	MM188938	520	22	01/March/2004
41716	Solmax 460T	MM188938	520	22	01/March/2004
41717	Solmax 460T	MM188938	520	22	01/March/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-0

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-3

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
41708	Solmax 460T	MM188938	520	22	01/March/2004
41712	Solmax 460T	MM188938	520	22	01/March/2004
41713	Solmax 460T	MM188938	520	22	01/March/2004
41714	Solmax 460T	MM188938	520	22	01/March/2004
41718	Solmax 460T	MM188938	520	22	01/March/2004
41719	Solmax 460T	MM188938	520	22	01/March/2004
41721	Solmax 460T	MM188938	520	22	02/March/2004
41722	Solmax 460T	MM188938	520	22	02/March/2004
41723	Solmax 460T	MM188938	520	22	02/March/2004
41724	Solmax 460T	MM188938	520	22	02/March/2004
41725	Solmax 460T	MM188938	520	22	02/March/2004
41726	Solmax 460T	MM188938	520	22	02/March/2004

* Roll dimensions may vary ± 1%

SOLMAX INTERNATIONAL

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-1

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
41709 ✓	Solmax 460T	MM188938	520	22	01/March/2004
1- 42987 ✓	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42990 ✓	Solmax 460T	MM188948	520	21.9	15/May/2004
1- 42997	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43002 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43007 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43008 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43010 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43011 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43012 ✓	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43015 ✓	Solmax 460T	MM188948	520	21.9	17/May/2004
1- 43016 ✓	Solmax 460T	MM188948	520	21.9	17/May/2004

1-42999 ✓

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-100

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
1- 42973	Solmax 460T	MM188947	520	22.1	14/May/2004
1- 42974	Solmax 460T	MM188947	520	22.1	14/May/2004
1- 42975	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42976	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42982	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42983	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42986	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42988	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42989	Solmax 460T	MM188948	520	21.9	15/May/2004
1- 42991	Solmax 460T	MM188948	520	21.9	15/May/2004
1- 42992	Solmax 460T	MM188948	520	21.9	15/May/2004
1- 42993	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 42994	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 42995	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 42999	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43001	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43003	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43004	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43006	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43009	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43013	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43014	Solmax 460T	MM188948	520	21.9	17/May/2004
1- 43021	Solmax 460T	MM188948	520	21.9	17/May/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-9

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
1- 42962	Solmax 460T	MM188947	520	22.1	14/May/2004
1- 42965	Solmax 460T	MM188947	520	22.1	14/May/2004
1- 42966	Solmax 460T	MM188947	520	22.1	14/May/2004
1- 42977	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42978	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42981	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42984	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42985	Solmax 460T	MM188947	520	21.9	15/May/2004
1- 42996	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 42998	Solmax 460T	MM188948	520	21.9	16/May/2004
1- 43017	Solmax 460T	MM188948	520	21.9	17/May/2004

* Roll dimensions may vary ± 1%

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-1

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188938	0.077	0.9385	>300	41679
MM188947	0.084	0.934	In-Progress	1-42939
MM188948	0.086	0.9387	In-Progress	1-42989

OK

ACB

4/27/04

** Complete results will follow when testing is done

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188937	0.080	0.9385	>300	41617
MM188938	0.077	0.9385	>300	41679

5/27/04

** Complete results will follow when testing is done

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Rolls

MF-CQ-08
Rev.: 00 / 10-10-0

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785

Product: Solmax 460T

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
5/24 41674	MD	60.3 / 57	0.944	2.51	Cat. 1 10 Views	174	17	222	605	56	156	-0.35	15.2 / 15.4
	XD				Cat. 2 0 Views	177	16	186	534	53		-0.01	
5/24 41677	MD	58.8 / 53	0.944	2.61	Cat. 1 10 Views	164	17	201	572	54	150	-0.32	15.8 / 16.2
	XD				Cat. 2 0 Views	172	16	190	578	52		0.06	
5/24 41682	MD	59.1 / 52	0.944	2.47	Cat. 1 10 Views	167	17	213	592	54	151	-0.23	16.6 / 17.6
	XD				Cat. 2 0 Views	175	16	183	538	51		0.08	
5/24 41683	MD	59.1 / 51	0.944	2.48	Cat. 1 10 Views	165	16	216	612	54	151	-0.23	16.5 / 17.2
	XD				Cat. 2 0 Views	170	16	186	543	51		0.08	
5/24 41684	MD	59.5 / 55	0.944	2.48	Cat. 1 10 Views	165	16	216	612	54	151	-0.23	17.1 / 16.6
	XD				Cat. 2 0 Views	170	16	186	543	51		0.08	
5/24 41685	MD	58.7 / 54	0.944	2.42	Cat. 1 10 Views	164	17	207	578	51	149	-0.05	17.5 / 17.4
	XD				Cat. 2 0 Views	171	16	186	554	54		-0.29	
5/24 41686	MD	59.2 / 56	0.944	2.42	Cat. 1 10 Views	164	17	207	578	51	149	-0.05	16.5 / 16.9
	XD				Cat. 2 0 Views	171	16	186	554	54		-0.29	
5/24 41690	MD	59.5 / 54	0.944	2.63	Cat. 1 10 Views	163	18	219	622	52	149	-0.05	17.2 / 17.3
	XD				Cat. 2 0 Views	174	16	187	554	50		-0.29	
5/24 41711	MD	59.5 / 54	0.944	2.49	Cat. 1 10 Views	169	17	194	512	50	153	0.29	16.8 / 16.7
	XD				Cat. 2 0 Views	170	15	200	594	52		0.35	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
41715	MD	58.5 / 52	0.944	2.48	Cat. 1 10 Views	168	16	193	459	56	151	-0.16	20.4 / 15.8
	XD				Cat. 2 0 Views	174	15	180	484	54		0.17	
41716	MD	59.1 / 53	0.944	2.48	Cat. 1 10 Views	168	16	193	459	56	151	-0.16	18.3 / 16.2
	XD				Cat. 2 0 Views	174	15	180	484	54		0.17	
41717	MD	59.5 / 54	0.944	2.45	Cat. 1 10 Views	171	17	230	635	56	151	-0.16	16.1 / 17
	XD				Cat. 2 0 Views	176	16	188	481	54		0.17	

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Rolls

MF-CQ-08
Rev.: 00 / 10-10-0

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

26-May-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-3

Product: Solmax 460T

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
5/28 41708	MD	59.6 / 54	0.944	2.64	Cat. 1 10 Views	166	17	224	614	56	151	-0.29	16.6 / 17
	XD				Cat. 2 0 Views	177	15	198	585	53		0	
5/28 41712	MD	59.7 / 54	0.944	2.49	Cat. 1 10 Views	169	17	194	512	56	153	0.29	16.7 / 16.6
	XD				Cat. 2 0 Views	170	15	200	594	53		0.35	
5/28 41713	MD	59.9 / 54	0.944	2.36	Cat. 1 10 Views	168	17	220	609	56	153	0.29	16.7 / 17.1
	XD				Cat. 2 0 Views	171	15	175	507	53		0.35	
5/28 41714	MD	59.5 / 54	0.944	2.36	Cat. 1 10 Views	168	17	220	609	56	153	0.29	16.4 / 16.5
	XD				Cat. 2 0 Views	171	15	175	507	53		0.35	
5/28 41718	MD	59.3 / 53	0.944	2.45	Cat. 1 10 Views	171	17	230	635	57	151	-0.16	14.8 / 17.5
	XD				Cat. 2 0 Views	176	16	188	481	53		0.17	
5/28 41719	MD	59 / 51	0.945	2.58	Cat. 1 10 Views	170	17	225	613	57	151	-0.16	14.8 / 15.9
	XD				Cat. 2 0 Views	178	15	208	607	53		0.17	
5/28 41721	MD	59.2 / 55	0.945	2.41	Cat. 1 10 Views	173	16	225	603	56	151	-0.24	16.6 / 17.6
	XD				Cat. 2 0 Views	176	15	172	456	53		0.17	
5/28 41722	MD	59.5 / 54	0.945	2.41	Cat. 1 10 Views	173	16	225	603	56	151	-0.24	18.1 / 16.9
	XD				Cat. 2 0 Views	176	15	172	456	53		0.17	
5/28 41723	MD	59 / 52	0.945	2.63	Cat. 1 10 Views	172	17	175	366	56	151	-0.24	18.5 / 17.5
	XD				Cat. 2 0 Views	180	15	169	436	53		0.17	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
5/20 41724	MD	59 / 54	0.945	2.63	Cat. 1 10 Views	172	17	175	366	57	151	-0.24	20.8 / 18.4
	XD				Cat. 2 0 Views	180	15	169	436	54		0.17	
5/20 41725	MD	59.1 / 55	0.945	2.54	Cat. 1 10 Views	174	16	199	497	57	151	-0.24	23.3 / 16.2
	XD				Cat. 2 0 Views	179	16	192	524	54		0.17	
5/20 41726	MD	59.3 / 54	0.945	2.54	Cat. 1 10 Views	174	16	199	497	57	151	-0.24	18.1 / 18.9
	XD				Cat. 2 0 Views	179	16	192	524	54		0.17	

Manufacturing Quality Control Test Results - Rolls

MF-CQ-08
Rev.: 00 / 10-10-0

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-1

Product: Solmax 460T

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
41709	MD	59.3 / 53	0.944	2.36	Cat. 1 10 Views	167	17	211	587	50	153	0.29	16.5 / 16.2
	XD				Cat. 2 0 Views	172	16	188	560	52		0.35	
1- 42987	MD	58.5 / 55	0.945	2.47	Cat. 1 10 Views	175	16	194	447	59	152	0.05	16.5 / 17.4
	XD				Cat. 2 0 Views	180	15	172	444	57		0.06	
1- 42990	MD	59.6 / 58	0.947	2.66	Cat. 1 10 Views	175	17	207	546	62	150	-0.14	16.5 / 16.8
	XD				Cat. 2 0 Views	180	15	179	497	59		0.15	
1- 42997	MD	59.8 / 56	0.945	2.31	Cat. 1 10 Views	173	16	192	484	58	149	-0.29	18.1 / 17.2
	XD				Cat. 2 0 Views	180	16	139	200	55		0.05	
1- 43002	MD	57.9 / 53	0.945	2.38	Cat. 1 10 Views	175	16	187	447	58	154	-0.08	18.4 / 17.3
	XD				Cat. 2 0 Views	184	15	157	366	54		0.04	
1- 43007	MD	57.8 / 54	0.945	2.42	Cat. 1 10 Views	177	16	177	339	60	153	-0.09	17 / 17.1
	XD				Cat. 2 0 Views	183	15	164	356	56		0.01	
1- 43008	MD	58.2 / 55	0.945	2.42	Cat. 1 10 Views	177	16	177	339	60	153	-0.09	18.2 / 17
	XD				Cat. 2 0 Views	183	15	164	356	56		0.01	
1- 43010	MD	59 / 57	0.945	2.44	Cat. 1 10 Views	176	16	189	414	59	153	-0.09	17.1 / 17.4
	XD				Cat. 2 0 Views	186	15	162	377	56		0.01	
1- 43011	MD	59.3 / 56	0.947	2.63	Cat. 1 10 Views	180	15	200	466	59	153	-0.09	16.6 / 15.1
	XD				Cat. 2 0 Views	178	15	179	357	56		0.01	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 43012	MD	59 / 57	0.947	2.63	Cat. 1 10 Views	180	15	200	466	59	153	-0.09	17 / 18.9
	XD				Cat. 2 0 Views	178	15	179	357	56		0.01	
1- 43015	MD	59.6 / 57	0.947	2.66	Cat. 1 10 Views	176	16	206	542	60	152	-0.19	16.5 / 17.1
	XD				Cat. 2 0 Views	182	16	166	400	57		0.04	
1- 43016	MD	59.7 / 56	0.947	2.66	Cat. 1 10 Views	176	16	206	542	58	152	-0.19	16 / 17.6
	XD				Cat. 2 0 Views	182	16	166	400	56		0.04	

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-100

Product: Solmax 460T

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 42973	MD	59.1 / 56	0.946	2.19	Cat. 1 10 Views	174	18	196	428	61	156	-0.33	20.7 / 17.8
	XD				Cat. 2 0 Views	179	16	171	360	57		0.17	
1- 42974	MD	59.2 / 56	0.946	2.38	Cat. 1 10 Views	169	18	190	469	61	156	-0.33	18.1 / 16.4
	XD				Cat. 2 0 Views	179	16	149	312	57		0.17	
1- 42975	MD	59.1 / 56	0.946	2.38	Cat. 1 10 Views	169	18	190	469	61	156	-0.33	17.5 / 17
	XD				Cat. 2 0 Views	179	16	149	312	57		0.17	
1- 42976	MD	59.3 / 56	0.946	2.82	Cat. 1 10 Views	166	17	189	453	59	152	-0.20	17.7 / 17.7
	XD				Cat. 2 0 Views	176	16	153	293	55		0.07	
1- 42982	MD	57.9 / 56	0.945	2.27	Cat. 1 10 Views	174	16	191	444	58	152	-0.20	17.9 / 17.9
	XD				Cat. 2 0 Views	181	15	151	237	55		0.07	
1- 42983	MD	58.4 / 53	0.944	2.42	Cat. 1 10 Views	173	16	174	359	60	152	0.05	17.9 / 18.4
	XD				Cat. 2 0 Views	179	15	152	317	56		0.06	
1- 42986	MD	57.8 / 56	0.945	2.64	Cat. 1 10 Views	172	17	173	352	59	152	0.05	17.6 / 16.5
	XD				Cat. 2 0 Views	182	15	162	307	57		0.06	
1- 42988	MD	59.5 / 58	0.945	2.47	Cat. 1 10 Views	175	16	194	447	59	152	0.05	18.4 / 17.3
	XD				Cat. 2 0 Views	180	15	172	444	57		0.06	
1- 42989	MD	59.9 / 56	0.947	2.66	Cat. 1 10 Views	175	17	207	546	62	150	-0.14	15.6 / 18.8
	XD				Cat. 2 0 Views	180	15	179	497	59		0.15	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 42991	MD	59.7 / 56	0.945	2.52	Cat. 1 10 Views	184	16	183	367	62	150	-0.14	16.8 / 17.8
	XD				Cat. 2 0 Views	184	15	149	263	59		0.15	
1- 42992	MD	60.1 / 57	0.945	2.52	Cat. 1 10 Views	184	16	183	367	59	150	-0.14	16.7 / 16.7
	XD				Cat. 2 0 Views	184	15	149	263	56		0.15	
1- 42993	MD	59.3 / 57	0.945	2.23	Cat. 1 10 Views	179	16	192	455	59	150	-0.14	16.6 / 16.9
	XD				Cat. 2 0 Views	189	15	201	546	56		0.15	
1- 42994	MD	59.9 / 58	0.945	2.23	Cat. 1 10 Views	179	16	192	455	59	150	-0.14	19.6 / 19.7
	XD				Cat. 2 0 Views	189	15	201	546	56		0.15	
1- 42995	MD	59.3 / 56	0.945	2.31	Cat. 1 10 Views	180	16	182	399	58	149	-0.29	15.8 / 16.2
	XD				Cat. 2 0 Views	184	15	173	435	55		0.05	
1- 42999	MD	57.9 / 54	0.945	2.32	Cat. 1 10 Views	174	15	179	443	60	149	-0.29	17.1 / 16.6
	XD				Cat. 2 0 Views	182	15	167	413	56		0.05	
1- 43001	MD	57.3 / 54	0.945	2.38	Cat. 1 10 Views	175	16	187	447	58	154	-0.08	17.6 / 17
	XD				Cat. 2 0 Views	184	15	157	366	54		0.04	
1- 43003	MD	57.9 / 53	0.945	2.27	Cat. 1 10 Views	170	16	201	527	58	154	-0.08	16.9 / 16.3
	XD				Cat. 2 0 Views	175	15	156	398	54		0.04	
1- 43004	MD	57.2 / 54	0.945	2.27	Cat. 1 10 Views	170	16	201	527	56	154	-0.08	17.4 / 17
	XD				Cat. 2 0 Views	175	15	156	398	55		0.04	
1- 43006	MD	57.6 / 53	0.945	2.15	Cat. 1 10 Views	175	16	184	381	56	154	-0.08	16.6 / 17.3
	XD				Cat. 2 0 Views	190	15	174	384	55		0.04	
1- 43009	MD	58.5 / 56	0.945	2.44	Cat. 1 10 Views	176	16	189	414	60	153	-0.09	16.1 / 18
	XD				Cat. 2 0 Views	186	15	162	377	56		0.01	
1- 43013	MD	58.9 / 57	0.947	2.46	Cat. 1 10 Views	182	16	174	364	60	152	-0.19	16.2 / 17.4
	XD				Cat. 2 0 Views	182	16	166	426	57		0.04	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
						Strength	Elongation	Strength	Elongation				
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 43014	MD	59.4 / 56	0.947	2.46	Cat. 1 10 Views	182	16	174	364	60	152	-0.19	16.4 / 18.2
	XD				Cat. 2 0 Views	182	16	166	426	57		0.04	
1- 43021	MD	58.6 / 54	0.947	2.81	Cat. 1 10 Views	172	15	176	420	57	152	-0.35	17 / 20.5
	XD				Cat. 2 0 Views	180	15	178	457	54		0.04	

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-9

Product: Solmax 460T

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 42962	MD	58.4 / 53	0.946	2.82	Cat. 1 10 Views	171	16	187	465	57	150	-0.165	15.6 / 17.2
	XD				Cat. 2 0 Views	177	15	165	355	53		0.05	
1- 42965	MD	57.1 / 53	0.946	2.44	Cat. 1 10 Views	171	17	195	494	59	151	-0.02	17.7 / 17.8
	XD				Cat. 2 0 Views	182	16	162	296	56		0.16	
1- 42966	MD	61.2 / 53	0.944	2.26	Cat. 1 10 Views	177	17	199	475	59	151	-0.02	18.7 / 17.9
	XD				Cat. 2 0 Views	186	16	169	415	56		0.16	
1- 42977	MD	58.5 / 53	0.946	2.82	Cat. 1 10 Views	166	17	189	453	59	152	-0.20	18 / 18.1
	XD				Cat. 2 0 Views	176	16	153	293	55		0.07	
1- 42978	MD	57.8 / 54	0.945	2.36	Cat. 1 10 Views	170	16	160	273	59	152	-0.20	18.7 / 19.4
	XD				Cat. 2 0 Views	176	16	162	367	55		0.07	
1- 42981	MD	58.4 / 54	0.945	2.27	Cat. 1 10 Views	174	16	191	444	58	152	-0.20	18.7 / 19.5
	XD				Cat. 2 0 Views	181	15	151	237	55		0.07	
1- 42984	MD	57.1 / 54	0.944	2.42	Cat. 1 10 Views	173	16	174	359	60	152	0.05	18.6 / 18.3
	XD				Cat. 2 0 Views	179	15	152	317	56		0.06	
1- 42985	MD	58.2 / 54	0.945	2.64	Cat. 1 10 Views	172	17	17	352	60	152	0.05	16.9 / 17.4
	XD				Cat. 2 0 Views	182	15	162	307	56		0.06	
1- 42996	MD	59.2 / 56	0.945	2.31	Cat. 1 10 Views	180	16	182	399	58	149	-0.29	16.8 / 17.8
	XD				Cat. 2 0 Views	184	15	173	435	55		0.05	

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability	Asperity Height in / out
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%	mil
Test method		D5994	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204	GRI-GM12
Specification		> 57 / > 51	> 0.940	2 to 3	1 or 2	126	12	90	100	42	90	± 2	> 10
Roll No.													
1- 42998	MD	58.5 / 54	0.945	2.31	Cat. 1 10 Views	173	16	192	484	60	149	-0.29	16.1 / 17.2
	XD				Cat. 2 0 Views	180	16	139	200	56		0.05	
1- 43017	MD	60 / 57	0.946	2.42	Cat. 1 10 Views	184	18	197	457	58	152	-0.19	16.1 / 16.7
	XD				Cat. 2 0 Views	185	17	197	486	56		0.04	

Manufacturer's Smooth Geomembrane Certifications

SOLMAX INTERNATIONAL

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-100

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
2- 100	Solmax 460	MM189571	520	22.2	23/May/2004
2- 109	Solmax 460	MM189571	520	22.2	24/May/2004
2- 110	Solmax 460	MM189571	520	22.2	24/May/2004
2- 111	Solmax 460	MM189571	520	22.2	24/May/2004
2- 112	Solmax 460	MM189571	520	22.2	24/May/2004
2- 116	Solmax 460	MM189571	520	22.2	24/May/2004
2- 117	Solmax 460	MM189571	520	22.2	24/May/2004
2- 119	Solmax 460	MM189571	520	22.2	24/May/2004
2- 120	Solmax 460	MM189571	520	22.2	25/May/2004
2- 34	Solmax 460	MM189574	520	22.2	18/May/2004
2- 37	Solmax 460	MM189574	520	22.2	18/May/2004
2- 38	Solmax 460	MM189574	520	22.2	18/May/2004
2- 39	Solmax 460	MM189574	520	22.2	18/May/2004
2- 40	Solmax 460	MM189574	520	22.2	18/May/2004
2- 41	Solmax 460	MM189574	520	22.2	19/May/2004
2- 42	Solmax 460	MM189574	520	22.2	19/May/2004
2- 43	Solmax 460	MM189574	520	22.2	19/May/2004
1- 43132	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43135	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43136	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43138	Solmax 460	MM189569	520	22.2	23/May/2004
1- 43139	Solmax 460	MM189569	520	22.2	23/May/2004
1- 43142	Solmax 460	MM189569	520	22.2	23/May/2004
1- 43143	Solmax 460	MM189569	520	22.2	23/May/2004
1- 43144	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43146	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43147	Solmax 460	MM189571	520	22.2	23/May/2004

* Roll dimensions may vary ± 1%

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
1- 43148	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43149	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43150	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43151	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43152	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43153	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43157	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43158	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43160	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43162	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43163	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43164	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43165	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43166	Solmax 460	MM189571	520	22.2	24/May/2004
2- 45	Solmax 460	MM189574	520	22.2	19/May/2004
2- 47	Solmax 460	MM189574	520	22.2	19/May/2004
2- 70	Solmax 460	MM188950	520	22.2	21/May/2004
2- 71	Solmax 460	MM188950	520	22.2	21/May/2004
2- 72	Solmax 460	MM188950	520	22.2	21/May/2004
2- 73	Solmax 460	MM188950	520	22.2	21/May/2004
2- 76	Solmax 460	MM189569	520	22.2	21/May/2004
2- 77	Solmax 460	MM189569	520	22.2	21/May/2004
2- 80	Solmax 460	MM189569	520	22.2	22/May/2004
2- 81	Solmax 460	MM189569	520	22.2	22/May/2004
2- 82	Solmax 460	MM189569	520	22.2	22/May/2004
2- 83	Solmax 460	MM189569	520	22.2	22/May/2004
2- 84	Solmax 460	MM189569	520	22.2	22/May/2004
2- 85	Solmax 460	MM189569	520	22.2	22/May/2004
2- 86	Solmax 460	MM189569	520	22.2	22/May/2004
2- 87	Solmax 460	MM189569	520	22.2	22/May/2004
2- 88	Solmax 460	MM189569	520	22.2	22/May/2004
2- 89	Solmax 460	MM189569	520	22.2	22/May/2004

* Roll dimensions may vary ± 1%

SOLMAX INTERNATIONAL

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-5

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
39474	Solmax 460	MM187727	520	22.2	03/November/2003
39684	Solmax 460	MM187730	520	22.3	13/November/2003
42087	Solmax 460	MM188928	520	22.3	20/March/2004
42091	Solmax 460	MM188928	520	22.3	20/March/2004
42120	Solmax 460	MM188930	520	22.3	21/March/2004
42747	Solmax 460	MM188945	520	22.3	30/April/2004
2- 44	Solmax 460	MM189574	520	22.2	19/May/2004
2- 49	Solmax 460	MM189574	520	22.2	19/May/2004
2- 50	Solmax 460	MM189574	520	22.2	19/May/2004
2- 54	Solmax 460	MM188950	520	22.2	20/May/2004
2- 55	Solmax 460	MM188950	520	22.2	20/May/2004
2- 56	Solmax 460	MM188950	520	22.2	20/May/2004

* Roll dimensions may vary ± 1%

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
2- 90	Solmax 460	MM189569	520	22.2	22/May/2004
2- 91	Solmax 460	MM189569	520	22.2	22/May/2004
2- 92	Solmax 460	MM189569	520	22.2	22/May/2004
2- 93	Solmax 460	MM189569	520	22.2	22/May/2004
2- 94	Solmax 460	MM189569	520	22.2	23/May/2004
2- 95	Solmax 460	MM189569	520	22.2	23/May/2004
2- 96	Solmax 460	MM189569	520	22.2	23/May/2004
2- 97	Solmax 460	MM189569	520	22.2	23/May/2004
2- 98	Solmax 460	MM189569	520	22.2	23/May/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-8

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
2- 102	Solmax 460	MM189571	520	22.2	23/May/2004
2- 103	Solmax 460	MM189571	520	22.2	23/May/2004
2- 104	Solmax 460	MM189571	520	22.2	23/May/2004
2- 25	Solmax 460	MM188948	520	21.9	17/May/2004
2- 26	Solmax 460	MM188948	520	21.9	17/May/2004
2- 27	Solmax 460	MM189574	520	21.9	17/May/2004
2- 28	Solmax 460	MM189574	520	21.9	18/May/2004
2- 29	Solmax 460	MM189574	520	22.2	18/May/2004
2- 30	Solmax 460	MM189574	520	22.2	18/May/2004
2- 31	Solmax 460	MM189574	520	22.2	18/May/2004
2- 32	Solmax 460	MM189574	520	22.2	18/May/2004
2- 46	Solmax 460	MM189574	520	22.2	19/May/2004
2- 78	Solmax 460	MM189569	520	22.2	21/May/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-7

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
2- 101	Solmax 460	MM189571	520	22.2	23/May/2004
2- 105	Solmax 460	MM189571	520	22.2	24/May/2004
2- 106	Solmax 460	MM189571	520	22.2	24/May/2004
2- 107	Solmax 460	MM189571	520	22.2	24/May/2004
2- 108	Solmax 460	MM189571	535	22.2	24/May/2004
2- 113	Solmax 460	MM189571	520	22.2	24/May/2004
2- 114	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43154	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43155	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43156	Solmax 460	MM189571	520	22.2	23/May/2004
1- 43167	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43168	Solmax 460	MM189571	520	22.2	24/May/2004
2- 79	Solmax 460	MM189569	520	22.2	21/May/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-4

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
2- 48	Solmax 460	MM189574	520	22.2	19/May/2004
2- 52	Solmax 460	MM188950	520	22.2	19/May/2004
2- 53	Solmax 460	MM188950	520	22.2	19/May/2004
2- 58	Solmax 460	MM188950	520	22.2	20/May/2004
2- 61	Solmax 460	MM188950	520	22.2	20/May/2004
2- 62	Solmax 460	MM188950	520	22.2	20/May/2004
2- 63	Solmax 460	MM188950	520	22.2	20/May/2004
2- 64	Solmax 460	MM188950	520	22.2	20/May/2004
2- 65	Solmax 460	MM188950	520	22.2	20/May/2004
2- 66	Solmax 460	MM188950	520	22.2	20/May/2004
2- 67	Solmax 460	MM188950	520	22.2	20/May/2004
2- 69	Solmax 460	MM188950	520	22.2	20/May/2004

* Roll dimensions may vary ± 1%

SOLMAX INTERNATIONAL

List of Geomembrane Rolls

MF-CQ-01
Rev.: 01 / 16-07-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-2

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
39476	Solmax 460	MM187727	520	22.2	03/November/2003
39477	Solmax 460	MM187727	520	22.2	03/November/2003
39480	Solmax 460	MM187727	520	22.2	03/November/2003
39481	Solmax 460	MM187727	520	22.2	03/November/2003
39483	Solmax 460	MM187727	520	22.2	03/November/2003
40035	Solmax 460	MM187735	520	22.3	30/November/2003
41793	Solmax 460	MM188934	520	22.2	05/March/2004
41806	Solmax 460	MM188934	520	22.2	06/March/2004
41834	Solmax 460	MM188933	520	22.2	06/March/2004
41840	Solmax 460	MM188933	520	22.2	06/March/2004
42094	Solmax 460	MM188928	520	22.3	20/March/2004
42128	Solmax 460	MM188930	520	22.3	22/March/2004

* Roll dimensions may vary ± 1%

List of Geomembrane Rolls

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-0

Project Name: Becker, MN
Customer P.O.: 9655-00
Reference No: 10785-6

Roll No.	Product Code	Lot Number	Length * ft	Width * ft	Date Manufactured
1- 43123	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43126	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43127	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43128	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43130	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43131	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43133	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43134	Solmax 460	MM189569	520	22.2	22/May/2004
1- 43140	Solmax 460	MM189569	520	22.2	23/May/2004
1- 43170	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43171	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43172	Solmax 460	MM189571	520	22.2	24/May/2004
1- 43173	Solmax 460	MM189571	520	22.2	24/May/2004

* Roll dimensions may vary ± 1%

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-5

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM187727	0.083	0.9383	>300	39435
MM187730	0.081	0.938	>300	39649
MM188928	0.078	0.9395	>300	42049
MM188930	0.078	0.939	>300	42117
MM188945	0.075	0.9387	>300	42694
MM188950	0.085	0.9386	In-Progress	1-43068
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

SOLMAX INTERNATIONAL	**Manufacturing Quality Control Test Results - Resin**	MF-CQ-11 Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7 *28-May-04*

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-100

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188950	0.085	0.9386	In-Progress	1-43068
MM189569	0.082	0.9392	In-Progress	1-43104
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-8

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188948	0.086	0.9387	In-Progress	1-42989
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-7

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144

** Complete results will follow when testing is done

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-4

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188950	0.085	0.9386	In-Progress	1-43068
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-2

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM187727	0.083	0.9383	>300	39435
MM187735	0.082	0.938	>300	39996
MM188928	0.078	0.9395	>300	42049
MM188930	0.078	0.939	>300	42117
MM188933	0.076	0.9385	>300	41808
MM188934	0.081	0.9385	>300	41740

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4/27/04

** Complete results will follow when testing is done

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-6

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144

** Complete results will follow when testing is done

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-5

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
39474	MD	60.3 / 57	0.947	2.53	Cat. 1 10 Views	156	18	321	870	51	141	-0.30
	XD				Cat. 2 0 Views	161	16	322	946	47		0.08
39684	MD	64 / 60	0.946	2.47	Cat. 1 10 Views	155	18	338	920	51	145	-0.11
	XD				Cat. 2 0 Views	163	17	326	929	48		-0.41
42087	MD	60 / 55	0.946	2.6	Cat. 1 10 Views	156	18	317	873	53	146	-0.46
	XD				Cat. 2 0 Views	163	16	328	965	49		0
42091	MD	60.2 / 56	0.946	2.64	Cat. 1 10 Views	148	18	293	810	52	146	-0.46
	XD				Cat. 2 0 Views	163	15	326	958	48		0
42120	MD	60 / 56	0.944	2.47	Cat. 1 10 Views	151	19	281	801	51	151	-0.33
	XD				Cat. 2 0 Views	158	16	285	872	48		0.08
42747	MD	60.7 / 58	0.945	2.57	Cat. 1 10 Views	153	20	310	849	51	143	-0.20
	XD				Cat. 2 0 Views	150	18	294	892	47		0.08
2- 44	MD	60.7 / 58	0.947	2.37	Cat. 1 10 Views	156	18	266	773	53	158	-0.28
	XD				Cat. 2 0 Views	179	16	286	853	49		0.01
2- 49	MD	60.4 / 57	0.947	2.65	Cat. 1 10 Views	162	18	261	720	52	158	-0.17
	XD				Cat. 2 0 Views	175	15	279	856	48		0.04
2- 50	MD	60.6 / 58	0.947	2.85	Cat. 1 10 Views	156	18	255	742	52	158	-0.17
	XD				Cat. 2 0 Views	173	15	285	871	48		0.04

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 54	MD	61.3 / 58	0.947	2.74	Cat. 1 10 Views	167	17	286	775	51	148	-0.03
	XD				Cat. 2 0 Views	170	15	272	840	48		-0.04
2- 55	MD	62.7 / 60	0.947	2.74	Cat. 1 10 Views	167	17	286	775	51	148	-0.03
	XD				Cat. 2 0 Views	170	15	272	840	48		-0.04
2- 56	MD	60 / 58	0.947	2.53	Cat. 1 10 Views	164	17	254	718	51	148	-0.03
	XD				Cat. 2 0 Views	181	16	299	874	48		-0.04

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-100

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 100	MD	60.7 / 57	0.946	2.64	Cat. 1 10 Views	169	17	283	771	55	144	-0.23
	XD				Cat. 2 0 Views	168	15	281	909	50		0.03
2- 109	MD	60.1 / 58	0.946	2.48	Cat. 1 10 Views	163	18	291	813	52	150	-0.22
	XD				Cat. 2 0 Views	168	15	303	946	46		-0.01
2- 110	MD	60.1 / 57	0.946	2.48	Cat. 1 10 Views	163	18	291	813	52	150	-0.22
	XD				Cat. 2 0 Views	168	15	303	946	46		-0.01
2- 111	MD	60.2 / 58	0.946	2.73	Cat. 1 10 Views	167	18	322	869	53	159	-0.42
	XD				Cat. 2 0 Views	170	15	282	881	50		0.02
2- 112	MD	61.3 / 58	0.946	2.73	Cat. 1 10 Views	167	18	322	869	53	159	-0.42
	XD				Cat. 2 0 Views	170	15	282	881	50		0.02
2- 116	MD	60.4 / 58	0.946	2.43	Cat. 1 10 Views	170	17	309	846	53	159	-0.42
	XD				Cat. 2 0 Views	170	16	304	939	50		0.02
2- 117	MD	60.1 / 58	0.946	2.82	Cat. 1 10 Views	161	17	281	801	55	157	-0.19
	XD				Cat. 2 0 Views	174	15	295	908	52		0.01
2- 119	MD	60.5 / 58	0.946	2.61	Cat. 1 10 Views	160	17	302	857	55	157	-0.19
	XD				Cat. 2 0 Views	176	15	311	963	52		0.01
2- 120	MD	62.4 / 59	0.946	2.61	Cat. 1 10 Views	160	17	302	857	55	157	-0.19
	XD				Cat. 2 0 Views	176	15	311	963	52		0.01

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 34	MD	60.8 / 57	0.947	2.37	Cat. 1 10 Views	155	18	276	814	53	161	-0.30
	XD				Cat. 2 0 Views	166	16	292	899	50		0.04
2- 37	MD	60.8 / 58	0.947	2.8	Cat. 1 10 Views	155	18	287	825	53	161	-0.30
	XD				Cat. 2 0 Views	175	15	313	928	49		0.04
2- 38	MD	61.3 / 58	0.947	2.54	Cat. 1 10 Views	161	18	291	827	53	161	-0.30
	XD				Cat. 2 0 Views	176	15	314	938	49		0.04
2- 39	MD	61.4 / 59	0.947	2.54	Cat. 1 10 Views	161	18	291	827	53	161	-0.30
	XD				Cat. 2 0 Views	176	15	314	938	49		0.04
2- 40	MD	60.9 / 58	0.947	2.4	Cat. 1 10 Views	167	18	304	807	53	161	-0.30
	XD				Cat. 2 0 Views	175	15	291	909	49		0.04
2- 41	MD	61.4 / 58	0.947	2.4	Cat. 1 10 Views	167	18	304	807	53	161	-0.30
	XD				Cat. 2 0 Views	175	15	291	909	49		0.04
2- 42	MD	61.2 / 58	0.946	2.9	Cat. 1 10 Views	169	17	289	788	53	158	-0.28
	XD				Cat. 2 0 Views	171	15	304	936	49		0.01
2- 43	MD	60.2 / 57	0.946	2.9	Cat. 1 10 Views	169	17	289	788	53	158	-0.28
	XD				Cat. 2 0 Views	171	15	304	936	49		0.01
1- 43132	MD	60.9 / 58	0.946	2.52	Cat. 1 10 Views	157	16	299	802	52	148	-0.29
	XD				Cat. 2 0 Views	165	17	294	896	47		-0.01
1- 43135	MD	60.6 / 58	0.946	2.51	Cat. 1 10 Views	159	17	278	757	52	148	-0.29
	XD				Cat. 2 0 Views	167	16	286	864	47		-0.01
1- 43136	MD	61 / 58	0.946	2.4	Cat. 1 10 Views	158	17	301	813	51	147	-0.29
	XD				Cat. 2 0 Views	164	16	308	932	49		-0.01
1- 43138	MD	61.2 / 57	0.947	2.71	Cat. 1 10 Views	162	17	297	793	51	147	-0.29
	XD				Cat. 2 0 Views	169	17	305	913	49		-0.01
1- 43139	MD	60.4 / 58	0.947	2.71	Cat. 1 10 Views	162	17	297	793	51	147	-0.29
	XD				Cat. 2 0 Views	169	17	305	913	49		-0.01

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
1- 43142	MD	63.5 / 60	0.947	2.6	Cat. 1 10 Views	165	17	312	826	55	151	-0.64
	XD				Cat. 2 0 Views	171	16	305	899	53		-0.08
1- 43143	MD	60.9 / 59	0.947	2.6	Cat. 1 10 Views	165	17	312	826	55	151	-0.64
	XD				Cat. 2 0 Views	171	16	305	899	53		-0.08
1- 43144	MD	60.4 / 56	0.946	2.37	Cat. 1 10 Views	157	18	302	812	53	143	-0.51
	XD				Cat. 2 0 Views	161	16	309	956	49		0.04
1- 43146	MD	60.5 / 57	0.947	2.23	Cat. 1 10 Views	163	18	307	815	53	143	-0.51
	XD				Cat. 2 0 Views	161	17	294	917	49		0.04
1- 43147	MD	61 / 59	0.947	2.23	Cat. 1 10 Views	163	18	307	815	53	143	-0.51
	XD				Cat. 2 0 Views	161	17	294	917	49		0.04
1- 43148	MD	60.5 / 59	0.947	2.54	Cat. 1 10 Views	169	17	290	764	53	143	-0.51
	XD				Cat. 2 0 Views	167	16	298	905	49		0.04
1- 43149	MD	60.8 / 58	0.947	2.54	Cat. 1 10 Views	169	17	290	764	53	143	-0.51
	XD				Cat. 2 0 Views	167	16	298	905	49		0.04
1- 43150	MD	60.3 / 57	0.946	2.27	Cat. 1 10 Views	165	18	282	744	52	148	-0.54
	XD				Cat. 2 0 Views	166	17	300	916	48		0.22
1- 43151	MD	61.6 / 59	0.946	2.27	Cat. 1 10 Views	165	18	282	744	52	148	-0.54
	XD				Cat. 2 0 Views	166	17	300	916	48		0.22
1- 43152	MD	61.5 / 58	0.946	2.59	Cat. 1 10 Views	173	17	321	741	52	148	-0.54
	XD				Cat. 2 0 Views	178	16	319	931	48		0.22
1- 43153	MD	62.1 / 59	0.946	2.59	Cat. 1 10 Views	173	17	321	741	52	148	-0.54
	XD				Cat. 2 0 Views	178	16	319	931	48		0.22
1- 43157	MD	61 / 58	0.946	2.77	Cat. 1 10 Views	163	17	309	821	49	151	-0.32
	XD				Cat. 2 0 Views	169	16	287	854	51		-0.33
1- 43158	MD	60.8 / 59	0.946	2.22	Cat. 1 10 Views	163	17	322	849	49	151	-0.32
	XD				Cat. 2 0 Views	168	16	312	939	51		-0.33

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability
						Strength	Elongation	Strength	Elongation			
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
1- 43160	MD	60.2 / 58	0.946	2.46	Cat. 1 10 Views	157	17	269	749	49	151	-0.32
	XD				Cat. 2 0 Views	158	16	304	935	51		-0.33
1- 43162	MD	60.8 / 58	0.946	2.64	Cat. 1 10 Views	159	18	303	834	52	154	-0.19
	XD				Cat. 2 0 Views	165	16	299	906	49		-0.04
1- 43163	MD	60 / 58	0.946	2.64	Cat. 1 10 Views	159	18	303	834	52	154	-0.19
	XD				Cat. 2 0 Views	165	16	299	906	49		-0.04
1- 43164	MD	60.3 / 59	0.946	2.44	Cat. 1 10 Views	161	18	298	810	52	154	-0.19
	XD				Cat. 2 0 Views	163	17	302	926	49		-0.04
1- 43165	MD	60.9 / 59	0.946	2.44	Cat. 1 10 Views	161	18	298	810	52	154	-0.19
	XD				Cat. 2 0 Views	163	17	302	926	49		-0.04
1- 43166	MD	60.7 / 59	0.946	2.48	Cat. 1 10 Views	160	18	289	786	52	154	-0.19
	XD				Cat. 2 0 Views	166	16	311	943	49		-0.04
2- 45	MD	60 / 57	0.947	2.37	Cat. 1 10 Views	156	18	266	773	53	158	-0.28
	XD				Cat. 2 0 Views	179	16	286	853	49		0.01
2- 47	MD	60.5 / 57	0.947	2.61	Cat. 1 10 Views	160	18	309	874	53	158	-0.28
	XD				Cat. 2 0 Views	172	15	306	936	49		0.01
2- 70	MD	60.5 / 57	0.0947	2.34	Cat. 1 10 Views	158	18	271	769	52	151	-0.22
	XD				Cat. 2 0 Views	178	15	280	836	47		0.04
2- 71	MD	60.4 / 57	0.0947	2.34	Cat. 1 10 Views	158	18	271	769	52	151	-0.22
	XD				Cat. 2 0 Views	178	15	280	836	47		0.04
2- 72	MD	60.1 / 57	0.947	2.65	Cat. 1 10 Views	162	17	276	791	55	149	-0.21
	XD				Cat. 2 0 Views	167	15	284	889	50		-0.07
2- 73	MD	60.3 / 57	0.947	2.65	Cat. 1 10 Views	162	17	276	791	55	149	-0.21
	XD				Cat. 2 0 Views	167	15	284	889	50		-0.07
2- 76	MD	61.3 / 59	0.947	2.59	Cat. 1 10 Views	166	18	283	778	54	159	0.06
	XD				Cat. 2 0 Views	182	15	301	900	50		-0.01

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 77	MD	61.9 / 59	0.947	2.65	Cat. 1 10 Views	169	18	309	844	54	159	0.06
	XD				Cat. 2 0 Views	175	15	303	910	50		-0.01
2- 80	MD	61.1 / 59	0.947	2.45	Cat. 1 10 Views	171	18	275	750	54	159	0.06
	XD				Cat. 2 0 Views	179	15	305	912	50		-0.01
2- 81	MD	60.7 / 59	0.947	2.53	Cat. 1 10 Views	168	17	263	743	53	155	0.03
	XD				Cat. 2 0 Views	176	15	297	905	48		0.03
2- 82	MD	60.4 / 58	0.947	2.53	Cat. 1 10 Views	168	17	263	743	53	155	0.03
	XD				Cat. 2 0 Views	176	15	297	905	48		0.03
2- 83	MD	60.9 / 58	0.947	2.42	Cat. 1 10 Views	166	18	270	826	53	155	0.03
	XD				Cat. 2 0 Views	171	15	304	913	48		0.03
2- 84	MD	60.9 / 59	0.947	2.42	Cat. 1 10 Views	166	18	270	826	53	155	0.03
	XD				Cat. 2 0 Views	171	15	304	913	48		0.03
2- 85	MD	60.9 / 59	0.946	2.69	Cat. 1 10 Views	169	65	303	838	53	155	0.03
	XD				Cat. 2 0 Views	178	15	290	902	48		0.03
2- 86	MD	60.9 / 59	0.946	2.69	Cat. 1 10 Views	169	65	303	838	53	155	0.03
	XD				Cat. 2 0 Views	178	15	290	902	48		0.03
2- 87	MD	61.4 / 59	0.947	2.4	Cat. 1 10 Views	169	18	287	757	55	155	-0.29
	XD				Cat. 2 0 Views	173	14	295	901	51		0.00
2- 88	MD	61.3 / 59	0.947	2.4	Cat. 1 10 Views	169	18	287	757	55	155	-0.29
	XD				Cat. 2 0 Views	173	14	295	901	51		0.00
2- 89	MD	62.3 / 60	0.947	2.57	Cat. 1 10 Views	169	17	301	796	55	155	-0.29
	XD				Cat. 2 0 Views	180	16	316	928	51		0.00
2- 90	MD	62.7 / 61	0.947	2.57	Cat. 1 10 Views	169	17	301	796	55	155	-0.29
	XD				Cat. 2 0 Views	180	16	316	928	51		0.00
2- 91	MD	61.7 / 59	0.947	2.54	Cat. 1 10 Views	169	17	277	738	55	155	-0.29
	XD				Cat. 2 0 Views	181	15	263	795	51		0.00

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 92	MD	61.2 / 59	0.947	2.54	Cat. 1 10 Views	169	17	277	738	55	155	-0.29
	XD				Cat. 2 0 Views	181	15	263	795	51		0.00
2- 93	MD	61 / 59	0.947	2.6	Cat. 1 10 Views	162	17	280	771	53	152	-0.29
	XD				Cat. 2 0 Views	178	15	276	846	50		0.00
2- 94	MD	62.5 / 61	0.947	2.6	Cat. 1 10 Views	162	17	280	771	50	152	-0.29
	XD				Cat. 2 0 Views	178	15	276	846	50		0.00
2- 95	MD	62.6 / 61	0.947	2.59	Cat. 1 10 Views	172	16	265	726	50	152	-0.29
	XD				Cat. 2 0 Views	177	15	292	885	50		0.00
2- 96	MD	61.9 / 60	0.947	2.59	Cat. 1 10 Views	172	16	265	726	50	152	-0.29
	XD				Cat. 2 0 Views	177	15	292	885	50		0.00
2- 97	MD	61.6 / 59	0.946	2.44	Cat. 1 10 Views	164	17	277	743	50	152	-0.29
	XD				Cat. 2 0 Views	172	15	277	861	50		0.00
2- 98	MD	60.8 / 58	0.946	2.44	Cat. 1 10 Views	164	17	277	743	50	152	-0.29
	XD				Cat. 2 0 Views	172	15	277	861	50		0.00

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-8

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 102	MD	60.7 / 58	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	288	904	50		0.03
2- 103	MD	61.3 / 59	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 104	MD	60.6 / 58	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 25	MD	65 / 62	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 26	MD	63.9 / 61	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 27	MD	62.5 / 61	0.948	2.87	Cat. 1 10 Views	155	18	259	773	58	159	-0.27
	XD				Cat. 2 0 Views	173	15	278	865	54		-0.03
2- 28	MD	63.9 / 60	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		0.10
2- 29	MD	60 / 57	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		0.10
2- 30	MD	60.4 / 57	0.948	2.68	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	215	875	53		0.10

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability
						Strength	Elongation	Strength	Elongation			
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 31	MD	60 / 57	0.948	2.68	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	215	875	53		0.10
2- 32	MD	60.8 / 57	0.947	2.28	Cat. 1 10 Views	163	18	269	767	56	162	-0.20
	XD				Cat. 2 0 Views	176	15	300	910	53		0.10
2- 46	MD	60.6 / 57	0.947	2.61	Cat. 1 10 Views	160	18	309	874	53	158	-0.28
	XD				Cat. 2 0 Views	172	15	306	936	49		0.01
2- 78	MD	61.7 / 59	0.947	2.65	Cat. 1 10 Views	169	18	309	844	54	159	0.06
	XD				Cat. 2 0 Views	175	15	303	910	50		-0.01



2801 Marie-Victorin Blvd, Varennes, Quebec, Canada J3X 1P7
www.solmax.com

FAX TRANSMISSION

Date: 06-08-04

To: Trevor Simmons
GEO-SYNTHETICS
Tel.
Fax. 262-524-7961

From: Paul Payeur
SOLMAX INTERNATIONAL, Inc.
Tel. (800) 571-3904
(450) 929-1234 Ext. 209
Fax. (450) 929-2547

Number of pages, including this transmittal sheet: 4

Reference: Becker, MN

Message:

Dear Trevor,

Please find attached a letter from Bon Denis addressing the error that happens on the original certification to McCain.

If you want to forward the information directly to them and we are sorry for the confusion it may had cause.

Regards.

SOLMAX INTERNATIONAL, Inc.

Paul Payeur
Vice-President
Network Development
e-mail : ppayeur@solmax.com

SOLMAX
INTERNATIONAL

Varennes, June 8th 2004

Trevor Simmons
Geo-Synthetics inc.

sent by fax: 262-524-7961

2801 Marie-Victorin Blvd.
Varennes (Quebec) Canada
J3X 1P7
Tel.: (450) 929-1234
Fax: (450) 929-1227

Subject: Becker MN Project

Dear Sir,

Please find attached revised MQC documents for the above-mentioned project. This revision was called for following the discovery of an error on the original certs (rolls 2-30 & 2-31, erroneously reported 215 ppi at break instead of 315 ppi) by the Engineer, which proved to be, following verification, a transcription mistake between our manual lab entry and our computerized data base. As agreed upon, please forward to McCain (ref: my phone conversation with Scott this afternoon). Should you require any further detail, please feel free to contact me at your convenience.

Sincerely,

Bob Denis
VP Product Engineering
Solmax International Inc.

Cc: Paul Payeur

SOLMAX

Manufacturing Quality Control Test Results - Rolls

MF-CQ-03
Rev.: 08 / 20-10-0

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

08-Jun-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-8

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 100	MD	60.7 / 57	0.946	2.64	Cat. 1 10 Views	169	17	283	771	55	144	-0.23
	XD				Cat. 2 0 Views	168	15	281	909	50		0.03
2- 101	MD	60.2 / 57	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	286	904	50		0.03
2- 102	MD	60.7 / 58	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	288	904	50		0.03
2- 103	MD	61.3 / 59	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 104	MD	60.6 / 58	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 25	MD	65 / 62	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 26	MD	63.9 / 61	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 27	MD	62.5 / 61	0.948	2.87	Cat. 1 10 Views	153	18	259	773	58	159	-0.27
	XD				Cat. 2 0 Views	173	15	278	865	54		-0.03
2- 28	MD	63.9 / 60	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		0.10

Jun. 9. 2004 2:22PM McCAIN & ASSOCIATES INC No. 115278 P. 5/5

Property		Thickness ave. / min.	Sheet Density	Carbon blk. Content	Carbon blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability
						Strength	Elongation	Strength	Elongation			
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 3 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	(1 or 2	126	12	228	700	42	108	= 2
Roll No.												
2- 29	MD	60 / 57	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		0.10
2- 30	MD	60.4 / 57	0.948	2.66	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	875	53		0.10
2- 31	MD	60 / 57	0.948	2.68	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	875	53		0.10
2- 32	MD	60.8 / 57	0.947	2.28	Cat. 1 10 Views	163	18	269	767	56	162	-0.20
	XD				Cat. 2 0 Views	176	15	300	910	53		0.10
2- 46	MD	60.6 / 57	0.947	2.61	Cat. 1 10 Views	160	18	309	874	53	158	-0.28
	XD				Cat. 2 0 Views	172	15	306	936	49		0.01
2- 78	MD	61.7 / 59	0.947	2.65	Cat. 1 10 Views	169	18	309	844	54	159	0.06
	XD				Cat. 2 0 Views	175	15	303	910	50		-0.01

Jun. 9. 2004 2:22PM McCAIN & ASSOCIATES INC No. 1152 P. 6 5/5 2004

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-7

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 101	MD	60.2 / 57	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	288	904	50		0.03
2- 105	MD	61.1 / 58	0.946	2.68	Cat. 1 10 Views	164	17	308	842	52	150	-0.22
	XD				Cat. 2 0 Views	171	16	305	925	46		-0.01
2- 106	MD	60.8 / 58	0.946	2.68	Cat. 1 10 Views	164	17	308	842	52	150	-0.22
	XD				Cat. 2 0 Views	171	16	305	925	46		-0.01
2- 107	MD	60.9 / 58	0.946	2.22	Cat. 1 10 Views	158	17	283	811	52	150	-0.22
	XD				Cat. 2 0 Views	182	14	322	927	46		-0.01
2- 108	MD	60.8 / 58	0.946	2.22	Cat. 1 10 Views	158	17	283	811	52	150	-0.22
	XD				Cat. 2 0 Views	182	14	322	927	46		-0.01
2- 113	MD	60.3 / 58	0.946	2.73	Cat. 1 10 Views	162	17	306	872	53	159	-0.42
	XD				Cat. 2 0 Views	179	16	308	909	50		0.02
2- 114	MD	60.6 / 58	0.946	2.73	Cat. 1 10 Views	162	17	306	872	53	159	-0.42
	XD				Cat. 2 0 Views	179	16	308	909	50		0.02
1- 43154	MD	61.5 / 58	0.946	2.82	Cat. 1 10 Views	167	17	306	812	52	148	-0.54
	XD				Cat. 2 0 Views	168	16	305	915	48		0.22
1- 43155	MD	61 / 58	0.946	2.82	Cat. 1 10 Views	167	17	306	812	52	148	-0.54
	XD				Cat. 2 0 Views	168	16	305	915	48		0.22

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
1- 43156	MD	61.4 / 59	0.946	2.77	Cat. 1 10 Views	163	17	309	821	49	151	-0.32
	XD				Cat. 2 0 Views	169	16	287	854	51		-0.33
1- 43167	MD	60.9 / 59	0.946	2.48	Cat. 1 10 Views	160	18	289	786	52	154	-0.19
	XD				Cat. 2 0 Views	166	16	311	943	49		-0.04
1- 43168	MD	61 / 57	0.947	2.6	Cat. 1 10 Views	160	18	302	811	53	147	-0.43
	XD				Cat. 2 0 Views	169	17	307	922	49		0.03
2- 79	MD	61.4 / 59	0.947	2.45	Cat. 1 10 Views	171	18	275	750	54	159	0.06
	XD				Cat. 2 0 Views	179	15	305	912	50		-0.01

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-4

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 48	MD	60.3 / 57	0.947	2.65	Cat. 1 10 Views	162	18	261	720	52	158	-0.17
	XD				Cat. 2 0 Views	175	15	279	856	48		0.04
2- 52	MD	60.8 / 58	0.947	2.63	Cat. 1 10 Views	155	18	261	751	51	148	-0.03
	XD				Cat. 2 0 Views	172	15	275	851	48		-0.04
2- 53	MD	60.6 / 57	0.947	2.63	Cat. 1 10 Views	155	18	261	751	51	148	-0.03
	XD				Cat. 2 0 Views	172	15	275	851	48		-0.04
2- 58	MD	60.5 / 58	0.947	2.51	Cat. 1 10 Views	158	18	280	798	52	149	-0.20
	XD				Cat. 2 0 Views	174	15	277	847	48		-0.04
2- 61	MD	60.8 / 58	0.947	2.63	Cat. 1 10 Views	159	18	277	791	52	156	-0.34
	XD				Cat. 2 0 Views	175	15	275	844	47		-0.22
2- 62	MD	61 / 58	0.947	2.4	Cat. 1 10 Views	157	18	259	745	52	156	-0.34
	XD				Cat. 2 0 Views	177	15	287	874	47		-0.22
2- 63	MD	60.9 / 58	0.947	2.4	Cat. 1 10 Views	157	18	259	745	52	156	-0.34
	XD				Cat. 2 0 Views	177	15	287	874	47		-0.22
2- 64	MD	60.7 / 58	0.947	2.58	Cat. 1 10 Views	158	18	264	754	52	156	-0.34
	XD				Cat. 2 0 Views	176	15	280	856	47		-0.22
2- 65	MD	60.4 / 58	0.947	2.58	Cat. 1 10 Views	158	18	264	754	52	156	-0.34
	XD				Cat. 2 0 Views	176	15	280	856	47		-0.22

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 66	MD	60.7 / 58	0.947	2.51	Cat. 1 10 Views	157	18	247	706	52	151	-0.22
	XD				Cat. 2 0 Views	177	16	280	844	47		0.04
2- 67	MD	60 / 57	0.947	2.51	Cat. 1 10 Views	157	18	247	706	52	151	-0.22
	XD				Cat. 2 0 Views	177	16	280	844	47		0.04
2- 69	MD	60.3 / 57	0.947	2.66	Cat. 1 10 Views	149	18	257	758	52	151	-0.22
	XD				Cat. 2 0 Views	162	16	266	844	47		0.04

Manufacturing Quality Control Test Results - Rolls

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

28-May-0

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-6

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
1- 43123	MD	60.5 / 57	0.947	2.65	Cat. 1 10 Views	154	18	258	749	53	150	-0.54
	XD				Cat. 2 0 Views	167	16	311	927	50		-0.02
1- 43126	MD	60.7 / 57	0.946	2.42	Cat. 1 10 Views	160	18	316	842	48	152	-0.35
	XD				Cat. 2 0 Views	163	16	304	923	51		-0.10
1- 43127	MD	60.6 / 58	0.946	2.42	Cat. 1 10 Views	160	18	316	842	48	152	-0.35
	XD				Cat. 2 0 Views	163	16	304	923	51		-0.10
1- 43128	MD	60 / 58	0.946	2.36	Cat. 1 10 Views	164	18	312	832	48	152	-0.35
	XD				Cat. 2 0 Views	168	16	302	904	51		-0.10
1- 43130	MD	60.8 / 58	0.946	2.44	Cat. 1 10 Views	167	17	305	788	52	148	-0.29
	XD				Cat. 2 0 Views	165	16	285	872	47		-0.01
1- 43131	MD	60 / 57	0.946	2.44	Cat. 1 10 Views	167	17	305	788	52	148	-0.29
	XD				Cat. 2 0 Views	165	16	285	872	47		-0.01
1- 43133	MD	60.7 / 59	0.946	2.52	Cat. 1 10 Views	157	16	299	802	52	148	-0.29
	XD				Cat. 2 0 Views	165	17	294	896	47		-0.01
1- 43134	MD	61.6 / 58	0.946	2.51	Cat. 1 10 Views	159	17	278	757	52	148	-0.29
	XD				Cat. 2 0 Views	167	16	286	864	47		-0.01
1- 43140	MD	63.4 / 59	0.946	2.52	Cat. 1 10 Views	169	17	270	797	51	147	-0.29
	XD				Cat. 2 0 Views	167	16	297	893	49		-0.01

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability
						Strength	Elongation	Strength	Elongation			
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
1- 43170	MD	60.3 / 58	0.947	2.6	Cat. 1 10 Views	160	18	302	811	53	147	-0.43
	XD				Cat. 2 0 Views	169	17	307	922	49		0.03
1- 43171	MD	60.9 / 59	0.946	2.54	Cat. 1 10 Views	159	18	299	813	53	147	-0.43
	XD				Cat. 2 0 Views	163	17	311	961	49		0.03
1- 43172	MD	60.6 / 57	0.946	2.54	Cat. 1 10 Views	159	18	299	813	53	147	-0.43
	XD				Cat. 2 0 Views	163	17	311	961	49		0.03
1- 43173	MD	60.6 / 58	0.946	2.46	Cat. 1 10 Views	159	18	308	837	53	147	-0.43
	XD				Cat. 2 0 Views	170	17	312	946	49		0.03

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Rolls

MF-CQ-03
Rev.: 00 / 10-10-0

2801 Marie-Victorin, Varennes, Québec, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-2

Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
5/24 39476	MD	60.6 / 57	0.947	2.58	Cat. 1 10 Views	154	18	310	851	51	141	-0.30
	XD				Cat. 2 0 Views	163	16	315	924	47		0.08
5/24 39477	MD	60.7 / 57	0.947	2.28	Cat. 1 10 Views	153	16	286	801	51	141	-0.28
	XD				Cat. 2 0 Views	158	16	322	955	47		-0.07
5/24 39480	MD	61.5 / 58	0.947	2.57	Cat. 1 10 Views	151	19	315	874	50	141	-0.28
	XD				Cat. 2 0 Views	160	16	308	925	47		-0.07
5/24 39481	MD	61 / 58	0.947	2.33	Cat. 1 10 Views	151	18	318	871	50	141	-0.28
	XD				Cat. 2 0 Views	161	16	320	937	47		-0.07
5/24 39483	MD	60.3 / 57	0.947	2.51	Cat. 1 10 Views	151	19	318	875	49	138	-0.21
	XD				Cat. 2 0 Views	156	17	336	1005	46		-0.39
5/24 40035	MD	60.9 / 58	0.946	2.39	Cat. 1 10 Views	152	18	304	836	51	139	-0.43
	XD				Cat. 2 0 Views	160	16	322	944	47		-0.09
5/24 41793	MD	62.5 / 58	0.947	2.67	Cat. 1 10 Views	161	18	290	785	51	147	-0.52
	XD				Cat. 2 0 Views	166	16	329	952	48		0.16
5/24 41806	MD	60.4 / 56	0.946	2.56	Cat. 1 10 Views	150	18	328	939	50	148	-0.30
	XD				Cat. 2 0 Views	156	16	319	964	47		0.03
5/24 41834	MD	60.6 / 57	0.947	2.45	Cat. 1 10 Views	153	18	321	890	52	149	-0.21
	XD				Cat. 2 0 Views	161	16	342	1003	49		0.12

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield		Break		Tear Resistance	Puncture Resistance	Dimensional Stability
						Strength	Elongation	Strength	Elongation			
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
5/24 41840	MD	61.1 / 57	0.947	2.57	Cat. 1 10 Views	153	18	312	873	51	148	-0.48
	XD				Cat. 2 0 Views	160	16	341	1001	49		0.04
5/24 42094	MD	60 / 56	0.946	2.67	Cat. 1 10 Views	158	17	314	873	51	146	-0.55
	XD				Cat. 2 0 Views	162	16	315	943	48		0.19
5/24 42128	MD	60.1 / 55	0.944	2.69	Cat. 1 10 Views	151	18	281	809	51	148	-0.42
	XD				Cat. 2 0 Views	159	16	297	892	49		0.03

Manufacturer's Welding Rod Certifications

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

10-Aug-04

Project Name: Becker
Project No: 9830-00
Reference No: 11156

Spool No.	Type	Size (mm)	Resin Lot No.	Density. (g/cc)	Carbon Black Content. (%)
3280 A	HDPE	5	MM188942	0.943	2.61
3280 B	HDPE	5	MM188942	0.943	2.61
3281 A	HDPE	5	MM188942	0.943	2.50
3281 B	HDPE	5	MM188942	0.943	2.50
3282 A	HDPE	5	MM188942	0.941	2.76
3282 B	HDPE	5	MM188942	0.941	2.76
3283 A	HDPE	5	MM188942	0.942	2.56
3283 B	HDPE	5	MM188942	0.942	2.56
3284 A	HDPE	5	MM188942	0.945	2.52
3284 B	HDPE	5	MM188942	0.945	2.52
3285 A	HDPE	5	MM188942	0.943	2.55
3412 B	HDPE	5	MM189580	0.942	2.73

ALL OK. TCB 04/27/04

Manufacturing Quality Control Test Results - ROD

MF-CQ-16
Rev.: 00 / 10-10-0

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

26-May-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785

	Spool No.	Type	Size (mm)	Resin Lot No.	Density. (g/cc)	Carbon Black Content. (%)
1.	3019 A	HDPE	5	MM188329	0.944	2.39
2.	3020 A	HDPE	5	MM188329	0.943	2.69
3.	3020 B	HDPE	5	MM188329	0.943	2.69
	3021 A	HDPE	5	MM188329	0.944	2.90
	3021 B	HDPE	5	MM188329	0.944	2.90
	3022 A	HDPE	5	MM188329	0.944	2.96
	3022 B	HDPE	5	MM188329	0.944	2.96
	3023 A	HDPE	5	MM188329	0.944	2.67
	3023 B	HDPE	5	MM188329	0.944	2.67
	3024 A	HDPE	5	MM188329	0.944	2.55
	3024 B	HDPE	5	MM188329	0.944	2.55
	3025 A	HDPE	5	MM188329	0.944	2.39
	3025 B	HDPE	5	MM188329	0.944	2.39
	3026 A	HDPE	5	MM188329	0.944	2.65
	3026 B	HDPE	5	MM188329	0.944	2.65
	3027 A	HDPE	5	MM188329	0.944	2.48
	3027 B	HDPE	5	MM188329	0.944	2.48
	3028 A	HDPE	5	MM188329	0.944	2.55
	3028 B	HDPE	5	MM188329	0.944	2.55
	3029 A	HDPE	5	MM188329	0.943	2.57
	3029 B	HDPE	5	MM188329	0.943	2.57
	3030 A	HDPE	5	MM188329	0.944	2.64
	3030 B	HDPE	5	MM188329	0.944	2.64
	3031 A	HDPE	5	MM188329	0.944	2.59
	3031 B	HDPE	5	MM188329	0.944	2.59
	3032 A	HDPE	5	MM188329	0.944	2.49
27.	3032 B	HDPE	5	MM188329	0.944	2.49

Resin Test Results, Oven Aging, OIT and UV Resistance Certifications

SOLMAX
INTERNATIONAL

2801 Marie-Victorin Blvd, Varennes, Quebec, Canada J3X 1P7
www.solmax.com

FAX TRANSMISSION

Date: 06-14-04

To:	Trevor Simmons **GSI**	**Tel.** **Fax.**	 262-524-7961
From:	Paul Payeur **SOLMAX INTERNATIONAL, Inc.**	**Tel.** **Fax.**	(800) 571-3904 (450) 929-1234 Ext. 209 (450) 929-2547

Number of pages, including this transmittal sheet: 53

Reference: Becker, MN

Message:

Dear Trevor,

Attached are the additional required resin certifications for Becker. (hard copies will be sent by courier)

We should get the final ESCR (300 hours) results on the last four resin batch (MM188950, MM189569, MM189571, MM189574) by the end of this week..

Concerning the series of rolls without certs, we will e-mail it to you again today.

Regards,

SOLMAX INTERNATIONAL, Inc.

Paul Payeur
Vice President
Network Development
e-mail : ppayeur@solmax.com

Solmax International Inc.
2801 Marie-Victorin
Varennes, Quebec, Canada, J3X 1P7
Phone: (514) 929-1234
Fax: (514) 929-1227

SOLMAX INTERNATIONAL

Polyethylene Geomembrane Certification

Project Name: Becker, MN

Purchase Order: 9655-00

Reference Number: 10785

Solmax hereby certifies that the 60 mil smooth and textured HDPE geomembrane shipped for the above-mentioned project meets or exceeds the specifications listed below.

Oven Aging	ASTM D5721	55 %
UV Resistance	GRI-GM11	50 %
Oxidative Induction Time	ASTM D3895	100 minutes

Chantal Gagnon
Manufacturing Quality Supervisor
Solmax International Inc.

Oct 11-02
Date

SAGEOS

Division de / of GroupeCTTGroup

ANALYSIS REPORT
SCC Accreditation No.: 40

Mr. Guy Elie
SOLMAX INTERNATIONAL

DATE: November 14, 2003
FILE: S243-020-5-1

PRODUCT: One (1) HDPE geomembrane sample identified : 35873

(Received : July 7, 2003)

STANDARD :

TEST : Air-Oven Aging of Polyolefin Geomembranes — ASTM D5721 – 95 Reapproved 2002 Modified GM13-6/23/03

TEST CONDITIONS :

Oven aging:
- Oven Temperature : 85° C; Duration : 90 days;
- 2 test specimens.

OIT (ASTM D3895):
- Apparatus used: DSC 2910 Differential Scanning Calorimeter TA Instruments;
- Temperature: 200 °C

HP-OIT (ASTM D5885):
- Apparatus used: DSC 2910 Differential Scanning Calorimeter TA Instrument;
- Temperature: 150 °C; Pressure: 500 psi;

Date tested : July 8, 2003 to November 13, 2003.

RESULTS:

35873	OIT (min.)		HP-OIT (min.)	
	Initials	After Aging	Initials	After Aging
Specimen #1	119	91	341	304
Specimen #2	117	95	331	307
Average	118	93	336	306
Percent Retained after 90 days	79		91	

Prepared by:
Nancy Fontaine
Technician

Approved by:
Eric Blond, Eng., M.A.Sc.
Technical Director
Nov 14, 03

For any information concerning this report, please contact Mr. Éric Blond.

The samples in relation to this test are retained for a period of 1 year following the expedition day of the written report, unless other instructions are received. The fees for all services after the tests are 125,00 $ per hour and for appraisal in Court, 195,00$ per hour. The above reported results refer exclusively to the samples submitted for evaluation. This report cannot be partly used or reproduced without SAGEOS written consent.

* 3000, rue Boullé, Saint-Hyacinthe (Québec) CANADA J2S 1H9 | 1 Yonge Street, suite 1801 Toronto (Ontario) CANADA M5E 1W7
www.sageos.com 1 877 724-3677 1 450 771-4608 Fax : 1 450 778-3901

SAGEOS

Division de / of GroupeCTTGroup

ANALYSIS REPORT
SCC Accreditation No.: 40

Mr. Guy Elie
SOLMAX INTERNATIONAL

DATE: November 12, 2003
FILE: S243-020-5-2

PRODUCT: One (1) HDPE geomembrane sample identified : 35873-1

(Received : July 7, 2003)

STANDARD :

TEST : Accelerated Weathering of Geomembranes using a Fluorescent UVA-Condensation Exposure Device — GRI GM11 (Dec. 1997)

TEST CONDITIONS : UV Exposition:
- Apparatus: Q-PANEL QUV/spray, Lamp: UVA-340;
- Irradiation: 0,72 W/m²/nm @ 340 nm
- Duration: 1600 hours of UV (1920 hours total); Cycle: 20 hours of light at 75°C; 4 hours of condensation at 60°C;
- 2 test specimens.

HP-OIT (ASTM D5885):
- Apparatus used: DSC 2910 Differential Scanning Calorimeter TA Instrument;
- Temperature: 150 °C; Pressure: 500 psi;

Date tested : July 9, 2003 to October 31, 2003.

RESULTS:

35873-1	HP-OIT (min.)	
	Initials	After Aging
Specimen #1	341	296
Specimen #2	331	281
Average	336	289
Percent Retained after 1600 hours	86	

Prepared by:
Nancy Fontaine
Technician

Approved by:
Eric Blond, Eng., M.A.Sc
Technical Director
2003/11/13

For any information concerning this report, please contact Mr. Éric Blond.

The samples in relation to this test are retained for a period of 1 year following the expedition day of the written report, unless other instructions are received. The fees for all services after the tests are 125,00 $ per hour and for appraisal in Court, 195,00$ per hour. The above reported results refer exclusively to the samples submitted for evaluation. This report cannot be partly used or reproduced without SAGEOS written consent.

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www.sageos.com 1 877 724-3677 1 450 771-4608 Fax : 1 450 778-3901

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

GEOMEMBRANE TEST RESULTS

TRI Client: Solmax International
Project: Town of Colonie

Material: Solmax HDPE geomembrane
TRI Log #: E2177-08-06
Oxidative Induction Time (ASTM D 3895)

PARAMETER	TEST REPLICATE NUMBER										RESULT	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10		
Sample ID: 32515 lot MM 185307												
OIT (minutes)	119.1										119.1	> 100
Sample ID: 32556 lot MM 185306												
OIT (minutes)	124.3										124.3	> 100

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188937	0.080	0.9385	>300	41617
MM188938	0.077	0.9385	>300	41679

** Complete results will follow when testing is done

PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
31892
Your material number

Quality certificate

Date
2004/02/23 12:37:51
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80059468 000010
Order number and item
16429 000010
Vehicule
UNPX 123984

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188937 / Qty 29,690 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.080		
Flow Index 190C 21.6kg	g/10mi	12.4	10.0	16.0
Melt Flow Ratio	---	155.0		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

23/02/04.

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

PETROMONT

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31892

Your material number

Quality certificate

Date
2004/02/26 05:00:01

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80059643 000010

Order number and item
16432 000010

Vehicule
UNPX 123735

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188938 / Qty 29,720 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.077		
Flow Index 190C 21.6kg	g/10mi	11.9	10.0	16.0
Melt Flow Ratio	---	154.5		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-1

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188938	0.077	0.9385	>300	41679
MM188947	0.084	0.934	>300	1-42939
MM188948	0.086	0.9387	>300	1-42989

** Complete results will follow when testing is done

PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31892

Your material number

Quality certificate

Date
2004/02/26 05:00:01

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80059643 000010

Order number and item
16432 000010

Vehicule
UNPX 123735

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188938 / Qty 29,720 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.077		
Flow Index 190C 21.6kg	g/10mi	11.9	10.0	16.0
Melt Flow Ratio	---	154.5		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:07:38

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062746 000010

Order number and item
17419 000010

Vehicule
UNPX 123406

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188947 / Qty 87,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.084		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	150.0		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTED / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment

PÉTROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-840-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:08:40

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062747 000010

Order number and item
17420 000010

Vehicule
CGLX 58347

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188948 / Qty 85,800 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.086		
Flow Index 190C 21.6kg	g/10mi	12.8	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-2

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM187727	0.083	0.9383	>300	39435
MM187735	0.082	0.938	>300	39996
MM188928	0.078	0.9395	>300	42049
MM188930	0.078	0.939	>300	42117
MM188933	0.076	0.9385	>300	41808
MM188934	0.081	0.9385	>300	41740

** Complete results will follow when testing is done

PÉTROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
31572
Your material number

Quality certificate

Date
2003/10/24 07:57:49
Delivery item
A-1528 DHDA-1528 NT
Delivery number and item
80052618 000010
Order number and item
14772 000010
Vehicule
UNPX 123150

Material : A-1528 DHDA-1528 NT

Batch MM 187727 / Qty 86,460 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.083		
Flow Index 190C 21.6kg	g/10mi	12.0	10.0	16.0
Melt Flow Ratio	---	144.6		
Density Annealed 15C/min	g/cc	0.9383	0.9365	0.9410
Oxydative Induction Time	min	117		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

PÉTROMONT

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Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31

Your material number

Quality certificate

Date
2003/11/20 08:25:12

Delivery item
A-1528 DHDA-1528 NT

Delivery number and item
80054760 000010

Order number and item
15073 000010

Vehicule
UNPX 123680

Material : A-1528 DHDA-1528 NT

Batch MM 187735 / Qty 87,900 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.082		
Flow Index 190C 21.6kg	g/10mi	11.9	10.0	16.0
Melt Flow Ratio	---	145.1		
Density Annealed 15C/min	g/cc	0.9380	0.9365	0.9410
Oxydative Induction Time	min	117		

*** End ***

Solmax
ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

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Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31892

Your material number

Quality certificate

Date
2004/02/26 09:12:11

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80059679 000010

Order number and item
16497 000010

Vehicule
CGLX 10510

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188928 / Qty 88,620 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.078		
Flow Index 190C 21.6kg	g/10mi	11.8	10.0	16.0
Melt Flow Ratio	---	151.3		
Density Annealed 15C/min	g/cc	0.9395	0.9365	0.9410
Oxydative Induction Time	min	127		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC. H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
31926
Your material number

Quality certificate

Date
2004/03/02 09:15:56
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80059896 000010
Order number and item
16557 000010
Vehicule
UNPX 124043

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188930 / Qty 88,680 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.078		
Flow Index 190C 21.6kg	g/10mi	11.8	10.0	16.0
Melt Flow Ratio	---	151.3		
Density Annealed 15C/min	g/cc	0.9390	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

PÉTROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31878

Your material number

Quality certificate

Date
2004/02/17 09:27:40

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80059207 000010

Order number and item
16363 000010

Vehicule
CGLX 10345

Material . S-7000 PETROMONT HDPE-7000

Batch MM 188933 / Qty 87,780 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.076		
Flow Index 190C 21.6kg	g/10mi	11.7	10.0	16.0
Melt Flow Ratio	---	153.9		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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PÉTROMONT

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Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information	Quality certificate
SOLMAX INTERNATIONAL INC. 2801 MARIE-VICTORIN VARENNES QC J3X 1P7 Contact CHANTAL GAGNON 450-929-2548 Your reference 31878 Your material number	Date 2004/02/17 09:28:22 Delivery item S-7000 PETROMONT HDPE-7000 Delivery number and item 80059208 000010 Order number and item 16364 000010 Vehicule UNPX 123703

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188934 / Qty 89,980 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt Index 190C 2.16 kg	g/10mi	0.081		
Flow Index 190C 21.6kg	g/10mi	12.2	10.0	16.0
Melt Flow Ratio	---	150.6		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

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SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-3

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188938	0.077	0.9385	>300	41679

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

PETROMONT

Customer information	Quality certificate
SOLMAX INTERNATIONAL INC. 2801 MARIE-VICTORIN VARENNES QC J3X 1P7 Contact CHANTAL GAGNON 450-929-2548 Your reference 31892 Your material number	Date 2004/02/26 05:00:01 Delivery item S-7000 PETROMONT HDPE-7000 Delivery number and item 80059643 000010 Order number and item 16432 000010 Vehicule UNPX 123735

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188938 / Qty 29,720 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.077		
Flow Index 190C 21.6kg	g/10mi	11.9	10.0	16.0
Melt Flow Ratio	---	154.5		
Density Annealed 15C/min	g/cc	0.9385	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-4

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188950	0.085	0.9386	In-Progress	1-43068
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/12 09:20:42

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063315 000010

Order number and item
17430 000010

Vehicule
UNPX 124005

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188950 / Qty 84,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	148.2		
Density Annealed 15C/min	g/cc	0.9386	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32110

Your material number

Quality certificate

Date
2004/05/18 08:03:50

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063596 000010

Order number and item
17647 000010

Vehicule
CGLX 10495

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189574 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.3	10.0	16.0
Melt Flow Ratio	---	144.7		
Density Annealed 15C/min	g/cc	0.9384	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-5

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM187727	0.083	0.9383	>300	39435
MM187730	0.081	0.938	>300	39649
MM188928	0.078	0.9395	>300	42049
MM188930	0.078	0.939	>300	42117
MM188945	0.075	0.9387	>300	42694
MM188950	0.085	0.9386	In-Progress	1-43068
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

PETROMONT

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
31572

Your material number

Quality Certificate

Date
2003/10/24 07:57:49

Delivery item
A-1528 DHDA-1528 NT

Delivery number and item
80052618 000010

Order number and item
14772 000010

Vehicule
UNPX 123150

Material : A-1528 DHDA-1528 NT

Batch MM 187727 / Qty 86,460 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.083		
Flow Index 190C 21.6kg	g/10mi	12.0	10.0	16.0
Melt Flow Ratio	---	144.6		
Density Annealed 15C/min	g/cc	0.9383	0.9365	0.9410
Oxydative Induction Time	min	117		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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** PAGE TOTALE.01 **

PÉTROMONT

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10455 Metropolitain East
Montreal-East, QC. H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
31926
Your material number

Quality certificate

Date
2004/03/02 09:15:56
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80059896 000010
Order number and item
16557 000010
Vehicule
UNPX 124043

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188930 / Qty 88,680 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.078		
Flow Index 190C 21.6kg	g/10mi	11.8	10.0	16.0
Melt Flow Ratio	---	151.3		
Density Annealed 15C/min	g/cc	0.9390	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

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PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32035

Your material number

Quality certificate

Date
2004/04/22 11:45:21

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062208 000010

Order number and item
17258 000010

Vehicule
UNCX 815812

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188945 / Qty 29,840 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.075		
Flow Index 190C 21.6kg	g/10mi	11.4	10.0	16.0
Melt Flow Ratio	---	152.0		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

** PAGE TOTALE.01 **

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/12 09:20:42

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063315 000010

Order number and item
17430 000010

Vehicule
UNPX 124005

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188950 / Qty 84,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	148.2		
Density Annealed 15C/min	g/cc	0.9386	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32110

Your material number

Quality certificate

Date
2004/05/18 08:03:50

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063596 000010

Order number and item
17647 000010

Vehicule
CGLX 10495

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189574 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.3	10.0	16.0
Melt Flow Ratio	---	144.7		
Density Annealed 15C/min	g/cc	0.9384	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-6

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32110

Your material number

Quality certificate

Date
2004/05/20 08:00:03

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063727 000010

Order number and item
17653 000010

Vehicule
CGLX 10091

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189569 / Qty 29,840 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.082		
Flow Index 190C 21.6kg	g/10mi	12.2	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9392	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32120

Your material number

Quality certificate

Date
2004/05/23 07:51:25

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063847 000010

Order number and item
17699 000010

Vehicule
UNPX 123616

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189571 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.093		
Flow Index 190C 21.6kg	g/10mi	13.3	10.0	16.0
Melt Flow Ratio	---	143.0		
Density Annealed 15C/min	g/cc	0.9389	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-7

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
32110
Your material number

Quality certificate

Date
2004/05/20 08:00:03
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80063727 000010
Order number and item
17653 000010
Vehicule
CGLX 10091

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189569 / Qty 29,840 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.082		
Flow Index 190C 21.6kg	g/10mi	12.2	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9392	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32120

Your material number

Quality certificate

Date
2004/05/23 07:51:25

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063847 000010

Order number and item
17699 000010

Vehicule
UNPX 123616

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189571 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.093		
Flow Index 190C 21.6kg	g/10mi	13.3	10.0	16.0
Melt Flow Ratio	---	143.0		
Density Annealed 15C/min	g/cc	0.9389	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

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Responsible Care:
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SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-8

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188948	0.086	0.9387	>300	1-42989
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:08:40

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062747 000010

Order number and item
17420 000010

Vehicule
CGLX 58347

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188948 / Qty 85,800 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.086		
Flow Index 190C 21.6kg	g/10mi	12.8	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

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Petromont and Company, Limited Partnership
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10455 Metropolitain East
Montreal-East, QC, H1B 1A1
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Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
32110
Your material number

Quality certificate

Date
2004/05/20 08:00:03
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80063727 000010
Order number and item
17653 000010
Vehicule
CGLX 10091

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189569 / Qty 29,840 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.082		
Flow Index 190C 21.6kg	g/10mi	12.2	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9392	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
32120
Your material number

Quality certificate

Date
2004/05/23 07:51:25
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80063847 000010
Order number and item
17699 000010
Vehicule
UNPX 123616

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189571 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.093		
Flow Index 190C 21.6kg	g/10mi	13.3	10.0	16.0
Melt Flow Ratio	---	143.0		
Density Annealed 15C/min	g/cc	0.9389	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:

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Petromont Inc., Sole General Partner
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Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32110

Your material number

Quality certificate

Date
2004/05/18 08:03:50

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063596 000010

Order number and item
17647 000010

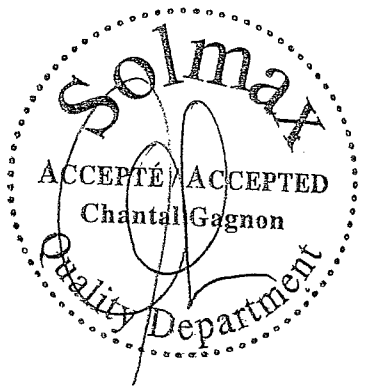
Vehicule
CGLX 10495

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189574 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.3	10.0	16.0
Melt Flow Ratio	---	144.7		
Density Annealed 15C/min	g/cc	0.9384	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***



Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

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SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-9

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188947	0.084	0.934	>300	1-42939
MM188948	0.086	0.9387	>300	1-42989

** Complete results will follow when testing is done

PÉTROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:08:40

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062747 000010

Order number and item
17420 000010

Vehicule
CGLX 58347

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188948 / Qty 85,800 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.086		
Flow Index 190C 21.6kg	g/10mi	12.8	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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PÉTROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:07:38

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062746 000010

Order number and item
17419 000010

Vehicule
UNPX 123406

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188947 / Qty 87,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.084		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	150.0		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTED / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Resin

MF-CQ-11
Rev.: 01 / 22-12-03

2801 Marie-Victorin, Quebec, Canada, J3X 1P7

11-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-100

Lot No.	Melt Index	Density	SP-NCTL**	Roll Tested
Specification	< 1.0 g/10 minutes	> 0.932 g/cc	> 300 hrs	
Test Method	ASTM D1238	ASTM D1505	ASTM D5397	
MM188947	0.084	0.934	>300	1-42939
MM188948	0.086	0.9387	>300	1-42989
MM188950	0.085	0.9386	In-Progress	1-43068
MM189569	0.082	0.9392	In-Progress	1-43104
MM189569	0.082	0.9392	In-Progress	1-43104
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144
MM189571	0.093	0.9389	In-Progress	1-43144
MM189574	0.085	0.9384	In-Progress	1-43034

** Complete results will follow when testing is done

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32110

Your material number

Quality certificate

Date
2004/05/18 08:03:50

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063596 000010

Order number and item
17647 000010

Vehicule
CGLX 10495

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189574 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.3	10.0	16.0
Melt Flow Ratio	---	144.7		
Density Annealed 15C/min	g/cc	0.9384	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
32120
Your material number

Quality certificate

Date
2004/05/23 07:51:25
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80063847 000010
Order number and item
17699 000010
Vehicule
UNPX 123616

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189571 / Qty 29,750 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.093		
Flow Index 190C 21.6kg	g/10mi	13.3	10.0	16.0
Melt Flow Ratio	---	143.0		
Density Annealed 15C/min	g/cc	0.9389	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7
Contact
CHANTAL GAGNON 450-929-2548
Your reference
32110
Your material number

Quality certificate

Date
2004/05/20 08:00:03
Delivery item
S-7000 PETROMONT HDPE-7000
Delivery number and item
80063727 000010
Order number and item
17653 000010
Vehicule
CGLX 10091

Material : S-7000 PETROMONT HDPE-7000

Batch MM 189569 / Qty 29,840 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.082		
Flow Index 190C 21.6kg	g/10mi	12.2	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9392	0.9365	0.9410
Oxydative Induction Time	min	114		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

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Responsible Care:

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/12 09:20:42

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80063315 000010

Order number and item
17430 000010

Vehicule
UNPX 124005

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188950 / Qty 84,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.085		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	148.2		
Density Annealed 15C/min	g/cc	0.9386	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
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PETROMONT

Petromont and Company, Limited Partnership
Petromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:07:38

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062746 000010

Order number and item
17419 000010

Vehicule
UNPX 123406

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188947 / Qty 87,120 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.084		
Flow Index 190C 21.6kg	g/10mi	12.6	10.0	16.0
Melt Flow Ratio	---	150.0		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment

PÉTROMONT

Pétromont and Company, Limited Partnership
Pétromont Inc., Sole General Partner
10455 Metropolitain East
Montreal-East, QC, H1B 1A1
CANADA
Tel: 514-640-7400
http://www.petromont.qc.ca

Customer information

SOLMAX INTERNATIONAL INC.
2801 MARIE-VICTORIN
VARENNES QC J3X 1P7

Contact
CHANTAL GAGNON 450-929-2548

Your reference
32077

Your material number

Quality certificate

Date
2004/05/03 10:08:40

Delivery item
S-7000 PETROMONT HDPE-7000

Delivery number and item
80062747 000010

Order number and item
17420 000010

Vehicule
CGLX 58347

Material : S-7000 PETROMONT HDPE-7000

Batch MM 188948 / Qty 85,800 KG

Characteristics	Unit	Value	Lower limit	Upper limit
Melt index 190C 2.16 kg	g/10mi	0.086		
Flow Index 190C 21.6kg	g/10mi	12.8	10.0	16.0
Melt Flow Ratio	---	148.8		
Density Annealed 15C/min	g/cc	0.9387	0.9365	0.9410
Oxydative Induction Time	min	129		

*** End ***

Solmax
ACCEPTÉ / ACCEPTED
Chantal Gagnon
Quality Department

Daniel L'Archevêque
Quality Control Laboratory
Authorized representative

Petromont certifies that the batch number of the product list above meet its internal manufacturing specifications for the properties listed above.

Responsible Care:
A Total Commitment®

SOLMAX INTERNATIONAL

Manufacturing Quality Control Test Results - Rolls

MF-CQ-03
Rev.: 00 / 10-10-00

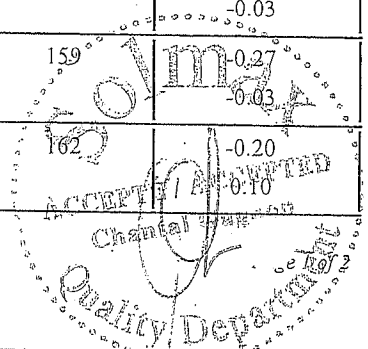
2801 Marie-Victorin, Varennes, Québec, J3X 1P7

08-Jun-04

Project Name: Becker, MN
Project No: 9655-00
Reference No: 10785-8

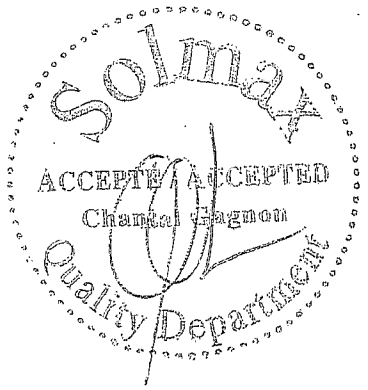
Product: Solmax 460

Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 100	MD	60.7 / 57	0.946	2.64	Cat. 1 10 Views	169	17	283	771	55	144	-0.23
	XD				Cat. 2 0 Views	168	15	281	909	50		0.03
2- 101	MD	60.2 / 57	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	288	904	50		0.03
2- 102	MD	60.7 / 58	0.946	2.87	Cat. 1 10 Views	171	17	287	774	55	144	-0.23
	XD				Cat. 2 0 Views	171	15	288	904	50		0.03
2- 103	MD	61.3 / 59	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 104	MD	60.6 / 58	0.946	2.36	Cat. 1 10 Views	172	17	325	845	55	144	-0.23
	XD				Cat. 2 0 Views	180	15	319	934	50		0.03
2- 25	MD	65 / 62	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 26	MD	63.9 / 61	0.948	2.78	Cat. 1 10 Views	169	18	316	833	58	159	-0.27
	XD				Cat. 2 0 Views	195	15	313	830	54		-0.03
2- 27	MD	62.5 / 61	0.948	2.87	Cat. 1 10 Views	155	18	259	773	58	159	-0.27
	XD				Cat. 2 0 Views	173	15	278	865	54		-0.03
2- 28	MD	63.9 / 60	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		-0.10



Property		Thickness ave. / min.	Sheet Density	Car. blk. Content	Car. blk. Dispersion	Yield Strength	Yield Elongation	Break Strength	Break Elongation	Tear Resistance	Puncture Resistance	Dimensional Stability
Units		mil	g/cc	%		ppi	%	ppi	%	lbs	lbs	%
Test method		D5199	D1505	D4218	D5596	D638 2.0 in Gage Length, Type IV; 2 ipm				D1004	D4833	D1204
Specification		> 60 / > 54	> 0.940	2 to 3	1 or 2	126	12	228	700	42	108	± 2
Roll No.												
2- 29	MD	60 / 57	0.947	2.6	Cat. 1 10 Views	184	18	329	820	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	872	53		0.10
2- 30	MD	60.4 / 57	0.948	2.68	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	875	53		0.10
2- 31	MD	60 / 57	0.948	2.68	Cat. 1 10 Views	162	18	310	841	56	162	-0.20
	XD				Cat. 2 0 Views	187	14	315	875	53		0.10
2- 32	MD	60.8 / 57	0.947	2.28	Cat. 1 10 Views	163	18	269	767	56	162	-0.20
	XD				Cat. 2 0 Views	176	15	300	910	53		0.10
2- 46	MD	60.6 / 57	0.947	2.61	Cat. 1 10 Views	160	18	309	874	53	158	-0.28
	XD				Cat. 2 0 Views	172	15	306	936	49		0.01
2- 78	MD	61.7 / 59	0.947	2.65	Cat. 1 10 Views	169	18	309	844	54	159	0.06
	XD				Cat. 2 0 Views	175	15	303	910	50		-0.01

REVISED CERTS 2-30 & 2-31



Field Quality Control Reports

TRIAL WELD TEST REPORT FORM

PROJECT NAME:	JOB NUMBER: 240016	MAT'L TYPE: 60mil Textured
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
5-26-04	621	3:31	53°-60°	SUNNY	J-C	W# 20	VP	B:	W: 750		125	121	119					
								P:	S: 50		124	118	128		141	142	146	P	SM/SM
"	8411	3:35	"	"	"	W# 39	ON	B:	W: 800		130	119	120					
								P:	S: 50		118	120	127		156	156	160	P	"
5-27-04	621	8:20	58°-70°	SUNNY	"	W# 20	VP	B:	W: 750		132	156	156					
								P:	S: 50		131	126	115		217	207	206	P	"
5-28-04	8411	10:45	65-70	SUNNY	"	W# 9	ON	B:	W: 750		117	128	126					
								P:	S: 60		128	130	138		160	169	173	P	"
"	621	11:12	"	"	"	W# 13	VP	B:	W: 750		122	123	131					
								P:	S: 55		122	130	135		164	171	172	P	"
"	"	4:46	"	"	"	"	"	B:	W: 750		136	142	132					
								P:	S: 55		126	129	142		175	180	177	P	"
"	8411	4:40	"	"	"	W# 9	ON	B:	W: 750		131	135	127					
								P:	S: 55		141	127	121		171	178	178	P	"
6-2-04	621	2:37	60°-65°	SUNNY	"	W# 13	VP	B:	W: 750		113	123	116					
								P:	S: 55		114	111	109		136	141	139	P	"
"		3:15	"	"	"	W# 03	OS	B:	W: 750		119	114	113					
								P:	S: 50		120	117	123		150	155	159	P	"

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: TT

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				FIELD VALUES SHEAR (PPI)			P/F	COMMENTS
6-2-04	621	446	60-65°	SUNNY	FC	W# 20	VP	B:	W: 750		128	134	130					
								P:	S: 40		133	124	127		148	161	160	P	sm/sm.
6-3-04	621	800	75-86	SUNNY	-11-	W# 20	VP	B:	W: 750		133	137	139					
								P:	S: 40		123	141	138		180	155	175	P	sm/Tex
-11-	587	1030	-11-	-11-	-11-	mx 1	HS	B: 250	W:									
								P: 8	S:		120	113	102		134	138	138	P	sm/TEX
-11-	-11-	1035	-11-	-11-	-11-	-11-	-11-	B: 250	W:									
								P: 8	S:		113	113	108		142	142	144	P	Tex/Tex
-11-	-11-	1:00	-11-	-11-	-11-	-11-	-11-	B: 250	W:									
								P: 8	S:		105	114	113		130	133	129	P	Tex/sm
-11-	-11-	110	-11-	-11-	-11-	-11-	-11-	B: 250	W:									
								P: 8	S:		118	115	114		125	128	125	P	sm/sm
-11-	621	317	-11-	-11-	-11-	W# 13		B:	W: 750		123	117	133		143	148	141		
								P:	S: 55		120	110	114					P	sm/sm
-11-		345	-11-	-11-	-11-	W# 9	KS	B:	W: 750		120	114	116						
								P:	S: 50		116	124	118		143	154	158	P	sm/sm.
								B:	W:										
								P:	S:										

TRIAL WELD TESTING REPORT FORM

3

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES										
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-4-04	587	730	75-86	SUNNY	J.C	mx 2	HS	B: 250 P: 8	W: S:		120	101	102		172	177	173	P	sm / Tex
〃	621	808	〃	〃	〃	w# 13	VP	B: P:	W: 750 S: 55		144 126	133 133	120 136		155	158	147	P	sm/sm.
〃	587	850	〃	〃	〃	mx 2	HS	B: 250 P: 8	W: S:		105	96	118		155	144	146	P	sm/sm
〃	KS	845	〃	〃	〃	w# 9	KS	B: P:	W: 750 S: 50		127 133	123 127	124 124		159	137	143	P	sm/sm.
〃	621	1034	〃	〃	〃	w# 39	VP	B: P:	W: 750 S: 55		110 117	106 116	106 110		135	136	127	P	sm/sm
〃	587	130	〃	〃	〃	mx 2	HS	B: 250 P: 8	W: S:		111	107	100		125	120	141	P	sm/Tex
〃	〃	135	〃	〃	〃	〃	〃	B: 250 P: 8	W: S:		108	109	109		130	124	130	P	sm/sm
〃	621	255	〃	〃	〃	w# 39	VP	B: P:	W: 750 S: 55		121 113	112 108	114 111		122	126	122	P	sm/sm
〃	KS	330	〃	〃	〃	w# 20	KS	B: P:	W: 750 S: 40		104 112	108 110	115 117		140	136	140	P	sm/sm

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:								JOB NUMBER:												MAT'L TYPE:											
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES																					
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)							SHEAR (PPI)				P/F	COMMENTS									
6-4-04	621	1432	75°-86°	SUNNY	J-C	W# 39	VP	B: P:	W: 750 S: 55		107	124	114																	
											120	123	123				144	141	143		P	sm / Tex									
6-7-04	587	7:30	77°-84°	Windy SUNNY	JC	mx 2	HS	B: 250 P: 8	W: S:		100	114	116				166	153	151		P	sm / Tex									
〃	〃	7:35	〃	〃	〃	〃	〃	B: 250 P: 8	W: S:		112	101	104				151	145	147		P	sm/sm.									
〃	621	847	〃	〃	〃	W# 39	VP	B: P:	W: 750 S: 55		119	125	126																	
											126	115	120				141	136	142		P	sm/sm.									
6-8-04	587	1015	60°-68°	SUNNY	〃	mx 2	HS	B: 250 P: 8	W: S:		132	136	135				155	154	157		P	sm / Tex									
〃	〃	1020	〃	〃	〃	mx 2	HS	B: 250 P: 8	W: S:		116	114	124				156	161	157		P	sm/sm									
〃	621	1023	〃	〃	〃	W# 9	VP	B: P:	W: 750 S: 55		122	109	130																	
											113	125	126				147	145	147		P	sm/sm									
〃	8411	1030	〃	〃	〃	W# 39	ON	B: P:	W: 750 S: 40		124	125	123																	
											117	122	121				165	174	153		P	sm/sm.									
〃	587	130	〃	〃	〃	mx 2	HS	B: 250 P: 8	W: S:		132	131	136				169	168	163		P	sm / Tex									

TRIAL WELD TESTING REPORT FORM

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES									
DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-8-04	587	1035	60-68°	SUNNY	JC	mx 2	HS	B: 250	W:		114	96	111		160	167	162		
								P: 8	S:									P	SM/SM
″	8411	230	″	″	″	W# 39	DN	B:	W: 750		116	113	117						
								P:	S: 40		115	113	115		150	145	160	P	SM/SM.
″	621	315	″	″	″	W# 9	VP	B:	W: 750		123	118	131			-			
								P:	S: 55		127	130	120		148	148	142	P	SM/SM.
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:						-				
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

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TRIAL WELD TESTING REPORT FORM

6 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6-10-04	587	830	51-60°	cloudy	J-C	mx 2	HS	B: 250	W:									
								P: 8	S:		86	97	117	194	195	187	P	sm/Tex
"	—11—	835	—11—	—11—	—11—	—11—	—11—	B: 250	W:									
								P: 8	S:		123	141	127	184	189	196	P	sm/sm
"	8411	930	—11—	—11—	—11—	W# 39	DN	B:	W: 750		132	134	131					
								P:	S: 40		144	137	135	188	190	174	P	sm/sm
"	621	11:10	—11—	—11—	—11—	W# 9	VP	B:	W: 750		145	131	107					
								P:	S: 55		111	109	150	169	166	170	P	sm/sm
"	8411	1:40	—11—	—11—	—11—	W# 39	DN	B:	W: 750		115	120	133					
								P:	S: 40		126	119	115	181	161	183	P	sm/sm
"	587	146	—11—	—11—	—11—	mx 2	HS	B: 250	W:									
								P: 8	S:		124	130	140	168	168	171	P	sm/Tex
"	—11—	155	—11—	—11—	—11—	mx 2	HS	B: 250	W:									
								P: 8	S:		93	107	94	168	164	161	P	sm/sm
"	621	3:30	—11—	—11—	—11—	W# 9	VP	B:	W: 750		137	130	135					
								P:	S: 55		129	139	135	175	172	166	P	sm/sm
								B:	W:									
								P:	S:									

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TRIAL WELD TESTING REPORT FORM

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6/12/04	741	815	55-79°	SUNNY	J-C	mx 2	KS	B: 250	W:	105	95	97			144	154	149	P	sm/sm.
								P: 8	S:	119	118	100			141	135	133	P	sm/Tex
〃	8411	930	〃	〃	〃	W# 39	DN	B:	W: 750	129	113	134							
								P:	S: 40	115	112	124			156	157	168	P	sm/sm
〃		901	〃	〃	〃	W# 9	NS	B:	W: 750	130	133	123							
								P:	S: 55	110	175	128			153	152	154	P	sm/sm.
〃	8411	130	〃	〃	〃	W# 39	DN	B:	W: 750	115	116	118							
								P:	S: 40	116	120	120			140	140	148	P	sm/sm.
〃		135	〃	〃	〃	W# 9	NS	B:	W: 750	110	113	109							
								P:	S: 55	113	112	109			138	139	136	P	sm/sm.
〃	741	140	〃	〃	〃	mx 2	KS	B: 250	W:	120	125	124			128	137	125	P	sm/Tex
								P: 8	S:	114	121	116			127	133	128	P	sm/sm
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

GSI

TRIAL WELD TESTING REPORT FORM

PAGE:__

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PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 60mil HDPE F/2-Smooth

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-14-04	741	740	68°-76°	SUNNY	TC	mx 2	KS	B: 250	W:	102	98	99			159	162	154	P	Sm/Sm
								P: 8	S:	93	124	109			160	155	156	P	Sm/Tex
"	—"—	120	—"—	—"—	—"—	—"—	—"—	B: 250	W:										
								P: 8	S:	118	128	125			136	148	152	P	Sm/Sm
"	8411	300	—"—	—"—	—"—	W# 39	DN	B:	W: 750	117	109	104							
								P:	S: 45	116	115	108			143	146	137	P	Sm/Sm
"		350	—"—	—"—	—"—	W# 9	NS	B:	W: 750	118	105	106							
								P:	S: 40	110	104	107			151	154	152	P	Sm/Sm
6-15-04	741	745	58°-76	—"—	—"—	mx 2	KS	B: 250	W:										
								P: 8	S:	129	130	133			167	166	161	P	Tex/Tex
"	8411	1015	—"—	—"—	—"—	W# 39	DN	B:	W: 750	120	104	134							
								P:	S: 45	112	115	125			168	154	149	P	Sm/Sm
"	—"—	1145	—"—	—"—	—"—	—"—	—"—	B:	W: 750	115	116	110							
								P:	S: 45	113	110	118			169	155	163	P	Sm/Sm
6-16-04	8411	910	54°-74°	—"—	cloudy	W# 39	DN	B:	W: 750	129	125	131							
								P:	S: 45	140	137	139			168	168	168	P	Sm/Sm
"		915	—"—	—"—	—"—	W# 9	KC	B:	W: 750	125	134	135							
								P:	S: 40	117	123	147			157	161	162	P	Sm/Sm

TRIAL WELD TESTING REPORT FORM

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PROJECT NAME: Sherco Generating Station | **JOB NUMBER:** 24016 | **MAT'L TYPE:**

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6-16-04		110	54-74	cloudy	J-C	WH 9	KC	B:	W: 750	102	123	118						
								P:	S: 40	123	123	109		138	136	143	P	Sm/Sm
〃		120	〃	〃	〃	WH 39	DN	B:	W: 750	128	123	124						
								P:	S: 45	116	123	126		157	159	158	P	Sm/Sm
〃	741	125	〃	〃	〃	MX 2	KS	B: 250	W:									
								P: 8	S:	126	126	118		156	159	152	P	Tex/Sm-
6-17-04	741	730	58°-78°	SUNNY	JC	MX 2	KS	B: 250	W:									
								P: 8	S:	130	130	132		156	153	161	P	Sm/Sm
〃	8411	820	〃	〃	〃	WH 39	DN	B:	W: 750	135	133	135						
								P:	S: 45	129	131	131		188	172	188	P	Sm/Sm
〃		825	〃	〃	〃	WH 9	KC	B:	W: 750	131	139	143						
								P:	S: 40	134	132	130		164	162	181	P	Sm/Sm
〃	8411	130	〃	〃	〃	WH 39	DN	B:	W: 750	110	121	126						
								P:	S: 45	115	120	115		153	147	137	P	Sm/Sm
〃		200	〃	〃	〃	WH 9	KC	B:	W: 750	121	112	120						
								P:	S: 40	114	120	132		149	158	170	P	Sm/Sm
〃		530	〃	〃	〃	MX 1	RAO	B: 250	W:									
								P: 7	S:	149	140	128		154	152	154	P	Sm/Sm-

GSI

TRIAL WELD TESTING REPORT FORM

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-18-04	741	745	58-74	cloudy	J-C	mx 2	KS	B: 250 P: 8	W: S:		128	171	126		166	168	176	P	sm/sm
〃		755	〃	〃	〃	mx 05	R-O	B: 250 P: 8	W: S:		130	130	135		171	172	166	P	sm/sm
〃	8411	1030	〃	〃	〃	W# 39	DN	B: P:	W: 750 S: 40		131 140	144 146	153 150		188	185	207	P	sm/sm
〃		1020	〃	〃	〃	W# 9	KC	B: P:	W: 750 S: 40		135 138	116 142	144 166		171	179	179	P	sm/sm
〃	8411	135	〃	〃	〃	W# 39	DN	B: P:	W: 750 S: 40		143 131	135 137	120 129		154	163	174	P	sm/sm
〃	741	130	〃	〃	〃	mx 2	KS	B: 250 P: 8	W: S:		136	139	137		161	169	173	P	sm/sm
〃		140	〃	〃	〃	W# 9	KC	B: P:	W: 750 S: 40		113 121	130 133	120 123		170	181	169	P	sm/sm
								B: P:	W: S:										
								B: P:	W: S:										

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
		HV

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES										
DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-19-04	741	735	68-76	SUNNY	JC	mx 2	KS	B: 250	W:										
								P: 8	S:		98	119	101		161	163	152	P	sm/sm
"		740	"	"	"	W# 9	KC	B:	W: 750		133	132	135						
								P:	S: 40		152	133	140		167	165	171	P	sm/sm
"	8411	115	"	"	"	W# 9	ON	B:	W: 750		107	110	122						
								P:	S: 40		116	110	118		145	171	186	P	sm/sm
"		115	"	"	"	mx 2	R.H	B: 250	W:										
								P: 8	S:		113	81	117		153	152	157	P	sm/sm
6-21-04		900	58-74	SUNNY	"	W# 9	KC	B:	W: 750		129	146	150						
								P:	S: 40		122	127	133		163	166	157	P	sm/sm
"	8411	910	"	"	"	W# 20	ON	B:	W: 750		108	107	121						
								P:	S: 3.5		117	113	106		166	168	163	P	sm/sm
"		105	"	"	"	W# 9	KC	B:	W: 750		119	99	104						
								P:	S: 40		96	118	97		163	166	158	P	sm/sm
"	8411	115	"	"	"	W# 20	ON	B:	W: 750		123	129	115						
								P:	S: 3.5		121	125	120		152	163	156	P	sm/sm
"	741	115	"	"	"	mx 2	KS	B: 250	W:										
								P: 8	S:		136	152	137		162	170	168	P	Tex / Tex

TRIAL WELD TESTING REPORT FORM

12 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES									
DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6-22-04	7H1	7H9	58-78	SUNNY	J.C	mx 2	KS	B: 250 P: 8	W: S:	140	139	114		198	195	195	P	Tex / Tex
〃		905	〃	〃	〃	w# 9	Kc	B: P:	W: 750 S: 40	131 135	121 135	108 130		158	158	155	P	sm/sm
〃	8H11	915	〃	〃	〃	w# 13	DN	B: P:	W: 750 S: 45	116 134	133 127	134 128		174	164	158	P	sm/sm
〃		105	〃	〃	〃	w# 9	Kc	B: P:	W: 750 S: 40	105 126	121 135	132 127		150	153	149	P	sm/sm
〃	8H11	110	〃	〃	〃	w# 13	DN	B: P:	W: 750 S: 45	123 120	118 126	136 129		156	159	168	P	sm/sm
〃	7H1	120	〃	〃	〃	mx 2	KS	B: 250 P: 8	W: S:	139	147	144		159	158	158	P	Tex/sm
6-23-04		750	51-78	SUNNY	〃	mx 2	RAO	B: 250 P: 8	W: S:	88	102	83		181	169	174	P	sm/sm
〃		840	〃	〃	〃	w# 9	Kc	B: P:	W: 750 S: 40	117 118	120 109	122 120		161	184	186	P	sm/sm
〃	8H11	955	〃	〃	〃	w# 13	DN	B: P:	W: 750 S: 40	131 129	128 134	127 122		164	158	156	P	sm/sm

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TRIAL WELD TESTING REPORT FORM

13

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE: 60 mil
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6-23-04		105	51-73	SUNNY	J.C	W# 9	KC	B:	W: 750	94	101	117						
								P:	S: 40	115	102	101		151	142	128	P	SM/SM
"	8411	120	"	"	"	W# 13	DN	B:	W: 750	129	124	112						
								P:	S: 43	124	116	122		147	149	152	P	SM/SM
"		205	"	"	"	mx 2	RAO	B: 250	W:									
								P: 8	S:	138	125	125		164	165	158	P	SM/SM
6-24-04		840	43-62	windy Sunny		W# 9	KC	B:	W: 750	135	139	144						
								P:	S: 40	132	139	133		192	180	189	P	SM/SM
"	8411	910	"	"	"	W# 13	DN	B:	W: 750	131	139	130						
								P:	S: 40	128	127	133		161	149	155	P	SM/SM
"		920	"	"	"	mx 2	RAO	B: 250	W:									
								P: 8	S:	141	147	143		164	157	168	P	SM/SM
"		115	"	"	"	W# 9	KC	B:	W: 750	116	149	130						
								P:	S: 40	120	129	137		159	165	153	P	SM/SM
"	8411	120	"	"	"	W# 13	DN	B:	W: 750	138	128	135						
								P:	S: 40	133	133	130		165	149	155	P	SM/SM
"		212	"	"	"	mx 2	RAO	B: 250	W:									
								P: 8	S:	143	137	147		166	164	169	P	SM/SM.

TRIAL WELD TESTING REPORT FORM

14

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES									
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6.25.04		745	46-72	SUNNY	J.C	mx 02	RAO	B: 250 P: 8	W: S:	146	126	137		181	163	175	P	sm/sm
〃		920	〃	〃	〃	W# 9	K.C	B: P:	W: 750 S: 40	133 125	120 129	129 128		148	177	155	P	sm/sm
〃	8411	925	〃	〃	〃	W# 13	DN	B: P:	W: 750 S: 40	120 125	132 120	133 118		160	138	176	P	sm/sm
〃		110	〃	〃	〃	W#9	KC	B: P:	W: 750 S: 40	115 122	127 128	133 119		144	153	160	P	sm/sm
〃	8411	115	〃	〃	〃	W# 13	DN	B: P:	W: 750 S: 40	125 111	137 135	142 142		168	154	175	P	sm/sm
〃		110	〃	〃	〃	mx OR	RAO	B: 250 P: 8	W: S:	116	136	137		165	145	175	P	sm/sm
〃		434	〃	〃	〃	mx 05	OS	B: 250 P: 7	W: S:	191	159	159		176	167	167	P	sm/Tex
6.26.04		805	53-74	〃	〃	W# 9	K.C	B: P:	W: 750 S: 40	133 116	137 118	135 115		177	170	181	P	sm/sm
〃	8411	810	〃	〃	〃	W# 13	DN	B: P:	W: 750 S: 40	135 124	127 149	147 119		176	189	175	P	sm/sm.

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TRIAL WELD TESTING REPORT FORM

15

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-26-04		910	53-74	SUNNY	J.C	mx 05	RAO	B: 250	W:										
								P: 7	S:		149	163	156		181	185	184	P	Sm/sm
〃	8411	1.05	〃	〃	〃	w# 13	DN	B:	W: 750		109	137	135						
								P:	S: 40		118	138	126		178	165	177	P	Sm/sm
〃		115	〃	〃	〃	w# 9	KC	B:	W: 750		116	132	132						
								P:	S: 40		127	128	124		158	165	151	P	sm/sm
〃		130	〃	〃	〃	mx 05	RAO	B: 250	W:										
								P: 7	S:		151	154	146		150	154	150	P	sm / Tex
6-28-04		825	51-76	SUNNY	J.C	w# 9	KC	B:	W: 750		104	123	104						
								P:	S: 40		106	103	119		173	175	178	P	Sm/sm
〃		847	〃	〃	〃	mx 05	RAO	B: 250	W:										
								P: 7	S:		97	132	139		169	169	167	P	Sm/sm
〃	8411	850	〃	〃	〃	w# 13	DN	B:	W: 750		120	132	123						
								P:	S: 40		115	117	121		169	155	160	P	Sm/sm
〃		105	〃	〃	〃	w# 9	KC	B:	W: 750		117	131	134						
								P:	S: 40		124	126	118		153	161	159	P	Sm/sm
〃	8411	110	〃	〃	〃	w# 13	DN	B:	W: 750		117	129	130						
								P:	S: 40		133	131	128		159	156	149	P	Sm/sm

GSI

TRIAL WELD TESTING REPORT FORM

16

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
6.28.04		220	51-76	Sunny	JC	mx 05	RAO	B: 250	W:									
								P: 7	S:		121	137	122		137	139	140	P	sm/sm.
6.29.04		740	56-80	Sunny	"	mx 05	RAO	B: 250	W:									
								P: 7	S:		120	137	150		158	158	161	P	sm/sm.
"		745	"	"	"	W# 9	KC	B:	W: 750		110	121	124						
								P:	S: 40		122	110	116		136	179	165	P	sm/sm
"		115	"	"	"	W# 9	KC	B:	W: 750		104	131	107						
								P:	S: 40		124	124	107		163	161	162	P	sm/sm
"		120	"	"	"	W# 13	DN	B:	W: 750		128	120	133						
								P:	S: 40		126	127	124		159	160	169	P	sm/sm
"		125	"	"	"	mx 05	RAO	B: 250	W:									
								P: 7	S:		126	140	133		133	140	129	P	sm/Tex
6.30.04		755	59-88	SUNNY	"	W# 9	KC	B:	W: 750		110	97	113						
								P:	S: 40		119	129	121		145	155	152	P	sm/sm
"		800	"	"	"	mx 02	RAO	B: 250	W:									
								P: 8	S:		127	138	117		170	169	182	P	Tex/Tex
"		810	"	"	"	W# 13	DN	B:	W: 750		138	133	132						
								P:	S: 40		130	129	124		155	169	146	P	sm/sm

GSI

TRIAL WELD TESTING REPORT FORM

17

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-30-04		110	59°-88	SUNNY	IC	W# 9	K.C	B:	W: 750		108	118	111					P	sm/sm
								P:	S: 40		111	99	114		134	131	143		
"		110	-"-	-"-	-"-	mx 02	R.A-O	B: 250	W:									P	sm/Tex
								P: 7	S:		133	113	111		134	136	139		
"		115	-"-	-"-	-"-	W# 13	DN	B:	W: 750		120	128	123					P	sm/sm
								P:	S: 40		115	125	120		159	150	155		
7-1-04		745	68°-80	Sunny	-"-	W# 9	KC	B:	W: 750		146	130	128					P	sm/sm.
								P:	S: 40		121	104	115		187	176	163		
"		855	-"-	-"-	-"-	mx 02	RAO	B: 250	W:		87	127	134		182	182	182	P	sm/sm.
								P: 7	S:										
"		105	-"-	-"-	-"-	W# 9	KC	B:	W: 750		110	121	123					P	sm/sm.
								P:	S: 40		112	103	97		152	176	147		
"		110	-"-	-"-	-"-	mx 02	RAO	B: 250	W:									P	sm/sm.
								P: 7	S:		121	130	108		172	170	176		
"		110	-"-	-"-	-"-	W# 13	DN	B:	W: 750		129	124	111					P	sm/sm.
								P:	S: 43		110	112	118		172	149	149		
"		120	-"-	-"-	-"-	W# 13	DN	B:	W: 750		118	129	119					P	sm/Tex
								P:	S: 35		115	127	119		146	146	169		

GSI

TRIAL WELD TESTING REPORT FORM

18

PROJECT NAME:								JOB NUMBER:						MAT'L TYPE:								
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES												
DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS			
7-1-04		645	68-80	Sunny	JC	WH 9	KC	B:	W: 750		115	118	122									
								P:	S: 30		113	112	113		182	158	139	P	sm/Tex			
7-2-04		720	72-86	Sunny	JC	mx 02	AOR	B: 250	W:													
								P: 7	S:		131	116	115		182	183	184	P	sm/sm			
"		110	—"	—"	—"	mx 02	R AO	B: 250	W:													
								P: 7	S:		119	128	105		148	146	161	P	sm/sm			
"		310	—"	—"	—"	mx 04	—"	B: 260	W:													
								P: 7	S:		137	130	139		146	141	139	P	sm/Tex			
"		320	—"	—"	—"	mx 04	—"	B: 260	W:													
								P: 7	S:		128	129	153		133	137	134	P	sm/sm			
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:								JOB NUMBER:								MAT'L TYPE:								
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES														
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)						SHEAR (PPI)			P/F	COMMENTS				
7-2-04	f	9:45	70°	Sunny	LS	09	KC	B:	W: 750	121	107	127				145	149	161	P					
								P:	S: 40	119	116	115												
7-2-04	f	1:15	75°	Sunny	LS	09	KC	B:	W: 750	100	95	93				141	126	144	P					
								P:	S: 40	104	100	102												
7-2-04	f	1:10	75°	Sunny	LS	13	DN	B:	W: 750	123	116	118				143	145	147	P					
								P:	S: 40	118	125	120												
7-2-04	f	4:35	85°	Sunny	LS	09	KC	B:	W: 750	116	119	106				128	132	138	P	5M - TX				
								P:	S: 40	120	118	118												
7-6	f	9:45	65°	Cloudy	LS	09	KC	B:	W: 750	124	128	141												
								P:	S: 40	141	146	135				193	109	109	P	5M - 5M				
7-8	f	7:40	65°	Sunny	LS	09	KC	B:	W: 750	120	99	120												
								P:	S: 40	99	119	117				177	185	171	P	5M - 5M				
7-8	f	7:45	65°	Sunny	LS	13	DN	B:	W: 750	132	123	127												
								P:	S: 40	120	108	127				175	171	176	P	5M - 5M				
7-8	Ex	8:05	65°	Sunny	LS	04	RAO	B: 250	W:															
								P: 7	S:	158	161	162				170	171	169	P	5M - 5M				
7-8	Ex	8:10	65°	Sunny	LS	04	RAO	B: 250	W:															
								P: 7	S:	160	148	155				173	178	174	P	5M - TX				

CSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)						SHEAR (PPI)			P/F	COMMENTS
7-8	f	1:05		sunny	LS	09	KC	B:	W: 750	121	117	113								
								P:	S: 40	117	110	97				126	136	141	P	5M - 5M
7-8	f	1:15		sunny	LS	13	DN	B:	W: 750	122	114	134								
								P:	S: 40	116	125	123				155	155	155	P	5M - TX
7-8	f	3:20		sunny	LS	13	DN	B:	W: 750	129	125	124								
								P:	S: 30	127	120	110				128	148	131	P	TX - TX
7-8	Ex	3:30		sunny	LS	02	RAO	B: 250	W:											
								P: 7	S:	128	148	131				172	175	172	P	TX - TX
7-9	f	7:55		sunny	LS	13	DN	B:	W: 750	129	122	118								
								P:	S: 40	123	125	114				151	172	170	P	5M - 5M
7-9	f	8:00		sunny	LS	09	KC	B:	W: 750	124	122	114								
								P:	S: 40	117	111	132				169	177	181	P	5M - 5M
7-9	Ex	8:45		cloudy	LS	02	RAO	B: 250	W:											
								P: 7	S:	198	137	132				181	181	176	P	5M - TX
7-9	Ex	8:50		cloudy	LS	02	RAO	B: 250	W:											
								P: 7	S:	132	125	124				172	171	170	P	5M / 5M
7-9	f	1:05		cloudy	LS	09	KC	B:	W: 750	106	108	113								
								P:	S: 40	122	114	102				136	151	142		5M / 5M

CSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-9	f	1:10		cloudy	LS	13	DN	B:	W: 750	114	109	117						P	sm sm
								P:	S: 40	114	105	114			149	150	144		
7-9	Ex	2:15		cloudy	LS	02	RAO	B: 250	W:									P	sm sm
								P: 7	S:	119	127	133			134	132	130		
7-9	Ex	2:20		cloudy	LS	02	RAO	B: 250	W:									P	sm Tx
								P: 7	S:	127	129	129			129	126	124		
7-9	f	6:20		sunny	LS	13	DN	B:	W: 750	129	122	128						P	sm tx
								P:	S: 35	116	110	114			148	140	142		
7-9	f	7:15		sunny	LS	09	KC	B:	W: 750	135	133	125						P	sm tx
								P:	S: 30	111	129	141			179	182	176		
7-10	f	8:00		cloudy	LS	09	KC	B:	W: 750	104	132	132						P	sm sm
								P:	S: 40	134	130	131			148	150	146		
7-10	Ex	8:10		cloudy	LS	02	RAO	B: 250	W:									P	sm Tx
								P: 7	S:	124	124	138			164	170	168		
7-10	Ex	8:15		cloudy	LS	02	RAO	B: 250	W:									P	sm Tx
								P: 7	S:	113	109	125			164	177	176		
7-10	f	8:25		cloudy	LS	13	DN	B:	W: 750	118	118	119						P	sm sm
								P:	S: 40	120	127	131			174	178	177		

GSI

TRIAL WELD TESTING REPORT FORM

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PROJECT NAME:								JOB NUMBER:						MAT'L TYPE:							
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES											
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-10	f	1:10		Sunny		09	KC	B: P:	W: 750 S: 40	97	104	102			147	147	149	P	sm sm
7-10	f	1:15		Sunny		13	DN	B: P:	W: 750 S: 40	111	110	109			156	153	156	P	sm sm
7-10	Ex	1:20		Sunny		02	RAD	B: 250 P: 7	W: S:	106	121	129			130	138	142	P	sm sm
7-10	Ex	1:25		Sunny		02	RAD	B: 250 P: 7	W: S:	123	129	129			138	142	136	P	sm TX
7-10	f	3:05		Sunny		13	DN	B: P:	W: 750 S: 35	141 118	133 121	131 129			165	159	163	P	sm TX
7-10	f	4:05		Sunny		39	BC	B: P:	W: 750 S: 30	120 116	115 129	113 117			155	155	148	P	sm TX
7-12	f	8:00		Sunny		09	KC	B: P:	W: 750 S: 40	120 130	115 122	119 121			209	195	196	P	sm/sm
7-12	Ex	8:15		Sunny		02	RAD	B: 250 P: 7	W: S:	143	139	133			155	157	155	P	sm sm
7-12	Ex	8:20		Sunny		02	RAD	B: 250 P: 7	W: S:	135	151	146			162	163	158	P	sm TX

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-12	f	8:30		sunny		13	DN	B:	W: 750	131	139	134							
								P:	S: 40	136	128	121			154	147	151	P	sm sm
7-12		1:10				09	KC	B:	W: 750	165	104	101							
								P:	S: 40	108	121	116			149	155	153	P	sm sm
7-12		1:15		sunny		13	DN	B:	W: 750	125	138	140							
								P:	S: 40	118	138	138			153	174	163	P	sm sm
7-12		1:20				02	RAO	B: 250	W:										
								P: 7	S:	117	124	125			155	171	154	P	sm TX
7-12		1:25				02	RAO	B: 250	W:										
								P: 7	S:	122	107	118			147	166	154	P	sm sm
7-12		5:50				39	DN	B:	W: 750	127	130	124							
								P:	S: 40	113	117	115			135	134	141	P	sm-sm
7-13		7:50				09	KC	B:	W: 750	103	125	117							
								P:	S: 40	102	125	120			145	160	155	P	sm-sm
7-13		8:15				39	DN	B:	W: 750	118	120	119							
								P:	S: 40	117	118	119			140	158	156	P	sm-sm
7-13		8:35				02	RAO	B: 250	W:										
								P: 7	S:	141	136	143	149		145	149	141	P	sm-sm

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

ENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
								B: 250	W:										
7-13		1:25		sunny		02	RAO	P: 7	S:	94	88	95			144	147	141	P	SM TX
								B:	W: 756	123	113	118							
7-13		125		sunny		39	DN	P:	S: 40	118	115	115			145	150	143	P	SM SM
								B:	W: 750	122	125	119							
7-13		3:50		Sunny		13	DN	P:	S: 40	120	120	120			150	156	150	P	SM SM
								B:	W: 750	125	120	117							
7-14		8:00		Sunny		09	KC	P:	S: 40	118	116	133			164	171	162	P	SM SM
								B: 250	W:										
7-14		8:15		Sunny		02	RAO	P: 7	S:	151	144	148			163	160	155	P	SM SM
								B: 250	W:										
		8:25		Sunny		02	RAO	P: 7	S:	120	146	132			167	168	161	P	SM TX
								B:	W: 750	111	119	118							
		8:32		sunny		13	DN	P:	S: 40	113	112	102			141	131	136	P	SM-SM
								B:	W: 750	136	122	126							
		1110				09	KC	P:	S: 40	131	98	134			171	169	123	P	SM-SM
								B:	W: 750	105	105	105			148	151	163		
		1:15		Sunny		13	DN	P:	S: 40	118	109	113						P	SM-SM

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TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	* COMMENTS
7-15-04	D.N.	7:55 AM		Sunny		W# seam #13	D.N.	B:	W: 750	115	123	120			177	169	176	P	D.N.
								P:	S: 40.	116	125	123							Sm/Sm
7-15-04	K.L	750 40				#9	K.C	B:	W: 750	119	127	124			166	156	163	P	K.C
								P:	S: 40	134	134	132							Sm/Sm
7-15-04		8:15		—u—		m# 02	R-A-O	B: 250	W:										
								P: 7	S:	116	116	134			149	151	151	P	sm/sm
—u—		8:25		—u—		—u—	—u—	B: 250	W:										
								P: 7	S:	138	114	80			153	155	161	P	sm/Tex
7-15-04		1:15				W 9.	K.L	B:	W: 750	113	120	109			129	136	152	P	sm/sm
								P:	S: 40	97	108	105							K.C
7-15-04		1:40		—u—		W# 13	D.N	B:	W: 750		124	117	101						
								P:	S: 40		113	106	109		144	136	135	P	sm/sm.
—u—		1:50		—u—		—u—	—u—	B:	W: 750		118	116	110						
								P:	S: 30		112	112	110		144	144	144	P	sm/Tex
—u—	579	2:10		—u—		W# 20	B.C	B:	W: 750		92	100	101						
								P:	S: 40		98	93	100		135	135	133	P	sm/Tex
—u—		3:00		—u—		m# 02	R-A-O	B: 250	W:		110	127	118		148	136	142	P	sm/sm
								P: 7	S:		132	100	113		NA	140	136	P	sm/Tex

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
[illegible]		8:[illegible]		~~Cloudy~~		W# 9	K-C	B:	W: ~~750~~	~~104~~	~~132~~	~~132~~							
								P:	S: 40	~~121~~	~~120~~	~~121~~			[illegible]	150	146	P	sm/sm
[illegible]		~~8:10~~		— " —		~~mx 02~~	~~R-A-O~~	B:	W:										
								P:	S:										sm/sm
7-15-04		5:15		SUNNY		W# 20	KC	B:	W: 750		124	124	127						
								P:	S: 50		125	108	115		149	147	149	P	sm/sm
— " —		5:50		— " —		W# 23	OS	B:	W: 750		108	101	109						
								P:	S: 45		100	111	99		150	147	146	P	sm/sm ~~[illegible]~~
— " —		6:15				— " —	OS	B:	W: 750		134	100	107						
								P:	S: 35		106	107	125		157	157	157	P	sm/Tex
— " —		6:30				W# 23	OS	B:	W: 750		138	127	138						
								P:	S: 35		119	138	128		163	165	167	P	Tex/Tex
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)			SHEAR (PPI)			P/F	COMMENTS
7.16		8:00		SUNNY		W 20	KC	B:	W: 750	117	98	121					
								P:	S: 45	99	114	99	178	181	139	P	KC SM/SM
"		8:40		"		M#1		B: 250	W:	131	138	139	152	153	152	P	SM/SM
		8:25				02	R-A-O	P: 7	S:	98	103	125	153	157	165	P	SM/TEX
"		12:15		"		W#1		B:	W: 750	111	112	102					
						20	K.C	P:	S: 45	102	125	118	164	174	168	P	SM/SM
"		1:40		"		MX		B: 250	W:	135	142	140	155	150	154	P	SM/SM
		2:00				02	R-A-O	P: 7	S:	115	118	116	156	153	159	P	SM/TEX
"		1:15		"		W 20	KC	B:	W: 750	128	129	116	157	160	164	P	
								P:	S: 30	140	127	132					SM/TEX
[illegible]		[illegible]		[illegible]		W#20 [illegible]	[illegible] KC	B:	W: 75	121	126	114	157	170	165	P	
								P:	S: 30	126	122	125					TEX/TEX
"		1:20 PM		"		W#23	ON	B:	W: 750	113	114	114	165	164	165		
								P:	S: 40	115	113	115					SM/SM
"		1:25		"		W#23	ON	B:	W: 750	148	144	149	178	176	163		
								P:	S: 3.0	150	135	138					TX/TX
"		1:30		"		W#23	ON	B:	W: 750	130	115	121	176	163	171		
								P:	S: 30	119	110	139					SM/TX

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TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)			SHEAR (PPI)			P/F	COMMENTS
7-17-04	D.N.	8:10		sunny		Mach 23	D.N	B:	W: 750	150	145	153	155	165	145		Da Nang
								P:	S: 30.	144	136	134				P	TX/TX
7-17-04	D.N.	8:15		Sunny		Mach 23	DN.	B:	W: 750	115	118	112					Da Nang
								P:	S: 40.	114	110	105	154	161	171	P	sm/sm
7-17-04	KC.	8:00				W 20	KC	B:	W: 750	144	131	136	190	195	194	P	
								P:	S:	116	121	122					sm/sm
〃	〃	〃		〃		〃	KC	B:	W: 750	124	134	120					
								P:	S: 40	132	125	134	160	198	198	P	Tex/Tex
〃		820		〃		mx 02	R-A.O	B: 250	W:	135	118	98	177	174	172	P	sm/Tex
								P: 7	S:	105	145	104	175	179	174	P	Tex/Tex
〃	KC	1.20		〃		W 20	KC	B:	W: 750	139	136	[illegible]					
								P:	S: 30	119	121	138	171	180	184	P	sm/Tex
〃		1:30	〃	〃		wh 20	KC	B:	W: 750	109	105	112					
								P:	S: 40	100	106	103	164	163	148	P	sm/sm.
〃		1:40		〃		mx 02	R-A-O	B: 250	W:	119	127	117	166	167	169	P	Tex/Tex
								P: 7	S:	123	128	125	138	142	142	P	sm/Tex
〃	DN	1:45		〃		wh 23	DN.	B:	W: 750	114	122	122	[illegible]	176	176	P	
								P:	S: 40.	116	125	119					sm/sm
〃	DN	1:50		〃		wh 23	DN		750	117	107	113	153	173	155		
									30.	110	100	113					Sm/

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TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES							
DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP. (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)			SHEAR (PPI)			P/F	COMMENTS
7-19-24		8:35		SUNNY		MX 02	R.A-O	B: 250 P: 7	W: S:	159 102	158 115	159 105	178 198	179 182	175 172	P P	Tex/Tex sm/Tex
7-19-24	~~[illegible]~~	9:05		"		2W 20	AC	B: P:	W: ~~750~~ S: 40	118 133	117 125	115 102	188	173	164	P	sm/sm
"		9:10		"		WH 20	KC	B: P:	W: 750 S: 30	101 132	118 125	102 121	198	188	197	P	sm/Tex
"		9:15		"		WH 23	DN	B: P:	W: 750 S: 40	125 107	114 105	112 103	158	154	158	P	sm/sm
"		9:40		Cloudy		MX-4	KS	B: ~~550~~ 450 P:	W: S:	115 ~~93~~	134 ~~116~~	134	144	145	147	P	sm/sm
"		1:30		"		W 20	KC	B: P:	W: 750 40 S:	104 98	104 115	114 97	134	159	141	P	sm/sm
~~-V-~~		~~1:40~~		~~-11-~~		~~WH23~~	~~DN~~	B: ~~750~~ P: ~~40~~	W: S:	119 113	116 118	104 114	150	152	154	P	sm·Tx.
-V-		1:40		-11-		WH23	DN	B: 750 P: 40	W: S:	109 108	114 112	110 113	151	141	155	P	sm/sm
-V-		1:45		-11-		WH23	DN	B: 750 P: 30	W: S:	125 128	144 131	137 119	162	169	164		sm/TX
-V-		~~1:45~~		-11-		MX04	RAO	250 7		123 124	131 125	132 121	153 164	148 147	160 164		sm/TX
-V-		1:55		-11-		WH 20	RAO	250 7									

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TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-20-04		8:00		SU		W 20	KC	B:	W: 750/40	114	117	120			191	184	195	P	
								P:	S:	121	122	101							sm/sm
—	—	—		—		—	—	B:	W: 750	106	129	130			168	188	152		
								P:	S: 30	131	124	106						P	sm/Tex
7-20-04		8:15		—		W# 23	QN	B:	W: 750	107	105	122							
								P:	S: 40	104	110	105			168	172	166	P	sm/sm
—		8:25		—		mx 02	RAO	B: 250	W:	131	117	111			162	165	163	P	sm/Tex
								P: 7	S:	140	139	137			167	170	172	P	Tex/Tex
—		1:15		—		W 20	KC	B:	W: 750/40	106	111	104			160	162	148	P	sm/sm
								P:	S:	103	105	105							
—		1:20 pm		—		W#23	D.N	B:	W: 750	109	113	108			136	145	135	P	sm/sm
								P:	S: 40	102	100	99							
—		1:35		—		mx 02	R.A.O	B: 250	W:	118	102	136			146	143	145	P	Tex/Tex
								P: 7	S:	119	122	127			137	135	134	P	sm/Tex
—		3:10 pm		—		W#23	DN	B:	W: 750	115	115	118			145	146	148	P	sm/Tx
								P:	S: 30	118	114	118							
								B:	W:										
								P:	S:										

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-21-04		8:05		S		W 20	KC	B:	W: 750	122	99	119			152	150	158	P	KC
								P:	S:	120	99	114							
7-21-04	8411	8:10		S		W#23	D.N.	B:	W: 750	119	123	119							D.N.
								P:	S: 40	116	127	113			178	180	183	P	SM / SM
"	8411	10:25		SUNNY		W# 23	DN	B:	W: 750		152	146	133						
								P:	S: 30		140	136	130		159	157	155	P	Tex / Tex
"	KC	1:30		"		W 20	KC	B:	W: 750		113	121	108		130	133	145	P	SM / SM
								P:	S:		99	106	118						
7-21-04	DN	2:15		SUNNY		W#23	DN	B:	W: 750		110	110	116	MS	156	165	155	P	SM / SM
								P:	S: 40		113	109	109						
7-21-04	DN	2:20		"		W#23	DN	B:	W: 750		108	115	115		155	176	165	P	SM / Tex
								P:	S: 30		122	115	119						
"		2:46		"		MX 02	R.A.O	B: 250	W:		128	127	125		151	154	150	P	Tex / Tex
								P: 2	S:		125	127	127		162	159	152	P	SM / Tex
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-22		7:40		Sunny		MX 02	RAC	B: 250	W:										
								P: 7	S:	158	136	149			173	176	197	P	SM TX
7-22		745		"		MX 02	RAC	B: 250	W:										
								P: 7	S:	142	149	158			172	172	169	P	TX TX
7-22		745		"		MX 04	DP	B: 250	W:										
								P: 6	S:	127	120	115			160	166	160	P	SM SM
7-22		7:50		"		MX 04	DP	B: 250	W:										
								P: 6	S:	140	140	148			164	165	162	P	SM - TX
"		140		"		MX 02	RAC	B: 250	W:	132	126	126			144	135	136	P	SM/TEX
								P: 7	S:	129	118	132			139	141	138	P	SM/SM
"		1:55		"		WH 23	DN	B:	W: 750	114	115	103							
								P:	S: 30	135	108	106			157	152	150	P	SM/TEX
"		2:05		"		"	"	B:	W: 750	108	106	103							
								P:	S: 40	107	97	106			137	141	138	P	SM/SM
"		2:10		"		WH 13	K-C	B:	W: 750	127	135	134							
								P:	S: 40	121	125	128			146	144	145	P	SM/SM
"		3:20		"		WH 20	DN	B:	W: 750	126	128	108							
								P:	S: 40	123	131	125			136	141	141	P	SM/SM

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME:								JOB NUMBER:											MAT'L TYPE:											
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES																			
DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT.	MACH NO.	SEAMER INT.	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)								SHEAR (PPI)				P/F	COMMENTS						
7-23-04		8:03		SUNNY		MX 02	RAO	B: 250	W:		116	123	113					178	181	177		P	SM / TEX						
								P: 7	S:		140	110	109					124	125	182		P	SM / SM						
"		9:16		"		W 13	KC	B:	W: 750 +40		129	134	138					145	174	177		P							
								P:	S:		132	139	132																
7-23-04		8:45		SUNNY		MX 20	DN	B:	W: 750		129	131	128					170	102	158		P	DN						
								P:	S: 40		139	128	122										SM / SM						
"		136		"		W 13	KC	B:	W: 750 +40		139	124	140					153	155	177		P	SM / SM						
								P:	S:		255	113	118																
7-23-04		1:40 PM		SUNNY		MX 20	DN	B:	W: 750		112	116	115					158	163	146		P	SM / TEX						
								P:	S: 30		118	113	119																
"		2:20		"		MX 02	RAO	B: 250	W:		93	109	93					161	153	155		P	SM / SM						
								P: 7	S:		148	110	126					162	161	152		P	SM / TEX						
"		2:40		"		MX 17	KS	B: 425	W:																				
								P: 550	S:		126	110	121					166	161	161			SM / SM						
"		2:45		"		W 20	DN	B:	W: 750		124	124	122																
								P:	S: 40		129	118	123					155	166	143		P	SM / SM						
								B:	W:																				
								P:	S:																				

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME:								JOB NUMBER:											MAT'L TYPE:									
TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES																	
DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)							SHEAR (PPI)				P/F	COMMENTS
7-24-04		7:40				W 13	KC	B:	W: 750	155	155	143			151	133	139			F	KC sm/sm
								P:	S: 40.	131	136	135										
7-24-04		8:00		sunny		water	DN	B:	W: 750	133	144	144			165	155	176			P	DN sm/sm
								P:	S: 40.	132	140	137										
"		8:10		"		mx 17	KS	B: 550	W:													
								P: 425	S:	114	112	143				178	179	178		P	Tex/Tex
"		8:20		"		mx 02	RAO	B: 250	W:													
								P: 7	S:	152	162	163				178	182	182		P	sm/sm
"		8:30		"		mx 04	DP	B: 260	W:													
								P: 6	S:	112	138	132				152	152	138		P	sm/sm
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													
								B:	W:													
								P:	S:													

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
7-26-04		7:50		SUNNY		MX 02	RAO	B: 250 P: 7	W: S:	127	124	102		175	174	173	P	sm/sm
7-26-04		8:15		— " —		W 13	KC	B: P:	W: 750 40 S:	131 131	144 128	104 132		193	194	181	P	
7-26-04		8:20		Sunny		M#20	DN	B: P:	W: 750 S: 40	128 118	128 120	120 128		174	172	177	P	sm/sm
7-26-04		4:26 Am		Sunny		W-45	M.T	B: P:	W: 750 S: 55	121 120	126 117	124 123		168	171	172	P	Sm/Sm
7-26-04		1:15		— " —			KC	B: P:	W: 750 S: 40	143 130	132 142	132 125		172	175	178	P	Sd/Sm
7-26-04		1:20		Sunny		W#20	DN	B: P:	W: 750 S: 40	120 120	120 122	125 120		160 ~~155~~	160	160	P	sm/sm
7-26-04		1:25		— " —		W#45	M.T	B: P:	W: 750 S: 5.5	126 112	116 125	128 111		155	140	141		sm/sm
— " —		145		— " —		MX 02	RAO	B: 250 P: 7	W: S:	100	102	107		147	146	135	P	sm/sm
— " —		3:00		— " —		MX 17	D.P	B: ~~550~~ P: ~~450~~	W: 550 S: 450	133	134	131		147	147	147	P	sm/sm
— " —		5:02		— " —		MX 4	BV	525/400		(130 - 141 - 144)				150 + 153 + 143 (P)				sm/sm

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)				SHEAR (PPI)			P/F	COMMENTS
7.27.06		8:25		SUNNY		W 15	K C	B:	W: 750		121	115	82	163	158	164	P	S/S
								P:	S: 40		97	106	117					
7.27.06		8:30		"		W 45	M.T	B:	W: 750	129	137	133		159	164	159		
								P:	S: 5.5	125	125	126					P	SM/SM
"		8:40		—		MX 02	RAO	B: 250	W:									
								P: 7	S:	133	132	132		168	166	168	P	SM/SM
7.27.06		8:45		SUNNY		W#30	DN	B:	W: 750	120	125	120		173	164	173		
								P:	S: 40	118	121	113					P	SM/SM
"		1:15		"		W 15	K ✓	B:	W: 750	139	137	140		170	159	153	P	S/S
								P:	S: 40	120	133	150						
7-27		1:15		Sunny		MX 02	RAO	B: 250	W:									
								P: 7	S:	136	137	128		156	145	139	P	S/S
								B:	W:									
								P:	S:									
								B:	W:									
								P:	S:									
								B:	W:									
								P:	S:									

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID:		

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-28-04	DN	10:30		windy		M#20	DN	B:	W: 750	132	125	115			175	171	165	P	DN
								P:	S: 40	120	118	115							Sm/sm
7-28-04	R.A.C	10:40		2-11		#02		B:	W: 250	123	115	122			165	148	155		
								P:	S: 7	[illegible]								P	Sm/sm
[illegible]	DN	[illegible]		Sunny		M#20	DN	B:	W: 750	136	108	114			152	158	166		
								P:	S: 40	125	126	125						P	Sm/sm
7/29	B-C	9:52				13	BC	B:	W: 750	103	126	138			148	148	146	P	
								P:	S: 40	130	125	130							S/M [illegible]
7/29	MS	2:05		Soul		13	MS	B:	W: 750	115	109	120			140	130	145	P	S/M
								P:	S: 40	112	110	118							
7-29	DN	2:30		sunny		M#20	DN	B:	W: 750	120	120	115			141	130	152		
								P:	S: 40	120	120	114						P	Sm/sm
7-29-04		3:15		— "		MX 02	R.A.O	B: 250	W:										
								P: 7	S:		123	137	117		148	147	145	P	Sm/Sm
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

GSI
TRIAL WELD TESTING REPORT FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
7-31-04		7:45		SUNNY		MX 02	R-A-O	B: 250 P: 7	W: S:		154	116	113		172	176	176	P	SM/SM
7-31-04		7:50		Sunny		WH 15	M-T	B: ~~450~~ P: ~~450~~	W: 750 S: 55	119 113	113 115	124 118			175	180	183	P	SM/SM
"		8:08		"		MX 17	K-S	B: 550 P: 450	W: S:	106	141	124			163	163	164	P	SM/SM
"		8:25		"		WH 20	O N	B: P:	W: 750 S: 40		124 116	121 113	116 118		165	168	166	P	SM/SM
"		8:35		"		WH 13	M-S	B: P:	W: 750 S: 40		122 132	138 138	142 122		171	167	169	P	SM/SM
"		12:0		"		W 15	K C	B: P:	W: 750 S: 40		135 133	136 127	123 132		165	170	180	P	SM/SM
7-31-04		12:10		"		#13	M S	B: P:	W: 750 S: 40		108 109	111 116	110 112		143	134	144	P	SM/SM
7-31-04		12:15 PM		"		~~#13~~	D N	B: P:	W: 750 S: 40		115 115	107 109	103 105		164	158	151	P	SM/SM
7-31-04		12:30		"		MX-17	K S	B: 550 P: 450	W: S:		115 ~~110~~	123 ~~120~~	124 ~~114~~		147 ~~145~~	145 143	139 150	P	SM/SM

7:31-04 12:35 ~~#13~~ W 4 M T 750 ~~102~~ 118 118 ~~110~~ 120 114 145-143-150 P

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CSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					FIELD VALUES SHEAR (PPI)			P/F	COMMENTS
2/8/04		1:20		SUNNY		MX CR	R-AO	B: 250 P: 7	W: S:		134	134	133		136	145	144	P	5 in / 5 in
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										
								B: P:	W: S:										

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
6-2-04				Sunny		MK 02	RAD	B: 250	W:										
								P: 7	S:	106	104	107			155	153	151	P	SM/SM
8-2-04		1:00 pm		Sunny		MK 20	DN	B:	W: 750	124	131	136			156	155	155		
								P:	S: 40	124	140	136							SM/SM
8-2-04		1:20 PM		Sunny		#13	MS	B:	W: 750	106	105	129			157	157	156		
								P:	S: 40	110	114	103							SM/SM
8-2-04		1:40		ok		W 15	KC	B:	W: 750	106	98	106			148	151	138		
								P:	S: 40	106	115	107							SM/SM
8-2-04		150				W- 4	M-T	B:	W: 750	120	114	110			150	147	129		
								P:	S: 5	113	115	105							SM/SM
8-2-04		2:00				MK 02	RAD	B: 250	W:	120	95	121			129	129	132		
								P: 7	S:										SM/SM
8-2-04		2:15				MK 19	KS	B: 250	W:	106	135	120			141	145	149		
								P: 250	S:										SM/SM
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID:								EXTRUSION	FUSION	FIELD VALUES									
DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO	SEAMER INT	BARREL/ PREHEAT	WEDGE/ SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
1/4/04								B:	W: 750	128	120	117			164	171	162		
7:	8:00			SUNNY		W 09.	KC	P:	S: 40	118	116	139						P	sm/sm
1-14-04		8:15		— " —		mx 02	R-A-0	B: 250 P: 7	W: S:	151	144	148			163	160	185	P	sm/sm.
— " —		8:25		— " —		— " —	— " —	B: 250 P: 7	W: S:	120	146	132			167	168	161	P	sm/Tex
— " —		8:32		— " —		WH 13	ON	B: P:	W: 750 S: 4	130	122	126							
										131	98	134			171	169	123	P	sm/sm.
— " —		1:10		— " —		W 09	KL	B: P:	W: S:	111	49	118			141	131	136	P	KC
										113	112	102							
— " —		1:15		— " —		WH 13	DN	B: P:	W: 750 S: 40	105	105	105			148	151	163	P	D. M & sm/sm
										118	109	113							
— " —		1:40		— " —		mx 02	R-A-0	B: 250 P: 7	W: S:	116	132	129			137	135	137	P	sm/sm.
— " —				— " —		— " —	— " —	B: 250 P: 7	W: S:	121	118	120			153	155	151	P	sm/Tex
								B: P:	W: S:										

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TRIAL WELD TESTING REPORT FORM

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PROJECT NAME:

TENSIOMETER ID:

JOB NUMBER:

MAT'L TYPE:

DATE	SAMPLE I.D. (TW#)	TIME	AMB TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
8.3.04		8:10		cloudy		# 13	MS	B:	W: 750	117	104	101			171	166	163		
								P:	S: 40	118	102	98						P	sm/sm
8-3-04	8411	8:50		✓		W#20	DN	B:	W: 750	119	119	116			182	184	178		
								P:	S: 40.	119	119	122						P.	sm/sm
8-3-04		7:45		✓		15	M.T	B:	W: 750	113	131	120			174	168	167		
								P:	S: 4	119	126	113						P	sm/sm
8.3.04		7:52		✓		MX 2	RAD	B: 250	W:	80	118	124			171	169	170		
								P: 7	S:									P	sm/sm
8-3-04		8:30		✓		MX 17	KS	B: 450	W:	135	142	130			163	176	158		
								P: 550	S:									P	sm/sm
✓	8411	9:12		✓		W# 20	DN	B:	W: 750		135	137	110						
								P:	S: 30		115	125	124		179	180	174	P	sm/Tex
✓		1:05		✓		mx 02	RAO	B: 250	W:		142	143	148		175	170	168	P	Tex/Tex
								P: 7	S:		140	128	130		162	161	161	P	sm/Tex
✓	8411	110		✓		W# 20	DN	B:	W: 750		120	126	120						
								P:	S: 30		118	102	126		171	171	172	P	sm/Tex
✓		1:15		✓		W# 15	MT	B:	W: 750		117	108	123						
								P:	S: 4		117	120	112		163	159	160	P	sm/sm

125 ✓ ~~MX~~ ~~7~~ KS 550 ~~750~~/~~40~~ 450 150, 148, 124, 179, 181, 184, P ~~sm~~ ~~sm~~ Tx/Tex

MX-17

GSI

TRIAL WELD TESTING REPORT FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID:

DATE	SAMPLE I.D. (TW#)	TIME	AMB. TEMP (°F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	COMMENTS
8-4-04		7:35		SUNNY		W 4	M-T	B:	W: 750	112	123	NI	1		188	185	186	P	
								P:	S: 4	135	109	130							
8-4-04		7:55		✓		MV 02	R-A-O	B: 250	W:	104	104	111			166	164	160	P	Tex/SM
								P: 7	S:	105	112	105			193	190	187	P	Tex/Tex
8-4-04		9:00		✓		20	D M-	B:	W: 750	117	104	104			171	170	168		
								P:	S: 30	129	137	129						P	SM/Tex
8-4-04		8:05		✓		20	DM	B:	W: 750	125	110	115			172	171	169		
								P:	S: 40	117	117	120						P	SM/SM
✓		1:05		✓		MV 17	K-S	B: 550	W:										
								P: 450	S:		114	121	129		130	143	139	P	SM/Tex
✓		1:20		✓		MV 02	R-A-O	B: 250	W:		134	145	132		156	151	155	P	~~Tex~~/Tex
								P: 7	S:		119	101	104		146	142	142	P	Tex/SM
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										
								B:	W:										
								P:	S:										

GSI
PANEL PLACEMENT FORM

PROJECT NAME:					JOB NUMBER: 240016			MAT'L TYPE: 60mil Texture	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
5-26-04		P- 1	45	21,5	53°-60°	41722-1	967,5		
		2	45				967,5		
		3	48				1032		
		4	50				1075		
		5	53				1139,5		
		6	53				1139,5		
		7	53				1139,5		
		8	56				1204		
		9	57				1225,5		
		10	57			41723-1	1225,5	11115,5	11115,5

GSI
PANEL PLACEMENT FORM

PROJECT NAME:

JOB NUMBER: 240016

MAT'L TYPE: 60 mil TexTure

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll Number	Panel SF	Today SF	Todate SF
5-28-04		P 11	59	21,5	65°-70°	41713	1268,5		
		12	60				1290		
		13	60				1290		
		14	62				1333		
		15	64				1376		
		16	66				1419		
		17	67				1440,5		
		18	65				1397,5		
		19	5			41723	107,5		
		20	70				1505		
		21	72				1548		
		22	73				1569,5		
		23	73				1569,5		
		24	82			41726	1763		
		25	74				1591		
		26	63				1354,5		
		27	39				838,5		
		28	74				1591		
		29	75				1612,5		

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER: 240016		MAT'L TYPE: 60mil Texture	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll Number	Panel SF	Today SF	To date SF
5-28-04		P. 30	79	21,5	65°-70°	41726	1698,5		
		31	82			41725	1763		
		32	90				1935		
		33	80				1720		
		34	59				1268,5		
		35	34				731	34980,5	46096
6-3-04		44	84	21,5	75°-86°	41718	1806		
		45	84				1806		
		46	82				1763		
		47	82				1763		
		48	82				1763		
		49	82				1763		
		50	82			41721	1763		
		51	82				1763		
		52	82				1763		
		53	82				1763		
		54	82				1763		
		55	82				1763		
		56	82			41719	1763		

GSI
PANEL PLACEMENT FORM

I

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE: 60mil Smooth	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6-2-04		P 36	511	22	60°-65°	2-67	11242		
		37	36			—"—	792		
		38	333			2-61	7326		
		39	142			—"—	3124		
		40	84			—"—	1848		
		41	453			2-62	9966		
		42	109			—"—	2398		
		43	447			2-64	9834	46530	46530
6-4-04		62	514	22	65°-76°	41806	11308		
		63	61			2-62	1342		
		64	516			39480	11352		
		65	59			2-62	1298		
		66	520			42128	11440		
		67	58			39476	1276		
		68	449			—"—	9878		
		69	131			39477	2882	50776	97306

GS

PANEL PLACEMENT FORM

11 ✓

PROJECT NAME:						JOB NUMBER: 24016.		MAT'L TYPE: 60 mil Smooth	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6-7-04		70	239	22	77°-84°	39477	5258		
—"—		71	243	—"—	—"—	2-96	5346	10604	107910
6-8-04		72	265	22	60°-68°	2-96	5830		
		73	76			39477	1672		
		74	343			2-95	7546		
		75	522			43148	11484		
		76	66			2-95	1452		
		77	513			43160	11286		
		78	75			2-95	1650	40920	148830 ✓
6-10-04		79	522	22	51°-60°	43135	11484		
		80	67			43165	1474		
		81	449			—"—	9878		
		82	143			2-43	3146		
		83	416			—"—	9152		
		84	177			43146	3894		
		85	344			—"—	7568		
		86	252			2-69	5544	52140	200970 ✓

GSI
PANEL PLACEMENT FORM

III ✓

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: 60mil Smooth

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6-12-04		87	330	22	55°-79°	2-69	7260		
		88	266			43143	5852		
		89	253			—"—	5566		
		90	343			43153	7546		
		91	527			43164	11594		
		92	50			43153	1100		
		93	521			43151	11462		
		94	56			43153	1232	51612	252582

JE: JK

PANEL PLACEMENT FORM

PROJECT NAME:					JOB NUMBER: 240016		MAT'L TYPE: 60mil TexTure	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF / To date SF
6-3-04		P. 57	81	21,5	75°-86	41719	1741,5	
		58	81				1741,5	
		59	87				1741,5	
		60	81				1741,5	
		61	81				1741,5	31712,5 / 77808,5
6-14-04		95	85	21,5	68°-76	42983	1827,5	
		96						
		97						
		98						
		99						
		100						
		101				43021		
		102						
		103						
		104						
		105						
		106						21930 / 99738,5

GSI

PANEL PLACEMENT FORM

GE:___

8

4

PROJECT NAME: Sharco Generating Station					JOB NUMBER: 24016			MAT'L TYPE: 60mil Smooth	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No.	Panel SF	Today SF	To date SF
6.16.04		116	526	22	54°-74°	2-100	11572		
		117	52			2-58	1144		
		118	212			—"—	4664		
		119	366			2-53	8052		
		120	525			43158	11550		
		121	56			2-53	1232		
		122	515			43162	11330		
		123	63			2-53	1386		
		124	523			43136	11506		
		125	55			2-53	1210	63646	329208
6-17-04		126	517	22	58°-78	43147	11374		
		127	60			43166	1320		
		128	461			—"—	10142		
		129	118			39481	2596		
		130	386			—"—	8492		
		131	193			2-48	4246		
		132	384			—"—	8448		
		133	194			2-116	4268		
		134	331			—"—	7282		

PANEL PLACEMENT FORM

PROJECT NAME: Sierco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 60mil Smooth

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6.17-04		135	241	22	58°-78	43132	5302		
		136	280			— " —	6160		
		137	290			2-119	6380		
		138	240			— "	5280		
		139	330			2-120	7260	88550	417758

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PANEL PLACEMENT FORM

JE:___

W

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE: 60 mil Texture

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No.	Panel SF	To day SF	To date SF
6-15-04		107	85'	21,5	58°-76°	42987	1827,5		
		108				—"—			
		109				43015			
		110							
		111							
		112							
		113							
		114							
		115				42994		16447,5	116186
	Rubsheet		303	22		—"—		6666	122852
6-19-04		149	87	21,5	68°-76	42994	1870,5		
		150	87			—"—	1870,5		
		151	86			42975	1849		
		152	86				1849		
		153	86				1849	9288	132140

GE:____

9

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6.21.04		154	86	21,5	58-74	43007	1849		
		155	86				1849		
		156	86				1849		
		157	86				1849		
		158	86				1849		
		159	86				1849		
		160	86			43016	1849		
		161	86				1849		
		162	85				1827,5		
		163	85				1827,5		
		164	85				1827,5		
		165	85				1827,5		
		166	84			43011	1806		
		167	84				1806		
		168	84				1806		
		169	78				1677		
		170	58				1247		
		171	30				645		
		172	130			42990	2795		

33884

GSI

JE:___

PANEL PLACEMENT FORM

12 & ✓

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: 60mil smooth

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6-18-04		140	524	22	58°-74°	2-97	11528		
		141	46			2-120	1012		
		142	502			39684	11044		
		143	68			2-120	1496		
		144	573			2-149	12606	37686	455444 ✓
6-19-04		145	511	22	68°-76	42120	11242		
		146	59			2-120	1298		
		147	516			42091	11352		
		148	61			42742	1342	25234	480678
6-22-04		176	522	22	58°-78	2-112	11484		
		177	56			2-54	1232		
		178	521			—"—	11462		
		179	60			2-111	1320		
		180	466			—"—	10252		
		181	116			2-41	2552		
		182	420			—"—	9240		
		183	165			2-45	3630		
		184	415			—"—	9130		
		185	175			2-84	3850	64152	544830

GSI

PANEL PLACEMENT FORM

13

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: 60 Smooth

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6.23.04		186	308	22	51°-73°	2-84	6776		
		187	280			2-92	6160		
		188	266			—"—	5852		
		189	319			42087	7018	25806	570636
6.24.04		190	575	22	48°-62°	2-56	12650		
		191	10			42087	220		
		192	573			2-44	12606		
		193	25			42087	550		
		194	541			2-81	11902		
		195	47			42087	1034		
		196	577			2-70	12694		
		197	15			42087	330		
		198	572			2-55	12584		
		199	23			42087	506	65076	635712
6.25.04		200	524	22	46-72°	2-91	11528		
		201	68			2-75	1496		
		202	450			2-75	9900		
		203	145			2-83	3190	26114	661826

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PANEL PLACEMENT FORM

JE:____

1P

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No.	Panel SF	Today SF	To date SF
6.26.04		204	355	22	53°-74°	2-83	7810		
		205	245			2-80	5390		
		206	287			—"—	6314		
		207	318			42094	6996		
		208	513			2-73	11286		
		209	92			42094	2024		
		210	585			2-72	12870		
		211	520			43142	11440		
		212	65			42094	1430	65560	727386
6.28.04		213	527	22	51°-76°	2-37	11594		
		214	61			2-73	1342		
		215	523			43157	11506		
		216	66			2-110	1452		
		217	462			—"—	10164		
		218	113			42747	2486		
		219	365			—"—	8030		
		220	210			43152	4620		
		221	309			—"—	6798		
		222	266			2-66	5852	63844	791230

GSI
PANEL PLACEMENT FORM

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PROJECT NAME:						JOB NUMBER:		MAT'L TYPE: 60mil TexTure	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6.21.04		173	114	21,5	58-74	42990	2451		
		174	94				2021		
↓		175	⌀ ◺	↓	↓	↓	538	38894	171034
↓	RobSheet		205	22	↓	42975	4510		175544
6.29.04		223	132	21,5	56-86	42724	2838		
		224	128				2752		
↓		225	137	↓	↓	↓	2945,5		
		226	155			42973	3332,5		
		227	163				3504,5		
		228	157			↓	3375,5		
		229	138			41708	2967		
↓		230	130	↓	↓	—u—	2795	24510	200054
6.30.04		233	133	21,5	59-88	41708	2859,5		
		234	135			43008	2902,5		
↓		235	136	↓	↓	↓	2924		
		236	136			↓	2924		
		237	134			42993	2881		
		238	138			↓	2967		
↓		239	118	↓	↓	↓	2537		

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PANEL PLACEMENT FORM

8c

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE: GeoTex	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
6.30.04		240	120	21,5	59°-88°	42993	2580		
		241	122			42997	2623		
↓		242	120	↓	↓	—"—	2580	27778	227832
7-1-04		243	120	21,5	68°-80°	42992	2580		
		244	125			—"—	2687,5		
		245	125			43006	2687,5		
		246	111				2386,5		
		247	110				2365		
		248	108			↓	2322		
		249	112			43012	2408		
		250	111			—"—	2386,5	19823	247655
↓	Rabsheet	—	455	22			10010		257665

GSI

PANEL PLACEMENT FORM

99

PROJECT NAME:				JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No.	Panel SF	To day SF	To date SF
6.30.04		231	184	22	59°-88°	2-66	4048		
— " —		232	184	— " —	— " —	2-86	4048	8096	799326
7-1-04		231	131	22	68-80°	2-66	2882		
		251	271			2-86	5962		
		252	384	↓	↓	2-60	8448		
		253	266	↓	↓	2-52	5852		
		254	75	5	↓	↓	375		
		255	75	5	↓	↓	375		
↓		256	115	22	↓	↓	2530	26424	825750

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PB: 68

PANEL PLACEMENT FORM

PROJECT NAME:

JOB NUMBER: 24016

MAT'L TYPE:

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-2-04	11:00 Am	257	125'	21.5'	58°-85° W-7	41712	2687.5		
7-2-04		258	126'	21.5'		43012	2709		
7-2-04		259	125'	21.5		43012	2687.5		
7-2-04		260	126'	21.5		42992	2709		
7-2-04		261	126'	21.5		42992	2709		
7-2-04	3:00 pm	262	128'	21.5		42992	2752	16,254	16,254
7-2-04	3:10 pm	263	266'	22		43163	5852		
7-2-04		264	253'	22		43163	5566		
7-2-04	4:10 pm	265	262'	22	58°-85° W-7	2-65	5764	17,182	Smooth 17,182
7-6-04	9:30 Am	266	265'	22	53° W 7	2-65	5830	5830	23 012
7-8-04	1:15 pm	267	128'	21.5	59-81° W 7	43009	2752		
7-8-04		268	129	21.5		43009	2773.5		
7-8-04		269	131	21.5		43009	2816.5		
7-8-04		270	135	21.5		42989	2902.5		
7-8-04		271	136	21.5		42989	2924		
7-8-04		272	114	21.5		42989	2451		
7-8-04		273	93	21.5		42989	1999.5		
7-8-04		274	73	21.5		43009	1569.5		
7-8-04		275	28	21.5		43009	602		

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PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-8-04		276	28	21.5		42992	602		
7-8-04		277	47	21.5		42992	1010.5		
7-8-04		278	68	21.5		42991	1462		
7-8-04		279	92	21.5		42991	1978		
7-8-04		280	112	21.5		42991	2408		
7-8-04	4:10 pm	281	125	21.5		42991	2687.5		
7-8-04	6:00 pm	282	118	21.5		43014	2537		
7-8-04		283	118	21.5		43014	2537		
7-8-04		284	118	21.5		43014	2537		
7-8-04	7:00 pm	285	118	21.5	59°-81° w7	43014	2537	41,086.5	57,340.5
7-9-04	10:15 Am	286	126	21.5	62°-84° w7	42962	2709		
7-9-04		287	127	21.5		42962	2730.5		
7-9-04		288	128	21.5		42962	2752		
7-9-04		289	128	21.5		42969	2752		
7-9-04		290	127	21.5		42984	2730.5		
7-9-04		291	128	21.5		42984	2752		
7-9-04	1:30 pm	292	128	21.5	62°-84 w7	42984	2752	19178	76518.5 ø
7-9-04	3:00 pm	293	260	22		2-117	5720		
7-9-04	1	294	261	22		2-117	5742		

GSI

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-9-04		295	262	22		2-63	5764		
7-9-04		296	262	22		2-63	5764		
7-9-04		297	262	22		2-77	5764		
7-9-04	6:30pm	298	262	22	84° w7	2-77	5764	34,518	57,530
7-10-04	4:00pm	307	162	22	84° w18	39474	3564		
7-10-04		308	163	22		39474	3586		
7-10-04		309	170	22		39474	3740		
7-10-04	4:30pm	310	164	22	84° w18	2-93	3608	14,498 SF	72,028 SF
7-10-04	9:30 Am	299	125	21.5		42984	2687.5		
7-10-04		300	121	21.5		41714	2601.5		
7-10-04		301	123	21.5		41714	2644.5		
7-10-04		302	124	21.5		41714	2666		
7-10-04		303	126	21.5		41714	2709		
7-10-04		304	127	21.5		42999	2730.5		
7-10-04		305	125	21.5		42999	2687.5		
7-10-04	3:00 pm	306	126	21.5	84° w18	42999	2709	21435.5	97954
7-12-04	9:00 Am	311	170	22	85° w7	2-93	3740		
7-12-04		312	173	22		2-93	3806		
7-12-04		313	175	22		2-89	3850		

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PANEL PLACEMENT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-12		314	176	22	85° w7	2-89	3872		
7-12		315	165	22		2-89	3630		
7-12		316	523	22		43144	11506		
7-12		317	364	22		41840	8008		
7-12		318	144	22		41840	3168		
7-12		319	203	22		2-90	4466		
7-12		320	312	22		2-90	6864		
7-12		321	38	22		41834	836		
7-12		322	350	22		41834	7700		
7-12	6:00 pm	323	353	22	85° w2	39483	7766	69 212	141 240
7-13	9:30 Am	324	145	22	81° w25	39483	3190		
7-13		325	205	22		2-30	4510		
7-13		326	362	22		2-30	7964		
7-13		327	230	22		2-47	5060		
7-13		328	237	22		2-47	5214		
7-13		329	240	22		2-46	5280		
7-13		330	241	22		2-46	5302		
7-13		331	86	22		2-46	1892		
7-13		332	120	22		2-47	2640		

GSI

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day: SF	To date SF
7-13		333	36	22		2-164	792		
7-13		334	241	22		2-164	5302		
7-13	5:30	335	236	22	81° w 35mph	2164	5192	52,338	193,678
7-14	2:10	336	122	21.5	83° w7	42999	2623		
		337	122	21.5		42998	2623		
		338	124	21.5		42998	2666		
		339	123	21.5		42998	2623		
		340	121	21.5		42998	2601.5		
		341	122	21.5		42981	2623		
		342	122	21.5		42981	2623		
		343	122	21.5		42981	2623		
		344	123	21.5		42981	2644.5		
		345	123	21.5		43017	2644.5		
		346	124	21.5		43017	2666		
		347	124	21.5		43017	2666		
		348	125	21.5		43017	2687.5		
		349	123	21.5		42995	2644.5		
		350	123	21.5		42995	2644.5		
7-14		351	124	21.5		42995	2666		

GS

PANEL PLACEMENT FORM

PROJECT NAME:					JOB NUMBER:			MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No.	Panel SF	Today SF	To date SF
7-14		352	127	21.5		42995	2730.5		
7-14	5:45	353	127	21.5	83° w7	42996	2730.5	47,730	145,684
7-15	10:30	354	125	21.5	81 w7	42996	2687.5		
7-15		355	125	21.5		42996	2687.5		
7-15		356	126	21.5		42996	2709		
7-15		357	125	21.5		42977	2687.5		
7-15		358	125	21.5		42977	2687.5		
7-15		359	125	21.5		42977	2687.5		
7-15		360	125	21.5		42977	2687.5		
7-15		361	125	21.5		42965	2687.5		
7-15		362	125	21.5		42965	2687.5		
7-15		363	125	21.5		42965	2687.5		
7-15		364	126	21.5		42965	2709		
7-15		365	126	21.5	81° w7	42986	2709	32,314.5	177,998.5
7-15		366	522	22	81° w7	43154	11484		
7-15		367	530	22		2-113	11660		
7-15		368	70	22		2-47	1540		
7-15	7:00	369	63	22	81° w7	2-47	1386	26470	219,648
7-16	3:10	370	312	21.5	85° w7	43001	6708		

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-16		371	196	21.5	85° w10	43001	4214		
7-16		372	85'	21.5		42986	1827.5		
7-16		373	21'	21.5		42986	451.5		
7-16		374	48	21.5		42986	1032		
7-16		375	125	21.5		42986	2687.5		
7-16		376	197	21.5		41685	4235.5		
7-16		377	158	21.5		41685	3397		
7-16		378	142	21.5		41685	3053		
7-16		379	119	21.5		42978	2558.5		
7-16		380	104	21.5		42978	2236		
7-16		381	64	21.5		42978	1376		
7-16	7:00	382	48	21.5	85° w10	42978	1032	36,980	214,978.5 TK
7-17		383	313	21.5	81° w10	42988	6729.5		
7-17		384	315	21.5		42972	6772.5	13502	228 480.5 TK
7-17		385	195	22		2-27	4290		
7-17		386	195	22		2-27	4290		
7-17		387	195	22		2-31	4290		
7-17		388	195	22		2-31	4290		
7-17	3:00	389	195	22	81 w10	2-32	4290	21450	241,098 SM

GSI
PANEL PLACEMENT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-19	10:50	390	308	21.5	92° w5	43003	6622		
		391	299	21.5		43013	6428.5		
		392	77'	21.5		42986	1655.5		
		393	39'	21.5		42986	838.5		
		394	114	21.5		42977	2451		
		395	150	21.5		43013	3225		
		396	186	21.5		41717	3999		
		397	225	21.5		41717	4837.5		
		398	232	21.5		43005	4988		
7-19	4:45	399	230	21.5	92° w5	43005	4945	39 990	268,470.5
7-20	8:30	400	221	21.5	92° w5	41682	4751.5		
		401	218	21.5		41682	4687		
		402	213	21.5		41715	45795		
		403	203	21.5		41715	4364.5		
		404	202	21.5		42988	4343		
		405	200	21.5		41716	4300		
		406	198	21.5	92° w5	41716	4257		
		407	181	22		32	3982		
7-20		408	146	22	92° w5	32	3212		

GSI

PANEL PLACEMENT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-20	1	409	127	22	92° WS	31	2794		
7-20	4:00	410	84	22	92° WS	27	1848	35,107.5	303,580
		411	31	21.5		42972	666.5		
		412	48	21.5		42972	1032		
		413	48	21.5		42972	1032		
		414	35	21.5		42972	752.5		
7-20	6:20	415	16	21.5	92° WS	42972	344	11,836	252,934
7-21	9:00	416	172	21.5	94° WS	41683	8698		
		417	168	21.5		41683	3612		
		418	150	21.5		41683	3225		
		419	16	21.5		41684	344		
		420	154	21.5		41684	3311		
		421	150	21.5		41684	3225		
7-21	11:00	422	136	21.5		41684	2924	20,339	323,919
7-21	3:00	423	162	22		85	3564		
		424	161	22		85	3542		
		425	168	22		85	3696		
		426	190	22		101	4180		
		427	195	22		101	4290		

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
		428	113	22		101	2486		
		429	88	22		28	1936		
		430	212	22		28	4664		
		431	195	22		28	4290		
7-21	6:00	432	38	22	94 w5	31	836	33484	286,416
7-22	2:50	433	117	21.5	80° w7	42966	2515.5		
		434	110	21.5		42966	2365		
		435	96	21.5		43002	2064		
		436	82	21.5		43002	1763		
		437	80	21.5		43002	1720		
		438	75	21.5		43002	1612.5		
		439	64	21.5		43002	1376		
		440	65	21.5		43002	1397.5		
		441	67	21.5		43010	1440.5		
		442	70	21.5		43010	1505		
7-22	5:00	443	55	21.5	80° w5	43010	1182.5	18089	342,008
7-23	8:30	444	265	22	70° w10	2-29	5830		
		445	265	22		2-29	5830		
		446	270	22		2-82	5940		

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-23		447	89	22		2-26	1958		
		448	215	22		2-82	4730		
		449	303	22		2-26	6666		
		450	227	22		2-103	4994		
		451	90	22		2-26	1980		
		452	32	22		43168	704		
		453	283	22		2-103	6226		
		454	324	22		43168	7128		
		455	84	22		2-114	1848		
		456	96	22		2-114	2112		
7-23	3:00	457	147	22	74° w10	43168	3234		
7-23		458	284	22		2-114	6248		
7-23		459	159	22		41836	3498		
7-23	5:00	460	129	22	74°w10	2-114	2838	71,764	358,180
7-24	8:00	461	285	22		41836			
7-24	8:20	462	288	22		2-102			
7-26	8:30	463	53	22	78° w5	2-78			
		464	235	22		2-102			
7-26		465	289	22		2-78			

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-26		466	176	22	78° W5	2-78			
		467	110	22		2-107			
		468	285	22		2-107			
		469	114	22		2-107			
		470	172	22		43155			
		471	297	22		43155			
		472	293	22		43167			
		473	57	22		43138			
		474	232	22		43167			
		475	297	22		43138			
		476	134	22		2-105			
		477	153	22		43138			
		478	298	22		2-105			
		479	71	22		2-105			
		480	220	22		2-25			
7-26	3:30	481	249	22	78° W5	2-25		82470	452,934
7-27	8:45	482	297	22	81° W20	2-87			
7-27		483	224			2-87			
7-27		484	61			2-105			

GSI

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-27		485	309	22	81° w20	2-38			
7-27		486	263	22		2-38			
7-27		487	34	22		2-109			
7-27		488	306	22		2-109			
7-27		489	181	22		2-109			
7-27		490	121	22		2-108			
7-27	1:10	491	305	22	81° w20	2-108		46,222	499,156
7-28	11:00	492	213	22	80° w10	2-109			
7-28	11:10	493	88	22	80° w10	2-88		6622	505,778
7-29	9:30	494	315	22	78° w20	2-88			
		495	308	22		2-79			
		496	216	22		2-79			
		497	78	22		43123			
		498	295	22		43123			
		499	148	22		43123			
		500	154	22		2-40			
		501	294	22		2-40			
		502	300	22		43139			
7-29		503	214	22	78° w20	43139			

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-29		504	90	22		2-40			
7-29		505	42	22		43139			
7-29	4:00	506	84	22	78 W 20	2-40		55,836	561,614

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-31	9:30	507	448	22	81° w10	43172			
		508	82	22		43172			
		509	375	22		2-71			
		510	150	22		2-71			
		511	295	22		2-42			
		512	258	22		2-42			
		513	195	22		43170			
		514	323	22		43170			
		515	125	22		2-98			
		516	397	22		2-98			
		517	56	22		43130			
		518	452	22		43130			
		519	448	22		43134			
		520	75	22		43134			
		521	371	22		43133			
		522	147	22		43133			
		523	298	22		2-34			
		524	227	22		2-34			
7-31		525	224	22	81° w10	43173			

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-31		526	289	22		43123			
		527	160	22		43149			
		528	255	22		43149			
7-31	5:00	529	80	22		43156		128 260	689,874
8-21	s	530	419	22		43156			
		531	39	22		43171			
		532	458	22		43171			
		533	128	18'		43128			
		534	211	22		43128			

GSI
PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	Today SF	To date SF
8-3		S45	111	21.5		41690			
		S46	111	21.5		41686			
		S47	109	21.5		41686			
		S48	107	21.5		41686			
		S49	107	21.5		41686			
		S50	106	21.5		41711			
		S51	104	21.5		41711			
		S52	102	21.5		41711			
		S53	102	21.5		41711			
		S54	100	21.5		41674			
8-3	2:00	S55	98	21.5		41674			
8-4		S56	95	21.5		44066			
		S57	143	21.5		44066			
		S58	144	21.5		44066			
		S59	6	21.5		44066			

PANEL PLACEMENT FORM

PROJECT NAME:						JOB NUMBER:		MAT'L TYPE:	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	Roll No:	Panel SF	To day SF	To date SF
7-31		S26	289	22		43123			
		S27	160	22		43149			
		S28	355	22		43149			
7-31	5:00	S29	80	22		43156		128,260	689,874
8-1	2:00	S30	419	22		43156			
		S31	39	22		43171			
		S32	458	22		43171			
		S33	128	18'		43128			
		S34	211	22		43128			
8-2		S35	168	22		43128			
		S36	155	22		43127			
		S37	328	22		43127			
		S38	164	15'		43131			
		S39	158	9'		43131			
		S40	38	3		43128			
8-2	6:00	S41	39	6		43128		47,292	737,166
8-3	8:30	S42	117	21.5		41690			
		S43	115	21.5		41690			
8-3		S44	114	21.5		41690			

GS.
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER: 240016

MAT'L TYPE: 6mil Texture

DATE	TIME	SEAM NO.	PANEL NO	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
5-26-04	430		P. 1/2	45	DN	800	50	W#39	53°-60°	P	P
	440		P. 2/3	45	—"—	—"—	—"—	—"—			
	440		P. 3/4	48	VP	750	—"—	W#20			
	450		P. 4/5	50	DN	800	—"—	W#39			
	505		5/6	53							
	515		6/7	53							
	520		7/8	53							
	521		8/9	56	VP	750		W#20			

GSI
PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER: 240016	MAT'L TYPE: 60mil Tex Tuff

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP.	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
5-27-04	838		9/10	57	VP	750	50	W#20	58° - 70°	P	P
5-28-04	1110		10/11	59	DN	"	60	W#9	65° - 70°	P	P
	1120		11/12	60	"	"	"	"			
	1123		12/13	60	VP	"	55	W#13			
	1133		13/14	62	"	"	"	"			
	1130		14/15	64	DN	"	60	W#9			
	1140		15/16	66	VP	"	55	W#13			
	1145		16/17	67	DN	"	60	W#9			
	115		17/18-19	70	"	"	55	"			
	515		18,19/20	70	"	"	"	"			
	525		20/21	72	"	"	"	"			
	507		21/22	73	VP	"	"	W#13			
	519		22/23	73	"	"	"	"			
	535		23/24	73	DN	"	"	W#9			
	615		24/25, 26, 27	82	"	"	"	"			
	550		26/27	39	"	"	"	"			
	540		25/26	63	VP	"	"	W#13			
	556		25/28	74	"	"	"	"			
	600		28/29	75	DN	"	"	W#9			

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: 240016 | MAT'L TYPE: 60mil TexTure

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP.	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
5-28-04	615		29/30	79	VP	750	55	W#13	65°-70°	P	P
	629		30/31	82							
	645		31/32	82							
	726		32/33,34,35	90							
	712		34/35	34							
	700		33/34	59							
6.2.04	1418		36/39	142	OS	750	50	W#03	60°-65°	P	P
	320		36/37,38	369	VP		55	W# 13			
	338		37/38	22	OS		50	W#03			
	400		38/39	23	—"—		—"—	—"—			
	425		37,38,39/40-41	537	—"—		—"—	—"—			
	414		40/41	22	VP		55	W#13			
	610		41/43,42	454	OS		50	W#03			
	540		40/42	102	—"—		—"—	—"—			
	557		42/43	22	—"—		—"—	—"—			
	630	tie-in	36/1-22	455	VP		40	W#20			
6-3-04	821		23-32/36-42	145	VP	750	40	W#20	75°-86°	P	P

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP.	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-3-04	410		33/44	84	VP	750	55	W#13	75°-86°	P	P
	356		44/45	84							
	425		45/46	82							
	440		46/47	82							
	455		47/48	82							
	511		48/49	82							
	526		49/50	82							
	530		50/51	82	KS		50	W#9			
	545		51/52	82							
	600		52/53	82							
	546		53/54	82	VP		55	W#13			
	603		54/55	82							
	621		55/56	82							
	620		56/57	82	KS		50	W#9			
	636		57/58	81	VP		55	W#13			
	650		58/59	81	—"—		—"—	—"—			
	638		59/60	81	KS		50	W#9			
	655		60/61	81	—"—		—"—	—"—			

GSI
PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP.	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-4-04	938		43/63,62	90	VP	750	55	W# 13	65°-76°	P	P
	933		62/63	22	—"—	—"—	—"—	—"—	—"—		
	1:54		42,43/62	482				W# 39			
	11:15		62,63/64	325							
	1:10		62/64,65	250							
	1:30		64/65	22							
	328		64,65/66,67	478							
	320		66/67	22							
	400		66,67/68,69	580	KS		40	W# 20			
	546		62-68/44-47	91	VP		55	W# 39			
	520		68/69	22	KS'		40	W# 20			
6-7-04	918		68,69/70	239	VP	750	55	W# 39	77°-84°	P	P
—"—	1010		70/71	243	—"—	—"—	—"—	—"—	—"—	—"—	—"—
6-8-04	1043		68/72,73	341	VP	750	55	W# 9	60°-68°	P	P
	1037		72/73	22	—"—	—"—	—"—	—"—	—"—		
	1140		72,73/74	186	DN		40	W# 39			
	1140		72/74	161	VP		55	W# 9			
	405		71/75,76	243	DN		40	W# 39			
	348		74/75	345	VP		55	W# 9			

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GSI
PANEL SEAMING FORM

6.

PROJECT NAME:

JOB NUMBER: 24016

MAT'L TYPE: 60mil sm/Tex

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP.	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-8-04	400		75/76	22	∅N	750	40	W#39	60° - 68°	P	P
	520		75,76/77,78	297	—"—	—"—	—"—	—"—			
	510		77/78	22	—"—	—"—	—"—	—"—			
	508		75/77	291	VP	—"—	55	W#9			
6-10-04	950	77	78/80,79	589	∅N	750	40	W#39	51° - 60°	P	P
	940		79/80	22	—"—		—"—	—"—			
	1125		79,80/82	143	—"—		—"—	—"—			
	1150		81/82	22	—"—		—"—	—"—			
	155		79/81	157	—"—		—"—	—"—			
	121		79/81	292	VP		55	W#9			
	345		81,82/83,84	325	∅N		40	W#39			
	227		81/83	268	VP		55	W#9			
	240		83/84	22	∅N		40	W#39			
	415		83,84/86	252	—"—		—"—	—"—			
	500		85/86	22	—"—		—"—	—"—			
	352		83/85	344	VP		55	W#9			

GSI
PANEL SEAMING FORM

7 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-12-04	950		85,86/88	266	DN	750	40	W#39	55°-79°	P	P
	1145		87/88	22	—u—	—u—	—u—	—u—			
	130		85/87	330	NS		55	W# 9			
	230		88/90,87	343	DN		40	W#39			
	340		87/89	253	NS		55	W#9			
	320		89/90	22	DN		40	W#39			
	400		90/91-92	322	—u—		—u—	—u—			
	350		91/92	22	—u—		—u—	—u—			
	435		89/91	255	NS		55	W#9			
	515		91,92/94,94	260	DN		40	W#39			
	505		93/94	22	—u—		—u—	—u—			
	525		91/93	317	NS		55	W# 9			

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PANEL SEAMING FORM

8 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-14-04	325		61/95	85'	NS	750	40	W#9	68°-76°	P	P.
	340		95/96	85	—"—		—"—	—"—			
	335		96/97	85'	DN		45	W#39			
	401		97/98	85	NS		40	W#9			
	345		98/99	85	DN		45	W#39			
	410		99/100	85	—"—		—"—	—"—			
	430		100/101	85	NS.		40	W#9			
	440		101/102	85	DN		45	W#39			
	455		102/103	85	NS		40	W#9			
	500		103/104	85	DN		45	W#39			
	520		104/105	85	NS		40	W#9			
	530		105/106	85	DN		45	W#39			

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PANEL SEAMING FORM

9

PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-15-04	1030		106/107	85	DN	750	45	W#39	58°-76°	P	P
	1050		107/108	85							
	1114		108/109	85							
	1130		109/110	85							
	1140		110/111	85							
	200		111/112	85							
	215		112/113	85							
	230		113/114	85							
	245		114/115	85							
6-16-04	940		116/117	33	DN	750	45	W#39	54°-74°	P	P
	950		93,94/116,117	323	—"—		—"—	—"—			
	915		93/116	254	KC		40	W#9			
	1105		116,117/119	366	DN		45	W#39			
	1045		116/118	212	KC		40	W#9			
	1130		118/119	22	—"—		—"—	—"—			
	140		119/120,121	369	DN		45	W#39			
	125		118/120	212	KC		40	W#9			
	135		120/121	22	DN		45	W#39			
	250		120 121/122 123	300	—"—	✓	—"—	—"—			

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PANEL SEAMING FORM

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PROJECT NAME: Sherco Generating Station

JOB NUMBER: 24016

MAT'L TYPE:

10 ✓

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-16-04	245		122/123	22	DN	750	45	W#39	54°-74°	P	P
	240		120/122	279	KC		40	W#9			
	410		124/125	22	DN		45	W#39			
	415		122,123/124,125	315	—"—		—"—	—"—			
	400		122/124	263	KC		40	W#9			
6-17-04	905		126/127	22	DN	750	45	W#39	58°-78°	P	P
	910		124,125/126,127	312	—"—		—"—	—"—			
	850		124/126	265	KC		40	W#9			
	1005		128/129	22	DN		45	W#39			
	1015		126,127/128,129	310	—"—		—"—	—"—			
	940		126/128	269	KC		40	W#9			
	1115		128,129/131	193	DN		45	W#39			
	1145		130/131	22	—"—		—"—	—"—			
	1110		128/130	386	KC		40	W#9			
	200		130,131/133	194	DN		45	W#39			
	230		132/133	22	—"—		—"—	—"—			
	220		130/132	384	KC		40	W#9			
	325		132,133/135	241	DN		45	W#39			
	415		134/135	22	—"—		—"—	—"—			

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PANEL SEAMING FORM

11 ✓

PROJECT NAME: Shercu Generating station | JOB NUMBER: 24016 | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-17-04	315		132/134	331	KC	750	40	W#9	58°-78°	P	P
	430		134, 135/137	290	DN		45	W#39			
	515		136/137	22	〃		〃	〃			
	410		134/136	280	KC		40	W#9			
	555		136, 137/139	330	DN		45	W#39			
	645		138/139	22	〃		〃	〃			
	545		136/138	240	KC		40	W#9			

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PANEL SEAMING FORM

12

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-18-04	1138		139/140,141	125	DN	750	45	W#39	58°-74°	P	P
	1131		140/141	22	—"—		—"—	—"—			
	145		139/140	105	—"—		—"—	—"—			
	1125		138,139/140	340	KC		40	W#9			
	440		140,141/143	68	—"—		—"—	—"—			
	305		140/142	222	DN		45	W#39			
	300		—"—	280	KC		40	W#9			
	430		142/143	22	—"—		—"—	—"—			
	450		142,143/144	573	—"—		—"—	—"—			
6.19.04	1040		144/146	59	KC	750	40	W#9	68°-76°	P	P
	1050		145/146	22							
	910		142/145	514							
	1110		145,146/147,148	356							
	1100		147/148	22							
	135		145/147	221	DN						
	315		145/149	87							
	330		149/150	87							
	345		150/151	87							
	405		151/152	86							

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PANEL SEAMING FORM

18 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6.19.04	1420		152/153	86	DN	750	40	WH 9	68-76°	P	P
6.21.04	1000		153/154	86	DN	750	3.5	WH 20	58-74	P	P
	1030		154/155	86	—"—		—"—	—"—			
	1030		155/156	86	KC		40	WH 9			
	1055		156/157	86	DN		3.5	WH 20			
	1115		157/158	86	—"—		—"—	—"—			
	1045		158/159	86	KC		40	WH 9			
	1100		159/160	86	—"—		—"—	—"—			
	1110		160/161	86	—"—		—"—	—"—			
	1135		161/162	86	—"—		—"—	—"—			
	1130		162/163	85	DN		3.5	WH 20			
	335		163/164	85	—"—		—"—	—"—			
	340		164/165	85	KC		40	WH 9			
	355		165/166	85							
	410		166/167	84							
	425		167/168	84							
	440		168/169	78							
	455		169/170	58							
	505		170/171	30							

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PANEL SEAMING FORM

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PROJECT NAME:					JOB NUMBER:			MAT'L TYPE:			
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-21-04	610		172/173	114	KC	750	40	W#9	58-74°	P	P
	615		173/174	93							
↓	636		174/175	58	↓	↓	↓	↓	↓	↓	↓
6-22-04	1005		147,148/176,177	325	ON	750	45	W#13	58-78	P	P
	955		147/176	253	KC		40	W#9			
	1000		176/177	22	ON		45	W#13			
	1100		176,177/178,179	309	—"—		—"—	—"—			
	1050		178/179	22	—"—		—"—	—"—			
	1045		176/178	272	KC		40	W#9			
	235		178,179/180,181	291	ON		45	W#13			
	225		180/181	22	—"—		—"—	—"—			
	210		178/180	291	KC		40	W#9			
	340		180,181/183,182	280	ON		45	W#13			
	335		183/182	22	—"		—"	—"			
	330		180/182	305	KC		40	W#9			
	435		182,183/185	175	ON		45	W#13			
	505		184/185	22	—"		—"	—"			
↓	430		182/184	410	KC	↓	40	W#9	↓	↓	↓

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PANEL SEAMING FORM

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6.23.04	1055		184,185/187	250'	ØN	750	40	W#13	51°-73°	P	P
	1050		184/186	338	KC			W#9			
	1130		186/187	22	ØN			W#13			
	155		186,187/189	319	—u—			—u—			
	240		188/189	22	—u—			—u—			
	145		186/188	266	KC			W#9			
6.24.04	947		189/190,191	317	ØN	750	40	W#13	43°-62	P	P
	955		188/190	268	KC			W#9			
	935		190/191	20	ØN			W#13			
	200		190,191/192,193	300	—u—			—u—			
	155		192/193	20	—u—			—u—			
	155		190/192	298	KC			W#9			
	255		192,193/194,195	275	ØN			W#13			
	250		194/195	22	—u—			—u—			
	235		192/194	313	KC			W#9			
	500		194,195/196,197	265	ØN			W#13			
	455		196/197	22	—u—			—u—			
	415		194/196	327	KC			W#9			
	510		198/199	22	ØN			W#13			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE: 16

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-24-04	515		196/197/198/199	260	ON	750	40	W#13	43-62°	P	P
—"—	515		196/198	335	KC	—"—	—"—	W# 9	—"—	—"—	—"—
6-25-04	1140		198/199/201	250	ON	750	40	W#13	46-72°	P	P
	1130		200/201	22	—"—		—"—	—"—			
	1105		198/200	342	KC			W# 9			
	210		200,201/203	145	ON			W#13			
	240		202/203	22	—"—			—"—			
	200		200/202	205 450	KC			W# 9			
6-26-04	900		202,203/(204)	245	ON	750	40	W#13	53-74°	P	P
	935		203/204	22	—"—			—"—			
	850		202/204	355	KC			W# 9			
	1030		204,205/207	318	ON			W#13			
	1120		206/207	22	—"—			—"—			
	1020		204/206	287	KC			W# 9			
	1125		207/208	200	ON			W# 13			
	120		—"—	121	—"—			—"—			
	145		206/208,209	284	KC			W# 9			
	125		208/209	22	—"—			—"—			
	215		208/210	268	ON			W# 13			
6-2	10:14		209/205	22'	ON			13		P	P

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PANEL SEAMING FORM

17

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-26-04	225		208,209/210	317	KC	750	40	W#9	53°-74°	P	P
	350		210/212	65	DN			W#13			
	340		211/212	22	"			"			
	310		210/211	340	"			"			
	320		"	320	KC			W#9			
6-28-04	1045		212/213,214	65	DN	750	40	W#13	51°-76°	P	P
	1040		213/214	22							
	1005		211/213	220							
	1010		"	303	KC			W#9			
	1180		213,214/216	66	DN			W#13			
	1140		215/216	22							
	1100		213/215	192							
	1100		"	331	KC			W#9			
	130		215,216/218	113	DN			W#13			
	150		217/218	22							
	155		215/217	143							
	125		"	319	KC			W#9			
	300		217,218/220	210	DN			W#13			
	330		219/220	22	"			"			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

18

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6-28-04	250		217/219	365	KC	750	40	W#9	51°-76°	P	P
	400		219,220/222	266	DN			W#13			
	445		221/22	22	—u—			—u—			
	355		219/221	309	KC			W#9			
6-29-04	240		172/223	132	DN	750	40	W#13	56°-80°	P	P
	255		223/224	132	KC			W#9			
	330		224/225	128	—u—			—u—			
	325		225/226	137	DN			W#13			
	400		226/227	153	KC			W#9			
	405		227/228	163	DN			W#13			
	440		228/229	157	—u—			—u—			
	530		229/230	138	KC			W#9			
6-30-04	945		221/231	184	KC	750	40	W#9	59°-88°	P	P
	950		231/232	184	DN			W#13			
	1125		230/233	130	—u—			—u—			
	150		233/234	133	KC			W#9			
	200		234/235	135	DN			W#13			
	240		235/236	136	KC			W#9			
	250		236/237	136	DN			W#13			

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PANEL SEAMING FORM

19

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
6.30.04	355		237/238	134	KC	750	40	W# 9	59°-88°	P	P
	415		238/239	138	DN			W#13			
	500		239/240	118	KC			W# 9			
	525		240/241	120	—"—			—"—			
	545		241/242	112	—"—			—"—			
7-1.04	850		242/243	120	KC	750	40	W# 9	68°-80°	P	P
	910		243/244	120							
	1115		244/245	125							
	1125		245/246	125							
	115		246/247	111							
	135		247/248	110							
	155		248/249	108							
	215		249/250	112							
	320		222/251	271							
	310		231/251	22	DN		43	W#13			
	315		221/231	131	—"—		—"—	—"—			
	510		251/252	255	KC		40	W# 9			
	525		231/252	129	DN		43	W#13			
	550		232/252	22	—"—		—"—	—"—			

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PANEL SEAMING FORM

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-1-04	550		252/253	266	KC	750	40	w#9	68-80°	P	P
	510		252/233-238	125	ON		35	w#13			
	640		238/253	22	-"-		-"-	-"-			
	620		255/242-245	75	-"-		-"-	-"-			
	650		256/246-250	115	KC		30	w#9			
	600		253/255,256	190	ON		40	w#13			
	625		253/254	75	KC		40	w#9			
	645		254/239-242	75	ON		40	w#13			

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PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: 24016 | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-2-04	2:00 pm	257	258	125'	KC	750	40	09	58° - 85° W 7		
7-2-04	2:15 pm	258	259	126'	KC	750	40	09			
7-2-04	2:05 pm	259	260	125'	DN	750	40	13			
7-2-04	2:40 pm	260	261	126'	KC	750	40	09			
7-2-04	2:35 pm	261	262	126'	DN	750	40	13			
7-2-04	4:10 pm	263	264	253'	KC	750	40	09			
7-2-04	4:15 pm	264	265	253'	DN	750	40	13			
7-2-04	4:55 pm	263	257	22'	KC	750	40	09			
7-2-04	↓	264	258	22'	KC	750	40	09			
7-2-04	5:06 pm	265	259	22'	KC	750	40	09	58° - 85° W 7		
7-6-04	9:55 Am	265/266	266	262'	KC	750	40	09	53° W 7		
7-8-04	2:03 pm	262	267	128'	DN			13	59°-81° W 7		
7-8-04	2:30 pm	267	268	128'	DN			13			
	2:15	268	269	129'	KC			09			
	2:45	269	270	131'	KC			09			
	3:06	270	271	135'	KC			09			
	2:57	271	272	114'	DN			13			
	3:20	273	274	73'	DN			13			
	3:35	275	276	28'	DN			13			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-8-04	3:25pm	272	273	93'	KC			09			
	3:40pm	276	277	28'	DN			13			
	3:55pm	277	278	47'	KC			09			
	3:55pm	278	279	68'	DN			13			
	4:10pm	279	280	92'	KC			09			
	6:15 pm	280	281	112'	KC			09			
	7:05pm	281	282	125'	KC			09			
	7:01 pm	282	283	118	DN			13			
	7:25pm	283	284	118	KC			09			
7-8-04	7:30 pm	284	285	118	DN	750	40	13	59°-81° wt	tie 5/Tx	
		274	275	22	DN			13			
		274	278	22	DN			13			
		274	277	27	DN			13			
		274	278	8	DN			13			
		273	278	22	DN			13			
		273	279	9	DN			13			
		272	279	11	RAO	250	7	02		ex web seam	
		272	279	11	DN			13			
		272	280	8	DN			13			

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-8-04	4:30	271	280	19	DN	750	40	13	59-81 w7	Tie S/TK	
7-9-04	10:20	285	286	118	DN			13	83° w7		
	10:30	286	287	126	KC			09			
	10:42	287	288	127	DN			13			
	11:10	288	289	128	KC			09			
	11:15	289	290	128	DN			13			
	1:35	290	291	128	KC			09			
7-8-04	1:40	291	292	128	DN			13	83° w7		
	3:45	266	293	265	DN			13			
	4:00	293	294	260	KC			09			
	4:40	294	295	261	DN			13			
	5:05	295	296	262	KC			09			
	6:15	296	297	262	KC			09			
7-9-04	6:20	297	298	262	DN	750	40	13	83° w7		
7-10-04	9:45	292	299	128	DN	750	40	13	84° w18		
7-10-04	10:00	299	300	125	KC			09			
7-10-04	10:10	300	301	121	DN			13			
7-10-04	10:45	301	302	123	DN			13			
7-10-04	11:00	302	303	124	KC			09	84° w18		

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-10-04	2:15	303	304	126	DN	750	40	13	84° w 18		
7-10-04	2:40	304	305	127	KC			09			
7-10-04	2:45	305	306	125	DN			13	84° w 18		
	4:20	307	308	163	KC			09			
	4:40	308	309	170	KC			09			
	4:55	309	310	164	DN			13			
	5:30	309	296	22	KC			09			
	5:25	308	297	22	KC			09			
7-10-04	5:35	307	298	22	KC			09	84° w 18		
7-9-04	7:08	298	284/292	198	DN	750	40	13			
7-9-04	7:28	293/298	261/270	110	KC	750	40	09			
7-12	9:05	310	311	170	KC			09	85° w 7		
	9:20	311	312	173	DN			13			
	9:35	312	313	175	KC			09			
	10:35	313	314	176	DN			13			
	10:50	314	315, 317	165	KC			09			
	1:45	315	316	158	KC			09			
	2:30	316	317	364	DN			13			
7-12	3:50	317	318	144	DN			13	85° w 7		

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PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-12	3:35	317	319	203	KC	750	40	09			
	4:10	319	320	163	KC			09			
	4:30	318	320	144	KC			09			
	5:55	319	321	38	DN			39			
	5:40	321	322	38	KC			09			
	6:16	322	323	353	DN			39			
7-12	6:00	320	322	308	KC	750	40	09			
7-12	10:15	311	294	22	KC			09			
	10:20	312	293	22	KC			09			
	10:40	313	266	22	KC			09			
	11:15	314	265	22	KC			09			
	11:30	315	264	22	KC			09			
7-12	11:35	316	263	22	KC			09			
	2:45	317	315	22	KC			09			
	3:10	318	314	22	DN			13			
7-13	10:00	320	321	22	RAD			04			
	3:45	318	319	22	DN			13			
	5:00	320	313	22	KC			09			
	6:40	322	312	22	KC			09			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-14	2:10	306	336	122	KC	750	40	09	81° w7		
	2:15	336	337	122	DN			13			
	2:35	337	338	122	KC			69			
	3:35	338	339	124	DN			13			
	3:00	339	340	122	KC			09			
	3:05	340	341	121	DN			13			
	3:25	341	342	122	DN			13			
	2:25	342	343	122	KC			09			
	3:45	343	344	122	KC			09			
	3:40	344	345	123	DN			13			
	4:20	345	346	123	DN			13			
	4:25	346	347	124	DN			13			
	4:25	347	348	124	KC			09			
	4:45	348	349	125	KC			09			
	5:05	349	350	123	KC			09			
	5:15	350	351	123	DN			13			
	5:50	351	352	124	KC			09			
7-14	6:00	352	353	127	DN	750	40	13	81° w7		
7-15	10:55	353	354	127	KC	750	40	09	81° w7		

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PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-15	10:55	354	355	125	DN	750	40	13	81° w 7		
7-15	11:15	355	356	125	KC	750	40	09			
7-15	4:15	356	357	126	DN	750	40	13			
7-15	11:40	357	358	125	KC	750	40	09			
7-15	11:35	358	359	125	DN	750	40	13			
7-15	1:30	359	360	125	KC	750	40	09			
7-15	1:50	360	361	125	KC	750	40	09			
7-15	1:40	361	362	125	DN	750	40	13			
7-15	2:00	362	363	125	DN	750	40	13			
7-15	2:15	363	364	126	KC	750	40	09			
7-15	2:30	364	365	126	DN	750	40	13			
7-15	5:30	326	366	362	DN	750	40	13			
7-15	5:25	327	366	147	KC	750	40	2058			
7-15	5:59	366	367	222	KC	750	40	2058			
7-15	5:55	366	367	115	OS	750	40				
7-15	6:15	327	368	70	KC	750	40	2058			
7-15	6:00	366	368	22	KC	750	40	2058			
7-15	7:00	367	369	22	KC	750	40	2058			
7-15	7:05	367	368	8	KC	750	40	2058			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-15	7:10	368	369	61	KC	750	40	2058			
7-15	7:00	366	308	22	DN	750	40	13			
7-15	7:20	367	307	22	DN	750	40	13			
7-15	6:15	366	367	185	DN	750	40	13			
7-16	3:55	370	371	196	DN	750	40	13	81° W7		
7-16	4:25	370	372	85	KC	750	40	23	85 W10		
7-16	4:50	372	373	21	KC	750	40	20			
7-16	5:10	365	375	124	DN	750	40	20			
7-16	5:45	375	376	114	DN	750	40	23			
7-16	6:10	376	377	158	KC	750	40	20			
7-16	4:20	377	378	142	DN	750	40	23			
7-16	6:55	378	379	119	DN	750	40	23			
7-16	7:05	379	380	104	KC	750	40	20			
7-16	7:20	380	381	94	DN	750	40	23			
7-16	5:00	370	374	48	KC	750	40	20			
7-16	7:40	381	382	48	DN	750	40	23			
7-16	7:35	382	374	48	KC	750	40	20			
7-17	9:50	371	NW tie	152	KC	750	40	20	85° W10		
7-17	9:45	370	383	312	DN	750	40	23			

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PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-17	10:30	383	384	165	KC	750	40	20			
7-17	10:30	383	384	148	DN	750	40	23			
7-17	2:25	385	Bot	195	KC	750	40	20			
7-17	2:25	385	386	195	DN	750	40	23			
7-17	2:50	386	387	195	DN	750	40	23			
7-17	3:00	387	388	195	KC	750	40	20			
7-17	3:30	388	389	195	KC	750	40	20			
7-10		477N-637	tie	160	BC	750	35	20			
7-15	6:25	638N-120N	tie	566	OS	750	30	23			
7-19	10:45	384	390	183	KC	750	40	20	92° W 5		
7-19	10:40	384	390	125	DN	750	40	23			
7-19	11:35	390	391	183	KC	750	40	20			
7-19	11:30	390	391	125	DN	750	40	23			
	2:30	393	392	39	KC	750	40	20			
	2:48	392	394	77'	KC	750	40	20			
	3:10	394	395	114	KC	750	40	20			
	4:30	395	396	150	KC	750	40	20			
	4:50	396	397	144	DN	750	40	23			
	4:55	396	397	42	KC	750	40	20			

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-20	3:50	407	408	146	DN	750	40	23			
7-20	4:00	408	409	127	KC	750	40	20			
7-20	4:25	409	410	84	KC	750	40	20			
7-20	4:30	Tie 1344'N	Tie 1536'N	192'	DN	750	30	23	93° W5		
7-20	6:25	411	412	31	KC	750	40	20			
7-20	6:40	412	413	48	KC	750	40	20			
7-20	6:50	413	414	35	KC	750	40	20			
7-20	7:00	414	415	16	KC	750	40	20	93° W5		
7-21	9:00	406	416	180	KC	750	40	20	94° W5		
	9:40	416	417	122	DN	750	40	23			
	10:05	417	418	152	KC	750	40	20			
	10:35	417	419	16'	DN	750	40	23			
	10:30	418	419	22	DN	750	40	23			
	10:40	419	420	12	DN	750	40	23			
	10:45	418	420	138	DN	750	40	23			
	10:40	420	421	154	KC	750	40	20			
7-21	11:10	421	422	140	KC	750	40	20	94° W5		
	3:40	423	But	162	DN	750	40	23			
	3:30	423	424	161	KC	750	40	20			

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PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-21	4:00	424	425	168	KC	750	40	20			
	4:15	425	426	170	DN	750	40	23			
	4:30	426	427	195	KC	750	40	20			
	4:55	427	428	113	KC	750	40	20			
	5:15	427	429	22	KC	750	40	20			
	4:50	428	430	113	DN	750	40	23			
	5:15	429	430	88	DN	750	40	23			
	4:50	428	429	22	KC	750	40	20			
	5:25	430	431	183	KC	750	40	20			
	5:45	430	432	38	KC	750	40	20			
7-22	5:20	431	432	22	DN	750	40	23			
7-22	3:15	422	433	125	KC	750	40	13			
	3:25	433	434	117	DN	750	40	20			
	3:50	434	435	102	KC	750	40	13			
	3:55	435	436	88	DN	750	40	20			
	4:00	436	437	82	KC	750	40	13			
	4:15	437	438	80	KC	750	40	13			
	4:30	439	440	65	DN	750	40	20			
7-22	4:45	440	441	67	DN	750	40	20			

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PANEL SEAMING FORM

CT NAME:

JOB NUMBER:

MAT'L TYPE:

E	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
19	5:08	397	398	225	DN	750	40	23	92° WS		
19	5:08	898	399	232	KC	750	40	20			
19	5:05	391	398	13'	DN	750	40	23			
9	4:40	391	396	48'	DN	750	40	23			
19	4:30	391	395	48	DN	750	40	23			
19	4:35	391	394	48	DN	750	40	23			
-19	4:40	391	397	48	DN	750	40	23			
-19	2:36	391	392	22'	KC	750	40	20			
1-19	2:50	891	393	46	DN	750	40	23			
-17	4:00	376	371	38'	DN	750	40	23	92° WS		
2	9:10	399	400	230	KC	750	40	20			
	9:15	400	401	221	DN	750	40	23			
	10:20	401	402	218	KC	750	40	20			
	10:25	402	403	213	DN	750	40	23			
	11:30	403	404	106	DN	750	40	23			
	11:35	403	404	97	KC	750	40	20			
	11:50	404	405	202	KC	750	40	20			
0	1:55	405	406	200	DN	750	40	23			
20	4:15	389	407	181	DN	750	40	23			

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PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-22	4:50	441	442	70	KC	750	40	13			
	5:10	442	443	20	DN	750	40	20			
	5:00	442	438	55	DN	750	40	20			
7-22	5:00	443	438	55	KC	750	40	13			
7-23	8:45	432	444	31	DN	750	40	20			
	9:00	431	444	234	DN	750	40	20			
	8:45	444	445	265	KC	750	40	13			
	9:20	445	446	270	KC	750	40	13			
	9:40	446	447	89	DN	750	40	20			
		446	448	315	DN	750	40	20			
	9:30	447	448	22	DN	750	40	20			
		447	449	80	KC	750	40	13			
	10:00	448	449	235	KC	750	40	13			
	10:30	449	450	227	DN	750	40	20			
		449	451	90	DN	750	40	20			
	10:55	450	451	22	KC	750	40	13			
		450	452	32	KC	750	40	13			
		450	453	188	KC	750	40	13			
7-23	11:00	451	453	95	KC	750	40	13			

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PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7·23	11:40 3:15	452	453	22	KC	750	40	18			
		45 7	41	327	KC	750	40	13			
	1:45	452	454	~~450~~ 38	KC	750	40	13			
	11:30	453	454	282	DN	750	40	20			
		454	455	84	KC	750	40	13			
		454	456	96	KC	750	40	13			
	2:10	454	457	147	KC	750	40	13			
	2:30 3:25	457 ~~457~~	456 39	13	KC	750	40	13			
				22	DN	750	40	10			
7-23		455	456	7	KC	750	40	13			
7-23	2:00	1758'E	1997'E	239	DN	750	30	20			

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PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-24	8:30	461	460	129	DN	750	40	20	76° W 10		
7-24	8:30	461	459	159	DN	750	40	20			
7-24	9:00	461	462	284	KC	750	40	13			
7-24	8:40	461	425	22	KC	750	40	13			
7-24	8:45	462	426	22	KC	750	40	13	76° W 10		
7-26	8:45	462	463	53	DN	750	40	20	78° W ←		
	9:30	462	464	235	DN	750	40	20			
	8:30	463	464	22	DN	750	40	20			
	8:45	463	465	53	KC	750	40	13			
	9:30	465	466	176	DN	750	40	20			
	9:45	465	467	110	DN	750	40	20			
	9:30	466	467	22	MT	750	40	45			
	9:00	466	468	170	KC	750	40	13			
	9:20	467	468	110	KC	750	40	13			
	10:15	468	469	110	MT	750	40	45			
	9:40	468	470	172	MT	750	40	45			
	10:05	469	470	22	MT	750	40	45			
	10:25	469	471	114	KC	750	40	13			
7-26	10:45	470	471	172	KC	750	40	13	78° W 5		

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-26	10:40	471	472	290	DN	750	40	20	78° W5		
	11:30	472	473	57	MT	756	40	45			
	10:50	472	474	232	MT	756	40	45			
	11:10	473	474	22	KC	750	40	13			
	1:25	474	475	232	KC	750	40	13			
	11:25	473	475	57	KC	750	40	13			
	1:25	475	476	134	DN	750	40	20			
	1:40	475	477	134	DN	750	40	20			
	1:45	476	477	22	MT	750	40	45			
	2:00	476	478	134	MT	750	40	45			
7-26	2:15	477	478	153	MT	750	40	45	78° W5		
	2:50	478	479	71	KC	750	40	13			
	2:00	478	480	220	KC	750	40	13			
	2:45	479	480	22	KC	750	40	17			
	3:30	479	481	27'	MT	750	40	45			
	3:40	480	481	222	MT	750	40	45			
	2:45	464	427	22	DN	750	40	20			
	3:00	468	432	22	DN	750	40	20			
7-24	3:05	469	444	22	DN	750	40	20			

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PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-26	3:15	491	445	22	DN	750	40	20	78° w 5		
	3:35	475	449	22	DN	750	40	20			
	3:55	478	452	22	DN	750	40	20			
	4:05	479	454	22	DN	750	40	20			
	4:25	479	88	22	DN	750	40	20			
	4:20	479	90	22	DN	750	40	20			
	4:10	481	90	22	DN	750	40	20			
7-26	3:55	481	92/133°	242	KC	750	40	13	78° w 5		
7-27	9:00	482	483	224	MT	750	40	45	82° w 20		
	8:55	482	484	61	MT	750	40	45			
	8:50	483	484	22	MT	750	40	45			
	9:40	482	316	297	DN	750	40	20			
	10:00	484	485	66	KC	750	40	15			
	10:10	483	485	224	KC	750	40	15			
	10:20	485	487	34	MT	750	40	45			
	10:25	485	486	263	MT	750	40	45			
	10:15	486	487	22	MT	750	40	45			
	10:50	486	488	263	KC	750	40	15			
7-27	10:40	487	488	34	KC	750	40	15	82° w20		

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-27	11:15	488	489	181	DN	750	40	20	82° w 20		
	10:55	488	490	121	DN	750	40	20			
	10:45	489	490	22	DN	750	40	20			
	1:45	489	491	181	KC	750	40	15			
7-27	1:30	490	499	121	KC	750	40	15	88° w 20		
	9:45	459	482	22	MT	750	40	45			
	9:57	461	483	22	MT	750	40	45			
	9:05	462	485	22	MT	750	40	45			
	11:00	463	486	22	MT	750	40	45			
	11:07	465	488	22	MT	750	40	45			
	11:25	467	489	22	KC	750	40	15			
7-27	1:25	481	491	22	KC	750	40	15	82° w 20		
7-28	11:36	492	497	213	DN	750	40	20	80° w 10		
7-28	11:20	491	492	88	DN	750	40	20			
7-29	9:30	492	493	22	DN	750	40	20	80° w 10		
7-29	9:45	492	494	88	DN	750	40	20	81° w 15		
7-29	9:55	493	494	213	DN	750	40	20			
7-29	10:15	494	495	308	BC	750	40	13			
7-29	10:55	495	496	216	BC	750	40	13			

GSI
PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-29	10:45	495	497	78	BC	750	40	13	81° w 15		
	10:35	496	497	22	DN	750	40	20			
	10:45	496	498	223	DN	750	40	20			
	11:00	497	498	72	DN	750	40	20			
	11:40	498	499	148	BC	750	40	13			
	11:36	498	500	154	DN	750	40	20			
		499	500	22	MS	750	40	13			
	3:06	499	501	143	MS	750	40	13			
	2:43	500	501	154	MS	750	40	13			
	3:40	501	502	294	MS	750	40	13			
	4:20	502	504	90	MS	750	40	13			
	4:42	502	503	214	MS	750	40	13			
	4:32	503	504	22	MS	750	40	13			
	4:45	503	505	42	DN	750	40	20			
7-29	4:50	503	506	84	DN	750	40	20	81° w 15		
"	4:10	492	470	22	DN	750	40	20	83° w 20		
	4:00	494	471	22	DN	750	40	20			
	3:40	495	472	22	DN	750	40	20			
7-29	3:30	496	473	22	DN	750	40	20			

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-29	3:15	498	475	22	DN	750	40	20	83° w 20		
	3:00	499	476	22	DN	750	40	20			
	2:50	501	478	22	DN	750	40	20			
	4:20	502	480	22	DN	750	40	20			
	4:30	503	481	22	DN	750	40	20			
	5:20	135	505	22	[redacted] DN	750	40	[redacted] 20			
	5:25	137	505	22	[redacted] DN	750	40	[redacted] 20			
	6:00	139	506	22	MS	750	40	13			
	5:55	141	506	22	MS	750	40	13			
	5:50	143	506	22	MS	750	40	13			
	5:30	146	503	22	DN	750	40	20			
	5:35	148	503	22	DN	750	40	20			
	5:40	177	503	22	DN	750	40	20			
	5:45	179	503	22	DN	750	40	20			
	6:15	181	504	22	DN	750	40	20			
	6:10	183	504	22	DN	750	40	20			
	6:05	185	504	22	DN	750	40	20			
7-29	6:00	187	504	22	DN	750	40	20	83° w 20		

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-31	1:13	263	S07	224	DN	750	40	20	80' w 10		
	10:15	316	S07	224	DN	750	40	20			
	9:45	S07	S08	73	MT	750	40	15			
	10:30	S07	S09	375	MS	750	40	13			
	10:45	S08	S09	22	MS	750	40	13			
	10:25	S09	S10	52	MT	750	40	15			
	12:30	S09	S11	295	KC	750	40	15			
	10:40	S10	S11	22	MT	750	40	15			
7-31	10:15	S08	S10	98	MT	750	40	15			
		S10	S12	149	KC	750	40	15			
		S11	S12	101	KC	750	40	15			
	1:15	S11	S13	195	KC	750	40	15			
	1:00	S12	S13	22	MT	750	40	4			
	1:20	S12	S14	253	MS	750	40	13			
		S13	S14	70	MS	750	40	13			
		S13	S15	125	MS	750	40	13			
	1:45	S14	S15	22	MT	750	40	4			
		S14	S16	329	MT	750	40	4			
7-31		S15	S16	68	MT	750	40	4			

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
	1:35	S15	S17	56	MT						
	1:30	S16	S17	22	MT						
		S16	S18	394	DN						
	2:00	S17	S18	58	DN						
	2:15	S18	S19	448	KC						
		S19	S20	75	MS						
		S19	S21	371	MS						
	2:35	S20	S21	22	MT						
		S20	S22	76	MT						
	3:15	S21	S23	298	KC						
	2:45	S21	S22	73	MT						
	3:10	S22	S23	22	MT						
	4:00	S22	S24	150	KC						
	4:05	S23	S24	77	MT						
	4:15	S24	S25	22	MT						
		S23	S25	224	MT						
		224	S26	225	KC						
		S25	S26	64	KC						
		S25	S27	160	KC						

GSI
PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-31		526	528	293	MS	750	40	13			
		527	528	62	MT	750	40	4			
	515	527	529	80	MT	750	40	4			
	4:50	526	527	22	MT	750	40	4			
7-31	505	528	529	22	MT	750	40	4			
7-31		485	510	22	DN	750	40	20			
		487	512	22	DN	750	40	20			
	4:50	488	514	22	DN	750	40	20			
	4:40	490	516	22	DN	750	40	20			
	4:35	491	518	22	DN	750	40	20			
	4:30	493	519	22	DN	750	40	20			
	4:20	494	520	22	DN	750	40	20			
	4:00	495	522	22	DN	750	40	20			
	3:50	497	524	22	DN	750	40	20			
	3:35	498	526	22	DN	750	40	20			
7-31	3:55	500	528	22	DN	750	40	20			

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-2	3:55	S29	S31	39	DN			20			
	2:20	S28	S30	378	DN			20			
		S29	S30	41	DN			20			
	2:30	S30	S32	418	MS			13			
	3:50	S30	S31	22	DN			20			
	2:40	S31	S32	40	MS			13			
	3:05	S32	S33	128	KC			15			
	3:50	S32	S34	211	MS			13			
	4:25	S34	S40	38	KC			15			
	4:43	S34	S41	34	MS			13			
		S35	S39	158	KC			15			
	5:00	S36	S35	22	DN			20			
8-3	8:55	S36	S38	155	DN			20			
	5:15	S37	S38	164	MS			13			
	5:35	S39	S37	158	MS			13			
	5:10	S38	S38	10	DN			20			
		S37E	S37W	20'	DN			20			
8-2		S38 E	S38W	10'	DN			20			
	2:30	S01	S30	212	KC	700	40	15			

GSI
PANEL SEAMING FORM

PROJECT NAME:							JOB NUMBER:		MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-2	2:40	502	532	22	KC	750	40	15			
	3:00	504	533	22	KC			15			
		189	533	22	KC			15			
		190	533	22	KC			15			
		193	533	22	KC			15			
		195	533	22	KC			15			
		197	533	22	KC			15			
		199	533	16	KC			15			
		199	532	6	KC			15			
		201	532	22	KC			15			
		203	532	22	KC			15			
		205	532	22	KC			15			
		207	532	22	KC			15			
	3:40	208	532	10	KC			15			
	3:45	208	534	10	KC			15			
		212	534	22	KC			15			
		214	534	22	KC			15			
	4:00	216	534	22	KC			15			
8-2		218	540	22	KC	750	40	15			

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-7		220	540	22	KC	750	40	15			
		222	534	22	KC			15			
	4:35	251	534	10	KC			15			
	5:10	251	541	10	KC			15			
	5:05	252	541	22	KC			15			
8-7	500	253	541	22	KC	750	40	15			
8-7	6:30	263	537	22	MJ	750	40	15			
	6:35	263	535	22	MJ			15			
		507	535	22	KC			15			
		509	535	22	KC			15			
		511	535	22	KC			15			
		513	535	22	KC			15			
		515	535	22	KC			15			
		517	535	22	KC			15			
		518	535	22	KC			15			
		519	535	17	KC			15			
		521	536	22	KC			15			
		523	536	22	KC			15			
8-7		525	536	22	KC	750	40	15			

GSI
PANEL SEAMING FORM

PROJECT NAME:												
				JOB NUMBER:					MAT'L TYPE:			
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-2		527	536	22	KC	750	40	15			
		529	536	22	KC			15			
8-2		531	536	22	KC	750	40	15			

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-3	11:20	550	537	22	DN	750	40	20			
	11:30	551	537	22	DN	750	40	20			
	11:45	552	537	22	DN	750	40	20			
	1:10	553	537	22	DN	750	40	20			
		554	537	15'	DN	750	40	20			
		554	537	6'	DN	750	40	20			
8-3	9:00	555	537	22	DN	750	40	20			

GSI
PANEL SEAMING FORM

PROJECT NAME:						JOB NUMBER:			MAT'L TYPE:		
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
8-4		256	558	22	DN	750	40	20			
		253	558	12	DN	750	40	20			
		541	558	7	DN	750	40	20			
		534	558	13	DN	750	40	20			
		534	557	8	DN	750	40	20			
		532	536	22	DN	750	40	20			
	11:05	536	557	9	DN	750	40	20			
	1	536	559	6	DN	750	40	20			
		538	559	13	DN	750	40	20			
		537	554	14	DN	750	40	20			
8-4	11:35	556	537	22	DN	750	40	20			
8-3	9:50	542	537	22	DN	750	40	20			
	10:05	543	537	22	DN	750	40	20			
	10:15	544	537	22	DN	750	40	20			
	10:30	545	537	22	DN	750	40	20			
	10:35	546	537	22	DN	750	40	20			
	10:50	547	537	22	DN	750	40	20			
	11:00	548	537	22	DN	750	40	20			
8-3	11:10	549	537	18'	DN	750	40	20			

GSI
PANEL SEAMING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT.	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
	9:05	257	542	117	MT	750	40	15			
	9:15	542	543	115	MS	750	40	13			
	9:20	543	544	114	DN	750	40	20			
	9:45	544	545	111	MS	750	40	13			
	10:20	545	546	111	MS	750	40	13			
	10:15	546	547	109	MT	750	40	15			
	10:50	547	548	107	MS	750	40	13			
	10:40	548	549	107	MT	750	40	15			
	11:00	549	550	106	MS	750	40	13			
	11:15	550	551	104	MS	750	40	13			
		551	552	102	MS	750	40	13			
	1:30	552	553	102	MT	750	40	15			
8-3	1:50	553	554	100	MT	750	40	15			
8-4	8:30	554	555	98	MT	750	40	15			
	9:15	555	556	95	DN	750	40	20			
	9:20	556	557	95	DN	750	40	20			
	9:55	557	558	143	DN	750	40	20			
	9:25	558	250	110	MT	750	40	4			
8-4		559	557	22	DN	750	40	20			

GSI
PANEL SEAMING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-10	13:00	307	tie 299-306	162'	DN	750	40	39		P	P
7-12	8:04	311	323	22	KC			9		P	P
7-13	17:22	319	334	22	KC			9		P	P
7-13	17:23	321	331	22	DN			13		P	P
7-13	16:42	322	330	22	DN			13		P	P
7-13	16:32	323	329	22	DN			13		P	P
7 23	8:02	335	458	234	DN			20		P	P
		~~367 tie/336, 336-359~~	~~530~~								
7-15	9:23	367/386-348		370	DS			23		P	P
7-15	14:06	367/349-359		236	KC			20		P	P
7:15	15:34	369/360-362		66'	KC			20		P	P
7-17	8:13	370	376	20	DN			23		P	P
7-16	17:19	372	374	30'	KC			20		P	P
7-23	8:06	385	458	256	DN			20		P	P
7 23	8:15	386	458	22	DN			20		P	P
7-19	17:09	391	397	45	DN			23		P	P
7-23	8:20	423	458	20	KC			13		P	P
7-23	8:45	424	460	20	KC			13		P	P
7-26	14:56	429	465	20	DN			20		P	P

GSI
PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-26	15:01	430	466	20	DN	750	40	20		P	P
7-26	15:30	446	472	20	DN			20		P	P
7-26	16:02	450	477	20	DN			20		P	P
7-23	7:38	458	459	159	KC			13		P	P
7-23	8:00	458	460	129	KC			13		P	P
7-23	7:44	459	460	22	KC			13		P	P
7-31	10:24	482	507	20	MT			15		P	P
8-2	14:48	502	532	22	KC	750	40	15		P	P

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
5-26-04	45	1/2	#622 C-P.	439	444	30	30	P		0 - EOS
	45	2/3		446	451	30	30	P		
	48	3/4		452	457	30	30	P		↓
	32	4/5		506	511	30	30	P		0 - 32 (32-37) E
	13	—"—		500	505	30	30	P		37 - 50 EOS
	53	5/6		512	517	30	30	P		0 - EOS
	53	6/7		525	530	30	30	P		
	53	7/8		531	536	30	30	P		↓
↓	56	8/9	↓	537	542	30	30	P		↓

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: 240016 | MAT'L TYPE: 60mil TexTure

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
5-27-04	57	9/10	#622 C-P	740	745	30	30	P		0'-EOS
5-28-04	59	10/11		1121	1126	30	20	P		
	60	11/12		1132	1137	30	30	P		
	60	12/13		1140	1145	30	28	P		
	62	13/14		1149	1154	30	30	P		
	64	14/15		105	110	30	30	P		
	66	15/16		112	117	30	30	P		
	67	16/17		119	124	30	30	P		
	65	17/18	✓	135	140	30	30	P		
	5	17/19		EXT						
	65	18/20	622 C-P	525	529	30	30	P		
	5	19/20		EXT						
	21,5	18/19		EXT						
	72	20/21	#622 C-P	532	537	30	30	P		
	73	21/22		517	522	30	30	P		
	73	22/23		539	544	30	30	P		
	75	23/24		549	554	30	30	P		
	35	24/27		637	642	30	30	P		
	13	24/26		643	648	30	29	P		
	14	—"—		649	654	30	29	P		
	14	24/25								
✓	63	25/26	✓	555	600	30	30	P		✓

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER: 240016	MAT'L TYPE: 60mil Textured

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST TIME START	TIME END	PRESSURE (PSI) START	PRESSURE (PSI) END	P/F	VACUUM TEST P/F	COMMENTS
2-28-04	39	26/27	#622 C-P	601	606	30	30	P		0-EOS
	74	25/28		608	613	30	30	P		
	75	28/29		615	620	30	30	P		
	79	29/30		624	629	30	29	P		
	82	30/31		701	706	30	30	P		
	82	31/32		707	712	30	30	P		
	59	33/34		713	718	30	30	P		
	34	34/35		719	724	30	30	P		
	28	32/35		738	743	30	30	P		
	27	32/34			EXT					
	19	32/33	#622 C-P	750	755	30	28	P		
3-2-04	142	36/39	#622 C-P	432	437	30	30	P		0-EOS.
	333	36/38		400	405	30	30	P		
	36	36/37		407	412	30	30	P		
	22	37/38		342	347	30	30	P		
	22	38/39		423	428	30	30	P		
	142	39/41		439	444	30	30	P		
	311	38/41		512	517	30	30	P		
	19	38/40		520	525	30	30	P		
	65	37/40		527	532	30	30	P		
	22	40/41		416	421	30	30	P		
	447	41/43		659	704	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST TIME START	TIME END	PRESSURE (PSI) START	PRESSURE (PSI) END	P/F	VACUUM TEST P/F	COMMENTS
6-2-04	22	42/43	#622 C-P	600	605	30	30	P		0-EOS
—"—	102	40/42	—"—	552	557	30	30	P		—"—
6-3-04	44	36/1-2	#622 C-P	730	735	30	30	P	tie-in	0-44
	411	36/3-22		740	745	30	29	P	—"—	44-455 (455-476
	35	36/24,25		859	904	30	30	P		476-511 (511-519 EXT
	31	37/28,29		846	851	30	29	P		519-550
	27	40/30-31		832	837	30	30	P		550-577
	23	40,42/31		840	845	30	28	P		557-600 (600-621-E)
	84	33/44		425	430	30	30	P		0-EOS
	84	44/45		405	410	30	30	P		
	82	45/46		435	440	30	30	P		
	82	46/47		450	455	30	30	P		
	82	47/48		506	511	30	30	P		
	82	48/49		522	527	30	30	P		
	82	49/50		538	543	30	30	P		
	82	50/51		530	535	30	30	P		
	82	51/52		550	555	30	30	P		
	82	52/53		611	616	30	30	P		
	82	53/54		558	603	30	30	P		
	82	54/55		617	622	30	30	P		
	82	55/56		637	642	30	30	P		
	82	56/57		631	636	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6-3-04	81	57/58	#622 C-P	657	702	30	29	P		0-EOS
	81	58/59		703	708	30	30	P		
	81	59/60		651	656	30	30	P		
	81	60/61		709	714	30	30	P		
6-4-04	61	43/63	#622 C-P	945	950	30	30	P		0-EOS
	29	43/62		955	1000	30	30	P		0-90
	358	-"-		234	239	30	30	P		90-448 EOS
	124	42/62		243	248	30	30	P		0-EOS
	22	62/63		935	940	30	30	P		
	61	63/64		1124	1129	30	30	P		
	264	62/64		106	111	30	30	P		0-264
	191	-"-		135	140	30	30	P		264-455 EOS
	59	62/65		146	151	30	30	P		0-EOS
	22	64/65		141	145	30	30	P		
	58	64/67		336	341	30	30	P		
	22	66/67		325	330	30	30	P		
	458	64/66		433	438	30	30	P		
	62	65/66		440	445	30	30	P		
	58	67/69		543	548	30	30	P		
	73	66/69		534	539	30	30	P		
	22	68/69		525	530	30	30	P		
	449	66/68		512	517	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6-4-04	48	62-66/44/46	#622 C-P	557	602	30	30	P	Ice-IN	621-669 669-676 EXT
—"—	15	68/46-47	—"—	603	608	30	30	P	—"—	676-691
6-7-04.	131	69/70	#622 C-P	957	1002	30	30	P		0-EOS
	108	68/70		949	954	30	30	P		—"—
	182	70/71		1107	1112	30	30	P		0-182
	14	—"—		1100	1105	30	30	P		182-196
	47	—"—		1050	1055	30	29	P		196-243 EOS
6-8-04	76	68/73	#622 C-P	1056	1101	30	30	P		0-EOS
	22	72/73		1040	1045	30	30	P		
	265	68/72		1129	1134	30	30	P		
	76	73/74		1150	1155	30	30	P		
	110	72/74		126	131	30	30	P		0-110
	161	—"—		133	138	30	29	P		110-191 EOS
	66	71/76		415	420	30	30	P		0-EOS
	177	71/75		444	449	30	29	P		
	345	74/75		437	442	30	30	P		
	22	75/76		1400	1405	30	30	P		
	297	~~75,76/77,78~~		608	613	30	30	P		
	291	75/77		546	551	30	30	P		
	22	77/78		525	530	30	30	P		

PAGE:____ 7

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
10.04	67	78/80	#622 C-P	1005	1010	30	30	P		0-EOS
	8	78/79		1011	1016	30	30	P		
	22	79/80		953	958	30	30	P		
	522	77/79		1117	1122	30	30	P		
	67	80/82		1135	1140	30	30	P		
	76	79/82		1155	1200	30	30	P		
	22	81/82		128	133	30	30	P		
	157	79/81		222	227	30	30	P		0-157
	292	—"—		140	145	30	30	P		157-449 EOS
	143	82/84		305	310	30	30	P		0-EOS
	34	81/84		313	318	30	30	P		
	22	83/84		244	249	30	30	P		
	148	81/83		332	337	30	30	P		0-148
	268	—"—		320	325	30	30	P		148-416 EOS
	177	84/86		440	445	30	30	P		0-EOS
	75	83/86		458	503	30	30	P		
	22	85/86		505	570	30	30	P		
	344	83/85		512	517	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

8 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6-12-04	180	86/88	SS	1120	1125	30	30	P		0-180 (180-191 EXT)
	75	85,86/88		1045	1050	30	30	P		191-EOS
	22	87/88		1145	1150	30	30	P		0-EOS
	69	85/87		345	350	30	28	P		0-66 (66-86 EXT)
	244	—11—		404	409	30	29	P		86-330 EOS
	159	88/90		315	320	30	30	P		0-159
	106	—11—		325	330	30	30	P		159-265 EOS
	78	87/90		415	420	30	29	P		0-EOS
	22	89/90		421	426	30	30	P		
	253	87/89		430	435	30	30	P		
	50	90/92		505	510	30	30	P		
	272	90/91		449	454	30	29	P		
	22	91/92		458	503	30	30	P		
	255	89/91		607	612	30	28	P		
	50	92/94		528	533	30	30	P		
	6	91/94		534	539	30	29	P		
	22	93/94		519	524	30	28	P		
	29	91/93		541	546	30	30	P		0-29
	175	—11—		555	600	30	30	P		29-204
	178	—11—		631	636	30	30	P		204-382 (382-419 INT
	28	—11—		623	628	30	30	P		419-447 (447- EXT)
	63	—11—		615	620	30	30	P		458-521 EOS

GSI NON-DESTRUCTIVE TESTING FORM

9 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST TIME START	TIME END	PRESSURE (PSI) START	PRESSURE (PSI) END	P/F	VACUUM TEST P/F	COMMENTS
6-14-04	50	61/95	SS	348	353	30	30	P		0-50
	25	—11—		340	345	30	28	P		50-75 (75-85 EX)
	85	95/96		400	405	30	30	P		0-EOS
	85	96/97		406	411	30	30	P		—11—
	12	97/98		430	435	30	30	P		0-12
	73	—11—		420	425	30	30	P		12-85 EOS
	85	98/99		412	417	30	30	P		0-EOS
	85	99/100		437	442	30	30	P		
	85	100/101		447	452	30	30	P		
	85	101/102		500	505	30	30	P		
	85	102/103		512	517	30	30	P		
	85	103/104		525	530	30	29	P		
	85	104/105		540	545	30	29	P		
	85	105/106		549	554	30	30	P		
6-15-04	85	106/107	#SS	1050	1055	30	30	P		0-EOS
	85	107/108		1107	1112	30	30	P		
	85	108/109		1132	1137	30	30	P		
	85	109/110		1145	1150	30	30	P		
	85	110/111		120	125	30	30	P		
	85	111/112		212	217	30	30	P		
	85	112/113		230	235	30	30	P		
	85	113/114		245	250	30	30	P		
	85	114/115		300	305	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

10 ✓

PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 60 mil HDPE F/2-Smooth

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
16.04	52	94/117	SS	1006	1011	30	30	P		C-EOS
	273	93/116		1037	1042	30	30	P		C-273
	254	—"—		1030	1035	30	30	P		273-527 EOS
	23	116/117		957	1002	30	30	P		C-EOS
	52	117/119		1120	1125	30	30	P		
	314	116/119		109	114	30	30	P		
	22	118/119		102	107	30	30	P		
	154	116/118		1143	1148	30	30	P		C-154
	58	—"—		1136	1141	30	30	P		154-212 EOS
	56	119/121		152	157	30	30	P		C-EOS
	22	120/121		205	210	30	30	P		
	313	119/120		239	244	30	29	P		
	212	118/120		300	305	30	30	P		
	54	121/123		319	324	30	30	P		
	9	120/123		325	330	30	29	P		
	22	122/123		331	336	30	30	P		
	237	120/122		339	344	30	30	P		C-237
	279	—"—		350	355	30	30	P		237-516 EOS
	55	123/125		425	430	30	30	P		C-EOS
	22	124/125		415	420	30	30	P		
	8	123/124		431	436	30	28	P		
	105	122/124		442	447	30	30	P		C-105

GSI NON-DESTRUCTIVE TESTING FORM

11

PROJECT NAME: Sterco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 60mil HDPE F/2 - Smooth

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST TIME START	TIME END	PRESSURE (PSI) START	PRESSURE (PSI) END	P/F	VACUUM TEST P/F	COMMENTS
6.16.04	147	122/124	SS	507	512	30	30	P		105 - 252
	105	—"—		501	506	30	30	P		252 - 357
↓	158	—"—	↓	513	518	30	30	P		357 - 515 EOS
6.17.04	55	125/127	SS	923	928	30	30	P		0 - EOS
	5	124/127		930	935	30	30	P		
	22	126/127		937	942	30	30	P		↓
	252	124/126		956	1001	30	30	P		0 - 252
	265	—"—		1008	1013	30	30	P		252 - 517 EOS
	60	127/129		1036	1041	30	29	P		0 - EOS
	58	126/129		1043	1048	30	30	P		
	22	128/129		1052	1057	30	30	P		↓
	192	126/128		1100	1105	30	30	P		0 - 192
	269	—"—		1025	1030	30	28	P		192 - 461 EOS
	116	129/131		1139	1144	30	30	P		0 - EOS
	77	128/131		1145	1150	30	30	P		
	22	130/131		115	120	30	30	P		↓
	386	128/130		129	134	30	30	P		↓
	100	131/133		234	239	30	30	P		0 - 100
	86	—"—		232	237	30	30	P		100 - 186 EOS
	22	132/133		239	244	30	29	P		0 - EOS
	231	130/132		339	344	30	30	P		0 - 231
	153	130/132	↓	330	335	30	28	P		231 - 384 EOS

GSI NON-DESTRUCTIVE TESTING FORM

12 ✓

PROJECT NAME: Sharco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 60 mil HDPE F/2 - Smooth

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.17.04	184	133/135	SS	356	401	30	30	P		C-LEOS
	57	132/135		404	409	30	30	P		
	22	134/135		422	427	30	30	P		
	331	132/134		431	436	30	30	P		
	240	135/137		509	514	30	30	P		
	50	134/137		513	518	30	30	P		
	22	136/137		523	528	30	28	P		
	280	134/136		500	505	30	28	P		
	132	137/139		658	703	30	30	P		
	56	—11—		634	639	30	30	P		
	43	136/139		640	645	30	30	P		
	22	138/139		650	655	30	30	P		
	240	136/138		620	625	30	29	P		

GSI NON-DESTRUCTIVE TESTING FORM

13 ✓

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.18.04	11	139/141	SS	1145	1150	30	28	P		0-11
	35	—11—		147	152	30	30	P		11-46 EOS
	22	140/141		115	120	30	30	P		0-EOS
	79	139/140		144	149	30	28	P		0-79
	105	—11—		204	209	30	30	P		79-184
	98	—11—		206	214	30	30	P		184-282 EOS
	150	138/140		214	219	30	30	P		0-150
	92	—11—		248	253	30	30	P		150-242 EOS
	46	141/143		503	508	30	30	P		0-EOS
	22	140/143		456	501	30	28	P		
	22	142/143		442	447	30	30	P		
	222	140/142		348	353	30	29	P		0-222
	280	—11—		400	405	30	29	P		222-502 EOS
	68	143/144	✓	517	522	30	28	P		0-EOS
6.19.04	59	144/146	SS	1053	1058	30	30	P		0-EOS
	22	145/146		1058	1103	30	30	P		
	514	144/145		1033	1038	30	28	P		
	61	146/148		1113	1118	30	28	P		
	22	147/148		1115	1123	30	28	P		
	295	145/147		114	119	30	28	P		0-295
	221	—11—		212	217	30	30	P		295-516 EOS
	87	115/149	✓	340	345	30	30	P		0-EOS

GSI NON-DESTRUCTIVE TESTING FORM

14 ✓

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6-19-04	87	149/150	SS	347	352	30	30	P		0 – EOS
	87	150/151		402	407	30	30	P		
	86	151/152		422	427	30	30	P		
	86	152/153		433	438	30	30	P		
	450	142/144		740	745	30	30	P		0 – 450
	59	— " —		744	749	30	30	P		450 – 509 EOS
6-21-04	86	153/154	SS	1030	1035	30	30	P		0 – EOS
	86	154/155		1105	1110	30	29	P		
	86	155/156		1119	1124	30	30	P		
	86	156/157		1111	1116	30	28	P		
	86	157/158		1136	1141	30	30	P		
	86	158/159		1126	1131	30	28	P		
	86	159/160		1138	1143	30	30	P		
	86	160/161		100	105	30	30	P		
	86	161/162		112	117	30	30	P		
	61	162/163		400	405	30	29	P		0 – 61 (61 – EOS EXT)
	85	162/163		105	110	30	29	P		0 – EOS
	85	164/165		407	412	30	30	P		
	85	165/166		418	423	30	30	P		
	84	166/167		429	434	30	30	P		
	84	167/168		442	447	30	29	P		
	78	168/169		459	504	30	29	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.21.04	58	169/170	SS	515	520	30	30	P		0 - EOS
	30	170/171		525	530	30	29	P		
	114	172/173		620	625	30	30	P		
	93	173/174		640	645	30	30	P		
	50	174/175		647	652	30	30	P		
6.22.04	56	148/177	SS	1021	1026	30	30	P		0 - EOS
	5	148/176		1030	1035	30	30	P		—"—
	99	147/176		1113	1118	30	30	P		0 - 99
	165	—"—		1054	1059	30	30	P		99 - 264
	253	—"—		1105	1110	30	30	P		264 - 517 EOS
	22	176/177		1010	1015	30	30	P		0 - EOS
	56	177/179		110	115	30	30	P		
	22	178/179		104	109	30	28	P		
	249	176/178		1135	1140	30	30	P		0 - 249
	272	—"—		1125	1130	30	30	P		249 - 521 EOS
	61	179/181		254	259	30	30	P		0 - EOS
	55	178/181		300	305	30	30	P		
	22	180/181		245	250	30	30	P		
	175	178/180		327	332	30	30	P		0 - 175
	291	—"—		315	320	30	30	P		175 - 466 EOS
	117	181/183		405	410	30	30	P		0 - EOS
	48	180/183		412	417	30	30	P		—"—

GSI NON-DESTRUCTIVE TESTING FORM

16

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.22.04	115	180/182	SS	421	426	30	30	P		0 - 115
	305	—"—		430	435	30	30	P		115 - 420 EOS
	22	182/183		345	350	30	30	P		0 - EOS
	165	183/185		505	510	30	30	P		
	10	182/185		513	518	30	30	P		
	410	182/184		533	538	30	30	P		
	22	184/185		525	530	30	30	P		
6-23.04	84	185/187	SS	1127	1132	30	30	P		0 - 84
	91	—"—		1120	1125	30	30	P		84 - 175 EOS
	75	184/187		1135	1140	30	30	P		0 - EOS
	22	186/187		105	110	30	30	P		—"—
	50	184/186		1111	1116	30	28	P		0 - 50
	288	—"—		122	127	30	30	P		50 - 338 EOS
	250	187/189		230	235	30	30	P		0 - EOS
	69	186/189		239	244	30	30	P		
	22	188/189		250	255	30	30	P		
	266	186/188		246	251	30	30	P		
6.24.04	10	189/191	SS	1033	1038	30	30	P		0 - EOS
	302	189/190		1053	1058	30	30	P		
	268	188/190		1122	1127	30	30	P		
	22	190/191		1038	1043	30	29	P		
	10	191/193		212	217	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

17

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.24.04	15	190/193	SS	213	218	30	30	P		0- EOS
	22	192/193		224	229	30	30	P		—"—
	275	190/192		252	257	30	30	P		0- 275
	220	—"—		300	305	30	30	P		275- 495
	5	—"—		308	313	30	30	P		495- 500
	73	—"—		315	320	30	30	P		500- 573 EOS
	25	193/195		411	416	30	30	P		0- EOS
	22	192/195		403	408	30	30	P		
	22	194/195		356	401	30	30	P		↓
	228	192/194		349	354	30	30	P		0- 228
	165	—"—		339	344	30	30	P		228- 393
	148	—"—		325	330	30	30	P		393- 541 EOS
	15	195/197		536	541	30	30	P		0- EOS
	22	196/197		535	540	30	30	P		
	35	195/196		430	435	30	30	P		↓
	215	194/196		449	454	30	30	P		0- 215
	327	—"—		510	515	30	30	P		215- 542 EOS
	17	197/199		539	544	30	30	P		0- EOS
	22	198/199		550	555	30	30	P		—"—
	237	196/198		600	605	30	30	P		0- 237
↓	335	—"—	↓	603	608	30	30	P		237- 572 EOS

GSI NON-DESTRUCTIVE TESTING FORM

18

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.25.04	20	199/201	SS	116	121	30	30	P		0-EOS
	48	198/201		105	110	30	30	P		—"—
	182	198/200		1132	1137	30	30	P		0-182
	175	—"—		1140	1145	30	30	P		182-357
	167	—"—		1146	151	30	30	P		357-524 EOS
	22	200/201		1147	1152	30	30	P		0-EOS
	67	201/203		225	230	30	30	P		
	78	200/203		245	250	30	30	P		
	22	202/203		255	300	30	30	P		
	225	200/202		307	312	30	30	P		0-225
	168	—"—		315	320	30	28	P		225-393
	57	—"—		337	342	30	30	P		393-450 EOS
6.26.04	148	203/205	SS	925	930	30	30	P		0-EOS
	97	202/205		1002	1007	30	30	P		
	22	204/205		1014	1019	30	30	P		
	355	202/204		1018	1023	30	28	P		
	245	205/207		1127	1133	30	29	P		
	73	204/207		1139	1144	30	29	P		
	22	206/207		1148	1153	30	30	P		
	128	204/206		1058/	1103	30	30	P		0-128
	149	—"—		1101	1106	30	30	P		128-277
	10	—"—		1115	1120	30	28	P		277-287 EOS

GSI NON-DESTRUCTIVE TESTING FORM

19

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.26.04	200	209/208	SS	100	105	30	30	P		0-200
	121	—"—		139	144	30	30	P		200-321 EOS
	192	206/208		115	120	30	30	P		0- EOS
	22	208/209		155	200	30	30	P		
	92	206/209		210	215	30	30	P		
	268	208/210		300	305	30	30	P		0-268
	220	208/210		330	335	30	30	P		268-488 EOS
	97	209/210		342	347	30	30	P		0- EOS
6.28.04	65	210/212	SS	825	830	30	30	P		
	22	211/212	—"—	830	835	30	30	P		
6.26.04	200	210/211	SS	400	405	30	28	P		0-200
	140	—"—		410	415	30	30	P		200-340
	180	—"—		419	424	30	29	P		340-520 EOS
6.28.04	61	212/214	SS	1116	1121	30	30	P		0- EOS
	22	213/214		1124	1129	30	30	P		—"—
	220	211/213		1045	1050	30	30	P		0-220
	303	—"—		1101	1106	30	30	P		220-523 EOS
	64	214/216		1230	1235	30	30	P		0- EOS
	192	213/215		1139	1144	30	30	P		0-192
	331	—"—		104	109	30	30	P		192-523 EOS
	22	216/215		1147	1152	30	30	P		0- EOS
	49	216/218		147	152	30	30	P		—"—

GSI NON-DESTRUCTIVE TESTING FORM

20

PROJECT NAME:				JOB NUMBER:					MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST TIME START	TIME END	PRESSURE (PSI) START	PRESSURE (PSI) END	P/F	VACUUM TEST P/F	COMMENTS
6.28.04	64	215/218	SS	203	208	30	30	P		0-EOS
	22	217/218		214	219	30	30	P		—"—
	143	215/217		224	229	30	30	P		0-143
	319	—"—		233	238	30	30	P		143-462 EOS
	115	218/220		335	340	30	30	P		0-EOS
	95	217/220		347	352	30	30	P		
	22	219/220		410	415	30	30	P		
	365	217/219		435	440	30	30	P		
	211	220/222		442	447	30	30	P		
	55	219/222		502	507	30	30	P		
	22	221/222		455	500	30	30	P		
6.29.04	259	219/221	SS	755	800	30	30	P		0-259
	40	—"—		745	750	30	30	P		259-299
	10	—"—		948	1003	30	30	P		299-309 EOS
	18	211/213		929	932	30	29	P		570-588 EOS
	16	213/215		921	926	30	30	P		573-589 EOS
	11	215/217		930	935	30	30	P		564-575 EOS
	8	217/219		942	947	30	30	P		567-575 EOS
	132	172/223		312	317	30	30	P		0-EOS
	100	223/224		333	338	30	28	P		0-100
	32	—"—		326	341	30	28	P		10+32 EOS
	128	224/225		349	354	30	29	P		0-EOS

GSI NON-DESTRUCTIVE TESTING FORM

21

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
6.29.04	137	225/226	SS	358	403	30	30	P		0-137 LBS
	153	226/227		442	447	30	30	P		—u—
	91	227/228		432	437	30	30	P		0-91
	72	—u—		420	425	30	30	P		91-163 LBS
	70	228/229		508	513	30	30	P		0-70
	87	—u—		454	459	30	30	P		70-157 LBS
	98	229/230		551	556	30	30	P		40-138 (0-40 capped)
6.30.04	184	221/231	SS	1028	1033	30	28	P		0-138 LBS
	184	231/232		1036	1041	30	30	P		
	130	230/233		113	118	30	30	P		
	133	233/234		212	217	30	28	P		
	135	234/235		229	234	30	30	P		
	136	235/236		311	316	30	30	P		
	136	236/237		317	322	30	30	P		
	134	237/238		423	428	30	30	P		
	138	238/239		442	447	30	30	P		
	118	239/240		525	530	30	29	P		
	120	240/241		544	549	30	28	P		
	122	241/242		558	603	30	29	P		

GSI NON-DESTRUCTIVE TESTING FORM

22

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7.1.04	120	242/243	SS	910	915	30	29	P		0-EOS
	120	243/244		932	937	30	30	P		
	125	244/245		1124	1129	30	28	P		
	125	245/246		1137	1142	30	28	P		
	111	246/247		134	139	30	28	P		
	110	247/248		152	157	30	30	P		
	108	248/249		210	215	30	30	P		
	112	249/250		232	237	30	30	P		
	312	222/251		400	405	30	28	P		
	131	221/231		336	341	30	28	P		
	22	231/251		325	330	30	30	P		
	255	251/252		604	609	30	28	P		
	129	231/252		548	553	30	30	P		
	22	232/252		557	602	30	29	P		
	266	252/253		622	627	30	28	P		
	22	238/253		646	651	30	29	P		
	115	253/256		702	707	30	30	P		
	75	253/255		654	659	30	30	P		
	75	253/254		636	641	30	30	P		
	21	252/233		516	521	30	30	P	tie-in	2079-2100
	22	252/234		524	529	30	30	P		2100-2122
	22	252/235		530	535	30	30	P		2122-2144

GSI NON-DESTRUCTIVE TESTING FORM

23

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-1-04	21	252/236	SS	536	541	30	30	P	Ice-in	2144 - 2165
	39	252/237 238		EXT					P	2165 - 2204
↓	22	253/238	↓	646	651	30	29	P		2204 - 2226
↓	5	254/238	Patch						P	2226 - 2231 (Patch
7-2-04	53	254/239 241	SS	729	734	30	30	P		2231 - 2284
	10	254/241		735	740	30	30	P		2284 - 2294
	15	254/242		748	753	30	30	P		2294 - 2309
	73	255/242 245		659	704	30	30	P		2309 - 2382 (238 EXT 239
	21	256/246		745	750	30	30	P		2397 - 2418
	23	256/247		758	803	30	28	P		2418 - 2441
	21	256/248		802	805	30	28	P		2441 - 2462
	22	256/249		808	813	30	30	P		2462 - 2484
↓	22	256/250	↓	809	814	30	29	P		2484 - 2506

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER: 24016						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-2-04	125'	257-258	SS	2:17	2:26	30	30	P		Tx slope
7-2-04	126'	258-259	SS	2:33	2:38	30	30	P		
7-2-04	125'	259-260	SS	2:37	2:42	30	30	P		
7-2-04	126'	260-261	SS	3:11	3:16	30	30	P		
7-2-04	126'	261-262	SS	3:08	3:13	30	30	P		Tx slope
7-2-04	11'	263-264	SS	4:42	4:47	30	30	P		Smooth Floor Patch 11' N
7-2-04	242'	263-264	SS	4:44	4:49	30	30	P		from patch out
7-2-04	10'	264-265	SS	4:59	5:04	30	30	P		patch 10' N Smooth
7-2-04	243'	264-265	SS	4:56	5:01	30	30	P		from patch out
7-2-04	22'	263-257	SS	5:08	5:13	30	30	P		tie seam
7-8-04	128'	267/267		2:39	2:44	30	30	P		Tx
	128'	267/268		3:00	3:05	30	30	P		
	129'	268/269		2:35	2:40	30	30	P		
	131'	269/270		3:10	3:15	30	30	P		
	135'	270/271		3:18	3:23	30	28	P		
	114'	271/272		3:20	3:25	30	30	P		
	93'	272/273		3:55	4:00	30	29	P		
	73'	273/274		3:40	3:45	30	28	P		
	28'	275/276		3:53	3:58	30	30	P		
	28'	276/277		4:16	4:21	30	30	P		
	47'	277/278		4:08	4:13	30	28	P		
	68'	278/279		4:28	433	30	28	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-8-04	92'	279/280	SS	4:42	4:47	30	30	P		
	112'	280/281		6:36	6:41	30	30	P		
	125'	281/282		7:31	7:36	30	30	P		
	118'	282/283		7:50	7:55	30	30	P		
	118'	283/284		7:40	7:45	30	30	P		
	118'	284/285		7:56	8:01	30	30	P		
	22'	274/275	SS	5:51	5:56	30	30	P		tie
	22'	274/278		5:39	5:44	30	28	P		tie
	27'	274/277			"	"	"	P		all at pass
	8'	274/278		5:26	5:31	30	30	P		tie
	22'	273/278		5:35	5:40	30	30	P		tie
	9'	273/279		5:28	5:33	30	30	P		tie
	11'	272/279	RAO						P	Ex weld
	11'	272/279		5:18	5:23	30	30	P		tie
	8'	272/280		4:46	4:51	30	29	P		tie
7-8-04	19'	271/280		4:39	4:44	30	28	P		tie
	262'	265/266		8:35	8:40	30	30	P		
		265/259		7:51	7:56	30	30	P		tie
		264/259	SS	7:40	7:45	30	30	P		tie
	20'	266/260	RAO						P ex	tie ex out
7-9-04	118'	285/286	SS	10:41	10:46	30	29	P		
7-9-04	126'	286/287	SS	10:48	10:53	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-8-04	118	282/283	SS	7:50	7:55	30	30	P		
7-8-04	118	283/284		7:40	7:45	30	30	P		
7-8-04	118	284/285		7:56	8:01	30	30	P		
7-9-04	127	287/288		11:02	11:07	30	30	P		
"	128	288/289		11:34	11:39	30	30	P		
"	128	289/290		1:00	1:05	30	30	P		
"	127	290/291		2:11	2:16	30	30	P		
7-9-04	128	291/292	SS	2:16	2:21	30	30	P		Tx
7-9-04	265	266/293	SS	4:38	4:43	30	29	P		smooth
"	260	293/294		4:40	4:45	30	30	P		
"	261	294/295		5:25	5:30	30	30	P		
"	262	295/296		5:52	5:57	30	30	P		
"	262	296/297		6:51	6:56	30	28	P		
7-9-04	262	297/298	SS	7:19	7:24	30	30	P		
7-10-04	126	292/299		10:17	10:22	30	30	P		
"	125	299/300		10:23	10:28	30	29	P		
"	121	300/301		10:37	10:42	30	30	P		
"	123	301/302		11:16	11:21	30	28	P		
"	124	302/303		11:30	11:35	30	30	P		
"	126	303/304		2:34	2:39	30	30	P		
"	127	304/305		2:48	2:53	30	30	P		
7-10-04	125	305/306		3:10	3:15	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-10-04	163	307/308		4:39	4:44	30	30	P		
	170	308/309		5:01	5:06	30	30	P		
	164	309/310		5:30	5:35	30	30	P		
	22	309/296		5:45	5:50	30	30	P		tie
	22	308/297		5:38	5:43	30	30	P		tie
7-10-04	22	307/298	SS	5:35	5:40	30	29	P		tie
7-9-04	22	293/261		9:03	9:08	30	28	P		tie
7-9	22	294/262		9:00	9:05	30	29	P		tie
7-9	22	295/267		8:54	8:59	30	29	P		tie
7-9	22	297/269		8:35	8:40	30	30	P		tie
7-9	22	298/270		8:31	8:36	30	30	P		tie
7-9	22	298/284		8:13	8:18	30	30	P		tie
7-9	22	298/285		8:24	8:29	30	30	P		tie
7-9	22	298/286		8:17	8:27	30	30	P		tie
7-9	22	298/287		8:05	8:10	30	30	P		tie
7-9	22	298/288		8:08	8:13	30	30	P		tie
7-9	22	298/289		7:53	7:58	30	29	P		tie
7-9	22	298/290		7:52	7:57	30	30	P		tie
7-9	22	298/291		7:45	7:50	30	30	P		tie
7-9-04	22	298/292	SS	7:42	7:47	30	30	P		tie
7-12	170	310/311		9:27	9:32	30	30	P		
7-12	173	311/312		9:43	9:48	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-12	175	312/313	SS	9:35	9:40	30	30	P		
	176	313/314		10:35	10:40	30	30	P		
	165	314/315		10:50	10:55	30	29	P		
7-12	158	315/316	SS	1:45	1:50	30	30	P		
	364	316/317		3:24	3:29	30	30	P		
	144	317/318		4:32	4:37	30	30	P		
	203	317/319		4:11	4:16	30	29	P		
	163	319/320		4:41	4:46	30	30	P		
	144	318/320		5:03	5:08	30	30	P		
	38	319/321		6:12	6:17	30	30	P		
	38	321/322		5:49	5:54	30	30	P		
	353	322/323		7:30	7:35	30	30	P		
7-12	308	320/322		6:31	6:36	30	30	P		
7-12	22	311/294		10:19	10:24	30	30	P		
	22	312/298		10:31	10:36	30	30	P		
	22	313/266		10:40	10:45	30	30	P		
	22	314/265		11:17	11:22	30	30	P		
	22	315/264		11:36	11:41	30	30	P		
	22	316/263		2:24	2:29	30	30	P		
	22	317/315		2:47	2:52	30	30	P		
	22	318/314		3:38	3:43	30	29	P		
	22	318/319		4:01	4:06	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-12	22	320/313	SS	5:11	5:16	30	30	P		
7-13	205	323/325		10:45	10:50	30	30	P		
	145	323/324		10:21	10:26	30	30	P		
	205	325/326		10:14	10:19	30	29	P		
	145	324/326		10:55	11:00	30	30	P		FAILED DT
	22	324/310		11:30	11:35	30	30	P		
	22	324/325		11:03	11:08	30	30	P		
	22	326/309		11:17	11:22	30	30	P		
	232	327/328		3:50	3:55	30	30	P		failed seam
	236	328/329		4:06	4:11	30	30	P		
	240	329/330		5:02	5:07	30	30	P		
	22	326/327		3:06	3:05	30	30	P		
7-13	78	330/331	SS	5:30	5:35	30	30	P		
7-14	220	331/332		7:30	7:35	30	29	P		
	86	330/331		7:36	7:35	30	30	P		
	22	319/334		7:22	7:27	30	30	P		
	86	331/335		7:51	7:56	30	30	P		
	120	330/332		7:40	7:45	30	30	P		
	120	334/332		7:53	7:58	30	30	P		
	22	332/337		8:01	8:06	30	30	P		
	86	333/334		8:05	8:10	30	30	P		
	36	330/333		8:07	8:12	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-13	22'	302/tie	SS	2:20	2:25	30	30	P		
7-13	22'	303/tie		1:19	1:24	30	30	P		
7-13	22'	304/tie		1:12	1:17	30	30	P		
7-13	22'	305/tie		1:01	1:06	30	30	P		
7-13	22'	306/tie	SS	1:00	1:05	30	30	P		
7-15	22'	336/tie	SS	9:23	9:28	30	30	P		
	22'	337/tie		9:29	9:34	30	30	P		
	22'	338/tie		9:36	9:41	30	30	P		
	708'-737'	strip tie		9:58	10:03	30	30	P		
	22'	339/st		9:43	9:48	30	30	P		
	22'	340/st		9:49	9:54	30	30	P		30/10:12
	22'	341/st		10:16	10:21	30	30	P		
	22'	342/st		10:22	10:27	30	30	P		
	741'-768'	st/tie		9:30	9:35	30	30	P		
	774-799	st/tie		10:30	10:38	30	30	P		
	22'	343/tie		10:36	10:41	30	30	P		
	22'	344/tie		1:17	1:22	30	30	P		
	22'	345/tie		1:25	1:30	30	30	P		
	22'	346/tie		1:32	1:37	30	30	P		
	22'	347/tie		1:58	2:03	30	30	P		
	22'	348/tie		1:59	2:04	30	30	P		
7-15	22'	349/tie		2:00	2:05	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-14	236	334	335	1:51	1:56	30	30	P		
	122	306	336	2:34	2:39	30	30	P		
	122	336	337	2:44	2:49	30	30	P		
	122	337	338	2:54	2:59	30	30	P		
	124	338	339	3:06	3:11	30	30	P		
	122	339	340	3:18	3:23	30	30	P		
	121	340	341	3:29	3:34	30	30	P		
	122	341	342	3:55	4:00	30	30	P		
	122	342	343	4:20	4:25	30	30	P		Patch 30/29 3:56
	122	343	344	4:35	4:40	30	30	P		
	123	344	345	4:36	4:41	30	30	P		
	123	345	346	4:49	4:54	30	30	P		
	124	346	347	5:20	5:20	30	30	P		
	124	347	348	4:50	4:55	30	30	P		
	125	348	349	5:34	5:39	30	30	P		Patch 30/30 5:21
	123	349	350	6:03	6:08	30	30	P		
	123	350	351	6:07	6:12	30	30	P		
	124	351	352	6:18	6:23	30	29	P		
7-14	127	352	353	6:20	6:25	30	30	P		
7-15	127	353/354	SS	11:22	11:27	30	29	P		
	125	354/355		11:23	11:28	30	30	P		
	125	355/356		1:03	1:08	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-15	126	356/357	SS	11:40	11:45	30	30	P		
	125	357/358		1:20	1:25	30	30	P		
	125	358/359		1:21	1:26	30	30	P		
	125	359/360		2:06	2:11	30	30	P		
	125	360/361		2:37	2:42	30	30	P		
	125	361/362		2:05	2:10	30	30	P		
	125	362/363		2:35	2:40	30	30	P		
	125	363/364		3:15	3:20	30	30	P		
7-15	126	364/365	SS	2:51	2:56	30	30	P		
	362	326/366		6:38	6:43	30	30	P		
	147	327/366		5:45	5:50	30	30	P		
	222	366/367		6:58	7:02	30	30	P		
	115	366/367		6:19	6:24	30	20	P		
	185	366/367		6:46	6:51	30	30	P		
	70	327/368		7:13	7:18	30	30	P		
	22	366/368		7:01	7:06	30	30	P		
	8	367/368		7:11	7:16	30	30	P		
	61	368/369		7:10	7:15	30	30	P		
	22	366/308		7:38	7:42	30	30	P		
7-15	22	367/309	SS	7:41	7:46	30	30	P		
7-16	196	370/371	SS	5:12	5:17	30	30	P		
	85	370/372	SS	4:46	4:51	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-15	22	350/tie	SS	2:06	2:11	30	30	P		
	22	351/tie		2:08	2:13	30	30	P		
	22	352/tie		2:32	2:37	30	30	P		
	22	353/tie		2:38	2:43	30	30	P		
	22	354/tie		2:42	2:47	30	30	P		
	22	355/tie		2:44	2:49	30	30	P		
	22	356/tie		2:52	2:57	30	30	P		
	22	357/tie		3:22	3:27	30	30	P		
	22	358/tie		3:25	3:30	30	30	P		
	22	359/tie		3:28	3:33	30	30	P		
	15'	360/tie		3:34	3:39	30	29	P		
	12'	361/tie		3:38	3:43	30	30	P		
7-15	22	362/tie	SS	3:46	3:51	30	30	P		
7-19	22	363/tie	SS	3:38	3:43	30	30	P		
7-19	22	364/tie	SS	2:45	2:50	30	30	P		
7-19	22	365/tie	SS	2:35	2:40	30	30	P		
7-19	22	375/tie	SS	2:32	2:37	30	30	P		
7-19	22	376/tie	SS	2:30	2:35	30	30	P		
7-19	22	385/But	SS	11:40	11:45	30	30	P		30/11:46 39/11:49 30/11:48 30/11:53
7-19	183	384/390	SS	1:40	145	30	30	P		
	125	389/390	SS	1:46	1:51	30	30	P		
	183	390/391	SS	1:41	146	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:					MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-16	21	372/373	SS	4:51	4:56	30	30	P		
7-16	124	365/375		5:46	5:51	30	30	P		
7-16	114	375/376		6:06	6:01	30	30	P		
7-16	158	376/377		6:56	6:56	30	30	P		
7-16	142	377/378		6:50	6:56	30	30	P		
7-16	119	378/379		7:29	7:34	30	30	P		
7-16	104	379/280		7:29	7:34	30	30	P		
7-16	94	380/381		7:39	7:41	30	30	P		
7-16	30	370/374		5:08	5:13	30	30	P		
7-17	48	381/382	SS	8:16	8:21	30	30	P		30/30 7:45
7-17	48	382/374	SS	8:28	8:33	30	30	P		30/30 8:07
7-17	312	370/383	SS	10:56	11:01	30	30	P		
7-17	148	383/384		1:25	1:30	30	30	P		
7-17	165	383/384		1:37	1:42	30	30	P		
7-17	195	385/Bot		3:16	3:21	30	30	P		39/3:44
7-17	195	385/386		3:07	3:12	30	30	P		
7-17	195	386/387		3:27	3:32	30	30	P		
7-17	195	387/388		3:51	3:56	30	30	P		
7-17	195	388/389		3:57	4:03	30	30	P		
7-13	22	299/tie		2:40	2:45	30	30	P		
7-13	22	300/tie		2:36	2:35	30	30	P		
7-13	22	301/tie		2:22	2:27	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-19	125'	390/391	SS	1:42	1:47	30	30	P		
	13'	391/398		5:16	5:21	30	30	P		
	48'	391/397		5:09	5:14	30	30	P		
	48'	391/396		4:40	4:45	30	30	P		
	48'	391/395		3:05	3:10	30	30	P		
7-19	48'	391/394	SS	3:24	3:29	30	30	P		
	22'	391/392	SS	3:06	3:11	30	30	P		
	46'	391/393	SS	3:00	3:05	30	30	P		
	39'	393/392	SS	3:01	3:06	30	30	P		
	77'	392/394		3:12	3:17	30	30	P		
	114'	394/395		3:25	3:30	30	30	P		
	150'	395/396		4:49	4:54	30	30	P		
	144'	396/397		5:00	5:05	30	30	P		
	42'	396/397		5:30	5:35	30	30	P		
	225'	397/398		6:00	6:05	30	30	P		
7-19	232'	398/399		6:00	6:05	30	30	P		
7-20	230'	399/400		9:50	9:55	30	30	P		
7-20	221'	400/401		9:52	9:57	30	30	P		
7-20	218'	401/402		11:08	11:13	30	30	P		
7-20	213'	402/403		11:08	11:13	30	30	P		
7-20	106'	403/404		1:26	1:31	30	31	P		
7-20	97'	403/404		1:14	1:19	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-20	202	404/405	SS	2:29	2:34	30	30	P		30/2:47
7-20	200	405/406	SS	2:46	2:51	30	30	P		
7-20	181	389/407		4:44	4:49	30	30	P		
7-20	146	407/408		4:20	4:25	30	30	P		
7-20	127	408/409		4:30	4:35	30	30	P		
7-20	84	409/410		4:39	4:38	30	29	P		
	1344 1365	Tie		4:58	5:03	30	30	P		
	1368/1381	tie		5:01	5:06	30	30	P		
	1381/1389	tie		5:08	5:13	30	30	P		
	1389/1411	tie		5:12	5:17	30	29	P		
	1412/1428	tie		5:17	5:22	30	29	P		
	1428/1450	tie		5:26	5:31	30	29	P		
	1450/1462	tie		5:30	5:35	30	30	P		
	1462/1470	tie		5:36	5:41	30	30	P		
	1470/1492	tie		5:39	5:44	30	29	P		
	1492/1514	tie		5:44	5:49	30	29	P		
7-20	1514/1536	tie		5:46	5:51	30	30	P		
7-21	31	411/412		7:19	7:24	30	29	P		
	48	412/413		7:16	7:21	30	30	P		
	35	413/414		7:15	7:20	30	30	P		
7-21	16	414/415		7:14	7:19	30	30	P		
7-21	180	406/416	SS	10:13	10:18	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-21	122	416/417	SS	10:18	10:23	30	30	P		
	152	417/418		11:10	11:15	30	30	P		
	16	417/419		10:42	10:47	30	29	P		
	22	418/419		10:36	10:41	30	29	P		
	12	419/420		10:49	10:54	30	30	P		
	138	418/420		11:17	11:22	30	30	P		
	154	420/421		11:05	11:10	30	30	P		
7-21	140	421/422	SS	11:33	11:38	30	30	P		
		423/424		4:23	4:28	30	30	P		
		421/425		4:33	4:38	30	30	P		
		425/426		4:49	4:54	30	30	P		
		426/427		4:54	4:59	30	30	P		
		427/428		5:16	5:21	30	30	P		
		427/429		5:22	5:27	30	29	P		
		428/430		5:28	5:32	30	30	P		
		429/430		5:24	5:29	30	30	P		
		428/429		5:15	5:20	30	30	P		
		430/431		6:07	6:12	30	30	P		
		430/432		6:05	6:10	30	30	P		
7-21		431/432		5:59	6:04	30	30	P		
7-22	125	422/433	SS	3:51	3:56	30	30	P		
7-	117	433/434	SS	3:52	3:57	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-22	102	434/435	JS	4:12	4:17	30	30	P		
	88'	435/436		4:13	4:18	30	30	P		
	82'	436/437		4:27	4:32	30	30	P		
	80'	437/438		4:30	4:35	30	30	P		
	65	439/440		4:43	4:48	30	30	P		
	67	440/441		5:00	5:05	30	30	P		
						30	30	P		
	70	441/442		4:56	5:01	30	30	P		
	20	442/443		5:12	5:17	30	30	P		
	55	442/438		5:16	5:21	30	30	P		
	55	443/438	SS	5:10	5:15	30	30	P		
	31	432/444		9:17	9:22	30	30	P		
	134	431/444		9:42	9:47	30	30	P		30/9:48
	265	444/445		9:33	9:38	30	30	P		
	270	445/446		9:57	10:02	30	30	P		
	89	446/441		10:10	10:15	30	30	P		
	215	446/448		10:38	10:43	30	30	P		
	22	447/448		10:13	10:18	30	30	P		
	80	447/449		10:37	10:42	30	30	P		
	135	448/449		10:28	10:33	30	30	P		
	227	449/450		11:04	11:09	30	30	P		
	90	449/451	SS	11:18	11:23	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-23	22'	86/456	SS	4:52	4:57	30	30	P		
	22'	80/455		4:59	5:04	30	30	P		
	22'	82/455		5:06	5:11	30	30	P		
	22'	84/455		5:08	5:13	30	30	P		
7-23	22'	86/455	SS	5:15	5:20	30	30	P		
	Tie	1758/1771		2:25	2:30	30	30	P		
		1771/1784		2:29	2:34	30	30	P		
		1784/1805		2:42	2:47	30	30	P		
		1805/1828		2:36	2:41	30	30	P		
		1832/1853		2:47	2:52	30	30	P		
		1853/1864		2:50	2:55	30	30	P		
		1864/1875		2:57	3:02	30	30	P		
		1875/1887		3:02	3:07	30	30	P		
		1887/1897		3:05	3:10	30	30	P		
		1897/1910		3:14	3:19	30	30	P		
		1910/1918		3:15	3:20	30	30	P		
		1918/1932		3:21	3:26	30	30	P		
		1932/1955		3:25	3:30	30	30	P		
		1955/1976		3:30	3:35	30	30	P		
7-23	Tie	1976/1997	SS	3:37	3:42	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-23	22	450/451	SS	10:56	11:01	30	30	P		
	32	450/452		1:21	1:26	30	30	P		
	188	450/453		11:30	11:35	30	30	P		
	95	451/453		11:20	11:25	30	30	P		
	22	452/453		1:28	1:33	30	30	P		
	112	453/454		1:37	1:42	30	30	P		
	150	452/454		2:00	2:05	30	30	P		
	84'	454/455		5:00	5:05	30	29	P		
	96'	454/456		4:45	4:50	30	30	P		
	147'	454/457		4:08	4:13	30	30	P		
	13'	457/456		4:33	4:38	30	30	P		
7-23	7'	455/456	SS	4:53	4:58	30	30	P		
7-23	39/457		32 SS	3:32	3:37	30	30	P		
	22	91/457		3:50	3:55	30	30	P		
	22	63/457		4:07	4:12	30	30	P		
	22	64/457		4:19	4:24	30	30	P		
	22	67/457		4:23	4:28	30	30	P		
	22	69/457		4:30	4:30	30	30	P		
	22	70/456		4:37	4:42	30	30	P		
	22	71/456		4:38	4:43	30	30	P		
	22	76/456		4:43	4:48	30	30	P		
-23	22	78/456	SS	4:54	4:59	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-24	22	458/385	SS	8:06	8:11	30	30	P		
7-24	22	458/386	SS	8:15	8:20	30	30	P		
7-24	22	458/423		8:20	8:25	31	30	P		
7-24	22	460/424		8:45	8:50	30	30	P		
7-24	129	458/460		8:00	8:05	30	30	P		
7-24	159	458/459		7:38	7:43	30	30	P		
7-24	22	459/460	SS	7:44	7:49	30	30	P		
	129	461/460	SS	9:15	9:20	30	30	P		
	159	461/459	SS	9:25	9:30	30	30	P		
	284	461/462	SS	9:35	9:40	30	30	P		
	22	461/425	SS	8:53	8:58	30	30	P		
7-24	22	462/426	SS	8:59	9:04	30	30	P		
7-26	53'	426/463		9:00	9:05	30	30	P		
	235	463/464		9:05	9:10	30	30	P		
	22	463/464		8:58	9:03	30	30	P		
	54'	463/465		9:24	9:29	30	30	P		
	236'	464/465		9:43	9:48	30	30	P		
	176"	465/466		10:04	10:09	30	30	P		
	110	465/467		10:17	10:22	30	30	P		
	22'	466/467		10:14	10:19	30	30	P		
	175	466/468		10:00	10:05	30	30	P		
7-26	113	467/468	SS	10:18	10:23	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST						VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)					
				START	END	START	END	P/F		P/F	
7-26	114	468/469	SS	10:40	10:45	30	30	P			
	172	468/470		10:28	10:33	30	30	P			
	23	469/470		10:44	10:49	30	30	P			
	114	469/470		10:47	10:52	30	30	P			
	175	470/471		11:07	11:12	30	30	P			
	293	471/472		11:32	11:37	30	30	P			
	57	472/473		11:40	11:45	30	30	P			
	232	472/474		11:34	11:39	30	30	P			
	22	473/474		11:13	11:18	30	30	P			
	232	474/475		1:47	1:52	30	30	P			
	57	473/475		11:42	11:47	30	30	P			
	134	475/476		2:32	2:37	30	30	P			
	153	475/476		2:23	2:28	30	30	P			
	82	476/477		2:06	2:11	30	30	P			
	134	476/478		2:33	2:38	30	30	P			
	153	477/478		2:30	2:35	30	30	P			
1-26	191	464/465	SS	9:49	9:54	30	30	P			
	71	478/479		3:56	4:01	30	30	P			
	220	478/480		5:39	5:44	30	30	P			
	22	479/480		4:05	4:10	30	30	P			
	291	479/481		4:22	4:27	30	30	P			
	220	480/481		4:44	4:49	30	30	P			

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-26	22	464/427	SS	2:51	2:56	30	30	P		
	22	465/429		2:56	3:01	30	30	P		
	22	466/436		3:01	3:06	30	30	P		
	22	468/432		3:09	3:14	30	30	P		
	22	469/444		3:20	3:25	30	30	P		
	22	471/445		3:24	3:29	30	30	P		
	22	472/446		3:30	3:35	30	30	P		
7-26	22	474/448	SS	3:31	3:36	30	30	P		
	22	475/449		3:41	3:46	30	30	P		
	22	477/450		4:02	4:07	30	30	P		
	22	478/452		4:10	4:15	30	29	P		
	22	479/454		4:25	4:30	30	30	P		
	22	479/88		4:35	4:40	30	29	P		
	22	479/90		4:34	4:39	30	29	P		
7-26	22	481/90	SS	4:37	4:42	30	30	P		
	22	481/92		4:57	5:02	30	30	P		
	22	481/94		4:50	4:55	30	30	P		
	22	481/117		4:58	5:03	30	30	P		
	22	481/119		5:04	5:06	30	30	P		
	22	481/121		5:08	5:09	30	30	P		
	22	481/123		5:12	5:17	30	30	P		
7-26	22	481/125	SS	5:10	5:15	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-26	27	481/127	SS	5:16	5:21	30	30	P		
	22	481/129		5:22	5:27	30	30	P		
	22	481/131		5:29	5:34	30	30	P		
7-26	22	481/133	SS	5:31	5:36	30	30	P		
7-27	224	482/483		9:37	9:42	30	30	P		
	61	482/484		9:24	9:29	30	30	P		
	22	483/484		9:21	9:26	30	30	P		
	297	482/316		10:34	10:39	30	30	P		
	66	484/485		10:51	10:56	30	29	P		
	224	483/485		10:57	11:02	30	30	P		
	34	485/487		10:54	10:59	30	30	P		
	263	485/486		11:10	11:15	30	30	P		
	22	486/487		10:55	11:00	30	30	P		
	263	486/488		11:17	11:22	30	30	P		
	34	487/488		11:24	11:29	30	30	P		
	181	488/489		1:03	1:08	30	30	P		
	121	488/490		1:05	1:10	30	30	P		
	22	489/490		1:21	1:26	30	30	P		
	181	489/491		2:04	2:09	30	30	P		
7-27	121	490/491	SS	1:45	1:50	30	29	P		
	22	459/482		9:59	10:04	30	30	P		
	22	461/483		10:04	10:09	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-27	22	462/485	SS	9:05	9:10	30	30	P		
7-27	22	463/486		11:00	11:05	30	30	P		
7-27	22	465/488		11:07	10:12	30	30	P		
7-27	22	467/489		11:25	11:30	30	30	P		
7-27	22	488/491	SS	1:55	2:00	30	30	P		
7-29	263'	491/493		8:00	8:08	30	30	P		30/11:59 patch
	88'	491/492		11:59	12:04	30	30	P		
	22	492/493		9:50	9:55	30	30	P		
	87'	492/494		10:07	10:12	30	30	P		
	225	493/494		10:30	10:35	30	30	P		
	296	494/495		11:19	11:24	30	30	P		30/10:47 patch
	226	495/496		11:42	11:47	30	30	P		
	78'	495/497		11:22	11:27	30	30	P		
	22'	496/497		11:24	11:29	30	30	P		
	223'	496/498		11:40	11:45	30	30	P		
	72'	497/498		11:30	11:35	30	30	P		
	148'	498/499		1:40	1:45	30	30	P		
	154	498/500		1:59	2:04	30	30	P		
	22'	499/500		2:55	3:00	30	30	P		
	147'	499/501		3:33	3:38	30	30	P		
	147'	500/501		3:07	3:12	30	30	P		
	295	501/502		5:22	5:27	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:					MAT'L TYPE:	
				AIR PRESSURE TEST					VACUUM TEST	
				TIME		PRESSURE (PSI)				
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	START	END	START	END	P/F	P/F	COMMENTS
7-29	90	502/504	SS	7:11	7:16	30	30	P		30/2:05 dt patch
	214	502/503		5:12	5:17	30	30	P		
	22	503/504		6:50	6:55	30	30	P		
	46	503/505		5:01	5:06	30	30	P		
7-29	84	503/506		5:53	5:58	30	30	P		
	22	497/470		4:22	4:27	30	30	P		
	22	494/471		4:08	4:13	30	30	P		
	22	495/472		3:59	4:04	30	30	P		
	22	496/473		3:46	3:51	30	30	P		
	22	498/475		3:35	3:40	30	30	P		
	22	499/476		3:29	3:34	30	30	P		
	22	501/478		3:31	3:36	30	30	P		
	22	502/480		4:35	4:40	30	29	P		
	22	503/481		4:38	4:43	30	29	P		
	22	135/505		5:44	5:49	30	30	P		
	22	137/505		5:35	5:40	30	30	P		
	22	139/506		6:05	6:10	30	30	P		
	22	141/506		6:11	6:16	30	30	P		
	22	143/506		6:19	6:24	30	30	P		
	22	146/503		6:29	6:34	30	30	P		
	22	148/503		6:35	6:40	30	30	P		
7-29	22	177/503	SS	6:43	6:48	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-29	22	179 /503	SS	6:49	6:54	30	30	P		
	22	181 504		6:47	6:52	31	30	P		
	22	183 504		7:03	7:08	30	30	P		
	22	185 504		7:15	7:20	30	30	P		
7-29	22	187 /504	SS	7:21	7:26	80	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-31	224	263/507	SS	1:53	1:58	30	30	P		
	224	316/507		12:29	12:34	30	30	P		30/8:25 passed
	73	507/508		10:38	10:43	30	29	P		30/12:21 2%0.38 passed
	375	507/509		12:35	12:40	30	30	P		
	22	508/509		10:47	10:52	30	29	P		30/1:27 passed
	52	509/510		12:05	12:10	30	30	P		
	295	509/511		1:15	1:20	30	30	P		
	22	510/511		12:15	12:20	30	30	P		
	98	508/510	SS	10:45	10:50	30	30	P		
-2	149	510/512	SS	10:46	10:51	30	30	P		
-31	101	511/512		6:56	7:01	30	29	P		
	195	511/513		1:41	1:46	30	30	P		
	22	512/513		1:35	1140	30	30	P		
	253	512/514		2:28	2:33	30	30	P		
	70	513/514		2:20	2:25	30	30	P		
	125	513/515		2:47	2:52	30	30	P		30/2:45 passed
	22	514/515		2:14	2:19	30	30	P		
	329	514/516		2:41	2:46	30	30	P		
	68	515/516		2:12	2:17	30	30	P		
	56	515/517		2:04	2:09	30	30	P		
	22	516/517		2:08	2:13	30	29	P		
	394	516/518	SS	3:17	3:22	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
1-31	58	517/518	SS	2:24	2:29	30	36	P		
	448	518/519		3:37	3:42	30	30	P		
	75	519/520		4:29	4:34	30	30	P		
	371	519/521		4:20	4:25	30	30	P		
	22	520/522		2:56	3:01	30	30	P		
	76	520/523		3:15	3:20	30	30	P		
	298	521/523		4:00	4:05	30	30	P		
	73	521/524		3:04	3:09	30	30	P		
	22	522/524		4:14	4:19	30	30	P		
	150	522/525		4:26	4:31	30	30	P		
	77	523/525		4:15	4:20	30	30	P		
	22	524/525		3:45	3:50	30	30	P		
	224	524/525		4:01	4:06	30	30	P		
	160	525/527		6:33	6:38	30	30	P		
	225	524/526	SS	5:26	5:31	30	30	P		DT 30/5:39
	64	525/526		5:41	5:46	30	30	P		
	293	526/528		6:14	6:19	30	30	P		
	62	527/528		5:50	5:55	30	30	P		
	80	527/529		5:55	6:06	30	30	P		
	22	526/527		5:46	5:51	30	30	P		
	22	528/529	SS	5:56	6:01	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-31	22	485 /S10	SS	5:15	5:20	30	30	P		
	22	487 /S12		5:09	5:14	30	30	P		
	22	488 /S14		5:01	5:06	30	30	P		
	22	490 /S16		4:55	5:00	30	30	P		
	22	491 /S18		4:54	4:59	30	30	P		
	22	493 /S19		4:39	4:44	30	30	P		
	22	494 /S20		4:44	4:49	30	30	P		
	22	495 /S22		4:42	4:47	30	30	P		
	22	497 /S24		5:25	5:30	30	30	P		
	22	498 /S26		6:19	6:24	30	30	P		
7-31	22	500 /S28	SS	6:23	6:28	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST						VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)					
				START	END	START	END	P/F		P/F	
8-2	39	529/531	SS	4:37	4:42	30	30	P			
	378	528/530		4:23	4:28	30	30	P			
	41	529/530		4:29	4:34	30	30	P			
	418	530/532		4:40	4:45	30	29	P			
	22	530/531		4:40	4:45	30	30	P			
	40	531/532		4:38	9:43	30	30	P			
	128	532/533		3:18	3:23	30	30	P			
	211	532/534		5:15	5:20	30	30	P			
	38	534/540		5:23	5:28	30	30	P			
	34	534/541		4:57	5:02	30	30	P			
	158	535/539		6:39	6:44	30	30	P			
	22	536/535		5:58	6:03	30	30	P			
8-3	155	536/538		8:47	8:52	30	29	P			
	164	537/538		6:47	6:52	30	30	P			
	158	539/537		6:32	6:37	30	30	P			
8-2	10	535/538		6:05	6:10	30	30	P			
8-3	20	537E/537W		9:12	9:17	30	30	P			
8-3	10	538E/538W		9:06	9:11	30	30	P			
8-2	22	301/530		2:38	2:43	30	30	P			
	22	304/593		2:48	2:53	30	30	P			
	22	189/533		2:55	3:00	30	30	P			
8-2	2	190/533	SS	3:44	3:49	30	30	P			

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST						VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)					
				START	END	START	END	P/F		P/F	
8-2	22	193/533	SS	3:43	3:48	30	30	P			
	22	195/533		3:40	3:45	30	29	P			
	22	197/533		3:31	3:36	30	30	P			
	16	199/583		3:27	3:32	30	30	P			
	6	199/582		3:24	3:29	30	30	P			
	22	201/532		4:01	4:06	30	30	P			
	22	203/532		4:32	4:37	30	30	P			
	22	205/532		3:55	4:00	30	30	P			
	22	207/532		3:54	3:59	30	30	P			
	22	208/532		4:05	4:10	30	30	P			
	22	208/534		4:10	4:15	30	30	P			
	22	212 534		4:18	4:23	30	30	P			
	22	214 534		5:13	5:18	30	30	P			
	22	216 534		5:16	5:21	30	29	P			
	22	218/540		5:19	5:24	31	29	P			
	22	220/540		5:25	5:30	30	30	P			
	22	222/534		5:30	5:35	30	30	P			
	10	251/534		5:41	5:46	30	30	P			
	22	251/541		5:32	5:37	30	30	P			
	22	252/541		5:42	5:47	30	30	P			
8-2	22	253/541	SS	5:43	5:48	30	30	P			

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
8-3	22	263 537	SS	7:15	7:20	30	30	P		
	22	263 535		7:22	7:27	30	30	P		
	22	507 535		7:24	7:29	30	30	P		
	22	509 535		7:25	7:30	31	30	P		
	22	511 535		7:29	7:34	30	30	P		
	22	513 535		7:32	7:37	30	30	P		
	22	515 535		7:33	7:38	30	30	P		
	22	517 535		7:36	7:41	30	30	P		
	22	518 535		7:43	7:48	30	30	P		
	17	519 535		7:41	7:46	30	30	P		
	22	521 536		7:49	7:54	30	31	P		
	22	523 536		7:47	7:52	30	30	P		
	22	525 536		7:51	7:56	30	30	P		
	22	527 536		7:55	8:00	30	30	P		
	22	529 536		7:58	8:02	30	30	P		
8-3	22	531 536	SS	8:00	8:05	30	29	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
8-3	117	257 542		9:38	9:43	30	30	P		
	115	542 543		9:37	9:42	30	30	P		
	114	543 544		9:48	9:53	30	30	P		
	111	544 545		10:11	10:16	30	29	P		
	111	545 546		10:47	10:52	31	30	P		
	109	546 547		10:56	11:01	30	31	P		
	107	547 548		11:10	11:15	30	29	P		
	107	548 549		11:16	11:21	30	29	P		
	106	549 550		11:27	11:32	30	30	P		
	104	550 551		1:35	1:40	31	30	P		
	102	551 552		1:03	1:08	30	29	P		
	102	552 553		1:59	2:04	30	31	P		
8-3	75	553 554		2:16	2:21	31	30	P		
8-4	98	554 555		9:25	9:30	31	30	P		
	95	555 556		9:23	9:28	31	30	P		
	95 41	556 557		9:34	9:39	31	30	P		
		557 558		10:15	10:20	31	30	P		
	110	558/250		10:08	10:13	30	30	P		
8-4	22	559/558		10:43	10:48	30	30	P		
	24	557 558		10:20	10:25	30	30	P		
	29	557 558		9:56	10:01	30	30	P		
	24	557/558		9:45	10:00	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
8-4	22	256/558	SS	10:46	10:51	30	31	P		
	12	253 558		10:58	11:03	30	31	P		
	7	341 558		10:55	11:00	30	31	P		
	13	339 558		11:04	11:09	31	31	P		
	8	334 557		11:07	11:13	31	31	P		
	22	332 536		11:10	11:15	30	29	P		
	9	336 557		11:16	11:21	30	30	P		
	6	536 559		11:18	11:23	30	29	P		
	13	538 559		11:23	11:28	30	30	P		
	14	337 557		11:25	11:30	30	29	P		
8-4	22	556 587		11:38	11:43	30	30	P		
8-3	22	542 537		10:08	10:13	30	30	P		
	22	543 537		10:14	10:19	30	31	P		
	22	544 537		10:28	10:33	30	29	P		
	22	545 587		10:41	10:49	30	30	P		
	22	546 537		10:52	10:57	30	30	P		
	22	547 537		11:00	11:05	30	30	P		
	22	548 537		11:13	11:18	30	29	P		
	18	549 537	SJ	11:29	11:34	30	30	P		
	22	550 537		11:42	11:47	30	30	P		
	22	551 537		11:06	11:11	30	30	P		
8-3	22	552 537		11:09	11:14	30	31	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:					MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
8-3	22	553/537	SS	1:49	1:54	30	30	P		
	15	554/537		2:00	2:05	30	30	P		
8-4	6	554/537		8:57	8:56	30	30	P		
8-4	22	555/537	SS	8:56	9:01	30	30	P		

GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME:				JOB NUMBER:						MAT'L TYPE:	
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INTITIAL	AIR PRESSURE TEST					VACUUM TEST	COMMENTS
				TIME		PRESSURE (PSI)				
				START	END	START	END	P/F	P/F	
7-10	22	268/296	SS			30	30	P		
7-12	20	314/317				30	30	P		
7-12	22	312/322						F	P	EXT
7-13	22	311/323				30	29	P		
7-13	8	312/323				30	30	P		
7-13	22'	323/329				30	30	P		
7-13	22'	322/330				30	30	P		
7-13	22	321/331				30	30	P		
7	22	367/369				30	30	P		
7-17	35'	371/380				30	30	P		
7-17	35'	371/381				30	30	P		
7-17	35'	371/379				30	30	P		
7-17	35'	371/377				30	30	P		
7-17	35'	371/378				30	30	P		
7-21	155'	423/407-410, 387-389				30	30	P		
7-31	20'	482/507				30	29	P		
7-31	22'	520/521				30	30	P		

GSI

DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE ID (DT#)	SEAM NO	Q.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
1	10 / 11	J-C	W# 9	DN	B:	W: 800	125	120	124	133	120	141	142	160	P	at site
					P:	S: 50	121	122	123	122	118	146	162			
2	20 / 21	—u—	—u—	—u—	B:	W: 800	131	126	115	121	119	150	146	146	P	—u—
					P:	S: 50	126	123	120	126	122	148	149			
3	29 / 30	—u—	W# 19	VP	B:	W: 750	115	110	118	119	118	151	149	150	P	—u—
					P:	S: 55	113	115	111	116	114	150	148			
4	32 / 35	—u—	W# 13	VP	B:	W: 750	120	120	116	116	114	144	148	146	P	—u—
					P:	S: 55	112	118	119	103	118	141	132			
5	37 / 38	—u—	W# 03	OS	B:	W: 750	119	118	111	120	107	133	132	134	P	—u—
					P:	S: 50	104	115	108	107	111	142	140			
6	39 / 41	—u—	—u—	—u—	B:	W: 750	107	112	103	101	112	144	146	144	P	—u—
					P:	S: 50	111	104	100	109	104	146	135			
7	36 / 14	—u—	W# 20	VP	B:	W: 750	120	136	123	132	136	146	149	146	P	—u—
					P:	S: 40	144	135	134	139	134	150	152			
8	41 / 43	—u—	W# 03	OS	B:	W: 750	117	101	108	119	122	152	155	157	P	—u—
					P:	S: 50	114	110	102	122	110	154	156			
					B:	W:										
					P:	S:										

Test on 6-7-04

GSI
DESTRUCTIVE TESTING REPORT FORM

PAGE: 2

PROJECT NAME:

JOB NUMBER: 2h0016

MAT'L TYPE: 60mil HDPE smooth

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
9	50 / 51	J-C	W# 9	KS	B:	W: 750	135	124	125	123	118	167	166	163		
					P:	S: 50	120	127	126	132	113	164	166		P	at site
10	55 / 56	—11—	W# 13	VP	B:	W: 750	129	129	127	125	102	160	170	160		
					P:	S: 55	120	118	121	131	111	166	172		P	—11—
11	60 / 61	—11—	W# 9	KS	B:	W: 750	113	120	117	111	109	149	156	154		
					P:	S: 50	119	118	118	121	109	156	154		P	—11—
12	43 / 62	—11—	W# 13	VP	B:	W: 750	107	100	104	99	108	135	141	129		
					P:	S: 55	104	108	105	107	97	139	131		P	—11—
13	43 / 62	—11—	W# 39	VP	B:	W: 750	112	110	123	112	108	138	136	136		
					P:	S: 55	106	108	121	106	112	138	134		P	—11—
14	64 / 66	—11—	W# 39	VP	B:	W: 750	101	102	102	95	101	139	130	128		
					P:	S: 55	93	96	93	93	92	131	135		P	—11—
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

GSI
DESTRUCTIVE TESTING REPORT FORM

Test on 6-8-04

3 ✓

PROJECT NAME:							JOB NUMBER: 24016					MAT'L TYPE: 60mil Smooth-				
TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE ID (DT#)	SEAM NO	O.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
15'	64 / 66	J-C	W#39	VP	B:	W: 750	104	116	106	102	104	140	151	141		
					P:	S: 55	107	109	104	101	109	141	153		P	at site.
16'	67 / 69	—11—	W# 9	KS	B:	W: 750	120	107	110	105	116	153	149	153		
					P:	S: 50	109	109	107	117	103	150	146		P	—11—
17'	68 / 70	—11—	W# 39	VP	B:	W: 750	106	106	106	102	102	142	152	151		
					P:	S: 55	102	115	105	110	93	154	135		P	—11—
18'	68 / 72	—11—	W# 9	VP	B:	W: 750	118	120	101	98	100	150	152	154		
					P:	S: 55	98	102	115	113	116	154	149		P	—11—
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

test on 6-10-04 = 19-24

GSI
DESTRUCTIVE TESTING REPORT FORM

H ✓

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
19	71 / 75	I.C	W# 39	∂N	B:	W: 750	132	119	128	125	115	189	191	194		
					P:	S: 40	107	120	119	116	116	190	194		P	at site
20	72 / 74	—"—	W# 9	VP	B:	W: 750	102	127	122	103	128	202	206	202	P	
					P:	S: 55	131	142	134	127	130	203	200			—"—
21	75 / 77	—"—	W# 9	VP	B:	W: 750	125	120	119	133	115	184	192	192		
					P:	S: 55	101	111	104	118	118	190	181		P	—"—
22	74 / 75	—"—	W# 9	VP	B:	W: 750	126	129	123	114	116	194	180	178		
					P:	S: 55	109	116	128	137	136	187	181		P	—"—
23	79 / 81	I.C	W# 9	VP	B:	W: 750	103	122	121	118	101	185	175	175		
					P:	S: 55	121	102	101	112	123	172	173		P	—"—
24	79 / 80	—"—	W# 39	∂N	B:	W: 750	125	133	129	137	133	173	173	172		
					P:	S: 40	131	134	122	128	119	181	160		P	—"—
25	84 / 86	—"—	W# 39	∂N	B:	W: 750	103	112	100	104	108	156	152	153		
					P:	S: 40	105	103	105	104	104	154	149		P	—"—
26	81 / 83	—"—	W# 9	VP	B:	W: 750	112	112	109	124	119	148	150	149		
					P:	S: 55	111	123	121	106	119	150	153			—"—
					B:	W:										
					P:	S:										

test on 6-12-04 = 25 + 26

PAGE:___

GSI
DESTRUCTIVE TESTING REPORT FORM

Test on 6-14-04

5V

PROJECT NAME: Sherco Generating Station	JOB NUMBER: 24016	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
27	83/85	J.C	W# 9	VP	B:	W: 750	109	115	116	105	112	144	148	149		
					P:	S: 55	105	99	101	116	108	148	146		P	at site.
28	86/88	—"—	W# 39	DN	B:	W: 750	111	107	99	100	94	148	146	153		
					P:	S: 40	99	97	98	102	97	148	145		P	—"—
29	88/90	—"—	W# 39	DN	B:	W: 750	111	119	105	136	103	155	157	154		
					P:	S: 40	116	105	93	107	106	158	161		P	—"—
30	87/89	—"—	W# 9	NS	B:	W: 750	120	111	111	105	117	143	156	151		
					P:	S: 55	114	114	113	107	117	147	143		P	—"—
31	90/91	—"—	W# 39	DN	B:	W: 750	140	140	109	137	113	157	153	159		
					P:	S: 40	111	120	102	109	114	153	157		P	—"—
32	91/93	—"—	W# 9	NS	B:	W: 750	128	116	97	106	118	163	162	165		
					P:	S: 55	118	110	123	112	100	159	165		P	—"—
33	95/96	—"—	W# 9	NS	B:	W: 750	124	124	118	112	118	164	166	167		
					P:	S: 40	121	111	114	130	128	153	164		P	—"—
34	99/100	—"—	W# 39	DN	B:	W: 750	110	145	114	125	126	160	152	160		
					P:	S: 45	149	144	115	102	103	151	157		P	—"—
35	104/105	—"—	W# 9	NS	B:	W: 750	126	128	120	113	102	151	153	156		
					P:	S: 40	120	122	115	117	115	151	159		P	—"—

32 to 35 test on 6-15-04.

PAGE:___

GSI
DESTRUCTIVE TESTING REPORT FORM

test on 6-17-04

PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE: 6 ✓

TENSIOMETER ID::

SAMPLE I.D (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
36	109 / 110	J.C	W# 39	DN	B:	W: 750	128	115	125	126	112	170	161	164		
					P:	S: 45	123	108	135	116	123	163	163		P	at site
37	114 / 115	—11—	—11—	—11—	B:	W: 750	110	98	112	115	120	159	153	161		
					P:	S: 45	123	115	107	106	112	155	156		P	—11—
38	93 / 116	—11—	W# 39	—11—	B:	W: 750	106	113	111	128	109	163	162	161		
					P:	S: 45	111	109	111	106	115	165	162		P	—11—
39	116 / 119	—11—	—11—	—11—	B:	W: 750	124	122	110	103	123	174	175	175	P	
					P:	S: 45	105	118	109	104	106	175	157			—11—
40	118 / 120	—11—	W# 9	KC	B:	W: 750	118	114	109	119	115	164	157	159		
					P:	S: 40	124	109	113	115	107	151	159		P	—11—
41	120 / 122	—11—	W# 9	KC	B:	W: 750	112	126	92	99	95	159	154	161		
					P:	S: 40	108	117	123	107	106	161	159		P	—11—
42	122 / 124	—11—	—11—	—11—	B:	W: 750	92	94	94	99	101	159	161	153		
					P:	S: 40	121	118	107	114	101	164	148		P	—11—
43	124 / 125	—11—	W# 39	DN	B:	W: 750										
					P:	S: 45									F	—11—
43-A	123 / 125	—11—	—11—	—11—	B:	W: 750										
					P:	S: 45									F	—11—
43-A-1	123 / 125	—11—	—11—	—11—		750/45	122 / 120	129 / 119	130 / 110	124 / 109	123 / 113	163 / 166	158 / 155	165	P	—11—
43-B	12 / —	—11—	—11—	—11—		750/45	129 / 95	130	133 / 106	123 / 102	138 / 111	152 / 157	162 / 160	162	P	—11—

GSI
DESTRUCTIVE TESTING REPORT FORM

test on - 6-18-04

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D (DT#)	SEAM NO	Q.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
44	124 / 126	I.C	39	ON	B:	W: 750										
					P:	S: 45									F	at seam
44-A	124 / 126	— " —	— " —	— " —	B:	W: 750										
					P:	S: 45									F	— " —
44-B	124 / 126	— " —	— " —	— " —	B:	W: 750										
					P:	S: 45									F	— " —
44A-1	124 / 126	— " —	— " —	— " —	B:	W: 750	118	117	107	100	118	163	162	164		
					P:	S: 45	109	113	123	119	107	165	162		P	— " —
44B-1	124 / 126	— " —	— " —	— " —	B:	W: 750	109	113	114	111	117	171	168	165		
					P:	S: 45	116	111	109	118	111	171	171		P	— " —
45	126 / 128	— " —	— " —	— " —	B:	W: 750	110	114	119	116	129	172	165	171		
					P:	S: 45	118	113	121	118	92	170	169		P	— " —
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

test on- 6-19-04

GSI
DESTRUCTIVE TESTING REPORT FORM

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
46	128 / 130	J.C	W#9	KC	B:	W: 750	119	116	120	106	108	162	166	168	P	at site
					P:	S: 40	121	117	131	118	111	169	165			
47	130 / 132	—"—	W#9	KC	B:	W: 750	110	107	117	105	132	176	166	164	P	—"—
					P:	S: 40	107	112	101	109	103	171	179			
48	132 / 135	—"—	W# 39	@N	B:	W: 750	109	110	105	113	108	157	160	154	P	—"—
					P:	S: 45	122	104	113	123	111	153	143			
49	136 / 137	—"—	W# 39	@N	B:	W: 750	129	115	114	117	113	146	151	147	P	—"—
					P:	S: 45	112	131	130	137	119	148	158			
50	134 / 136	—"—	W# 9	KC	B:	W: 750	106	104	114	129	118	149	158	159	P	—"—
					P:	S: 40	124	96	86	116	115	148	147			
51	137 / 139	—"—	W# 39	@N	B:	W: 750	120	119	112	108	112	172	163	166	P	—"—
					P:	S: 45	113	120	112	121	113	165	161			
52	136 / 138	—"—	W# 9	KC	B:	W: 750	110	119	108	107	103	153	156	159	P	—"—
					P:	S: 40	116	106	117	112	121	152	157			
53	139 / 140	—"—	W# 39	@N	B:	W: 750	120	124	107	121	118	165	171	165	P	—"—
					P:	S: 40	119	119	101	112	121	165	170			
54	106 / 142	—"—	mx 2	KS	B: 250	W:						166	151		P	—"—
					P: 8	S:	100	109	78	100	86	166	155	156		

55-57 test on- 6-19-04
58-61 test on- 6-21-04

GSI
DESTRUCTIVE TESTING REPORT FORM

9

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D (DT#)	SEAM NO	Q.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
55	142 / 144	J.C	W# 9	K.C	B:	W: 750	121	94	132	134	114	161	162	166		
					P:	S: 40	124	116	105	94	154	164	165		P	at site
56	144 / 146	—"—	—"—	—"—	B:	W: 750	101	117	99	131	116	166	173	161		
					P:	S: 40	132	99	115	119	97	173	173		P	—"—
57	144 / 145	—"—	—"—	—"—	B:	W: 750	124	101	101	126	120	145	165	156		
					P:	S: 40	107	118	127	113	91	175	174		P	—"—
58	145 / 147	—"—	W# 9	K.C	B:	W: 750	127	133	99	114	131	154	150	154		
					P:	S: 40	107	100	108	96	121	159	155		P	—"—
59	150 / 151	—"—	W# 9	ON	B:	W: 750	106	106	111	98	129	162	170	158		
					P:	S: 40	120	113	124	99	109	175	147		P	—"—
60	155 / 156	—"—	W# 9	K.C	B:	W: 750	114	120	123	99	126	166	~~168~~	170		
					P:	S: 40	129	112	118	115	96	170	173		P	—"—
61	161 / 162	—"—	—"—	—"—	B:	W: 750	118	100	102	98	103	175	178	173		
					P:	S: 40	112	131	109	116	116	173	174		P	—"—
62	173 / 174	—"—	—"—	—"—	B:	W: 750	130	121	120	131	139	181	169	163		
					P:	S: 40	129	124	137	141	134	159	157		P	—"—
					B:	W:										
					P:	S:										

PAGE:

GSI
DESTRUCTIVE TESTING REPORT FORM

test on- 6-23.04

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE: 10

TENSIOMETER ID::

SAMPLE ID (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
63	147 / 176	J.C	W# 13	DN	B:	W: 750	132	139	141	131	122	190	188	187		
					P:	S: 45	162	121	139	139	123	188	186		P	at site
64	176 / 178		W# 9	KC	B:	W: 750	104	128	129	117	122	183	186	187		
					P:	S: 40	139	128	135	137	133	186	186		P	"
65	178 / 180		W# 9	KC	B:	W: 750	140	115	106	145	137	184	189	183		
					P:	S: 40	132	96	127	110	109	187	190		P	"
66	180 / 183		W# 13	DN	B:	W: 750	123	122	128	121	128	183	164	163		
					P:	S: 45	128	127	106	136	111	163	160		P	"
67	112 / 180		MX 2	KS	B: 250	W:						159	149	155		
					P: 8	S:	142	154	151	148	151	151	150		P	"
68	183 / 185		W# 13	DN	B:	W: 750	115	121	104	98	116	162	156	163		
					P:	S: 45	141	116	103	131	130	170	163		P	"
69	184 / 186		W# 9	KC	B:	W: 750	115	123	110	123	122	154	153	157		
					P:	S: 40	127	133	109	129	122	150	148		P	"
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

GSI
DESTRUCTIVE TESTING REPORT FORM

Test on 6-24-04

11 ~ A

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE ID (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
70	186 / 188	J.C	W# 9	KC	B:	W: 750	117	154	144	136	140	184	211	205	P	at site
					P:	S: 40	158	116	141	126	145	205	204			
71-A	189 / 190	—11—	W# 13	DN	B:	W: 750	99	128	132	109	110	184	183	141	P	—11—
					P:	S: 40	112	113	101	134	144	168	151			
71-B	189 / 190	—11—	—11—	—11—	B:	W: 780	100	102	128	95	97	173	178	166	P	—11—
					P:	S: 40	120	116	92	118	110	157	167			
72	190 / 192	—11—	W# 9	KC	B:	W: 750	129	142	95	138	106	160	167	156	P	—11—
					P:	S: 40	139	133	140	141	147	148	162			
71	189/190	DN	W# 13	DN	B:	W:									P	P 119 S 161
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

test on 6-25-04 = 73-78

test on 6-24-04 = 70-72

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
							PEEL (PPI)					SHEAR (PPI)				
SAMPLE ID (DT#)	SEAM NO	Q.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED									P/F	LOCATION OF DESTRUCTIVE TEST
70	186 / 188	J.C	W# 9	KC	B: P:	W: 750 S: 40	117 158	154 116	144 141	136 126	140 145	184 205	211 204	205	P	aT siTe
71-A	189 / 190	—"—	W# 13	ØN	B: P:	W: 750 S: 40	99 112	128 113	132 101	109 134	110 144	184 168	183 151	141	P	—"—
71-B	189 / 190	—"—	—"—	—"—	B: P:	W: 780 S: 40	100 120	102 116	128 92	95 118	97 110	173 157	178 167	166	P	—"—
72	190 / 192	—"—	W# 9	KC	B: P:	W: 750 S: 40	129 139	142 133	95 140	138 141	106 147	160 148	167 162	156	P	—"—
73	114 / 184	—"—	mx 02	RAO	B: 250 P: 8	W: S:	145	139	120	106	131	199 181	175 183	185	P	—"—
74	192 / 194	—"—	W# 9	Kc	B: P:	W: 750 S: 40	112 130	117 125	138 137	141 133	143 138	186 189	186 185	179	P	—"—
75	194 / 196	—"—	W# 13	ØN	B: P:	W: 750 S: 40	98 110	135 137	154 126	147 114	107 135	177 177	177 180	178	P	—"—
76	196 / 198	—"—	W# 9	KC	B: P:	W: 750 S: 40	148 127	124 144	132 136	134 143	143 149	180 167	177 177	172	P	—"—
77	198 / 200	—"—	W# 9	KC	B: P:	W: 750 S: 40	144 136	151 146	150 135	124 134	131 134	169 157	167 165	156	P	—"—
78	201 / 203	—"—	W# 13	ØN		780 40	112 .. +	114 117	144 115	148 109	95 140	186 186	185 190	184	P	—"—

test on. 6-28-04 (83-88)

Test on. 6-26.04 (79-82)

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
79	204 / 205	J.C	W# 13	DN	B: / P:	W: 750 / S: 40	136 / 129	134 / 110	142 / 132	116 / 125	117 / 121	176 / 163	175 / 161	170	P	aT site
80	200 / 202	—"—	W# 9	KC	B: / P:	W: 750 / S: 40	149 / 114	112 / 153	124 / 147	141 / 133	137 / 142	186 / 178	182 / 189	189	P	—"—
81	205 / 207	—"—	W# 13	DN	B: / P:	W: 750 / S: 40	145 / 137	130 / 106	133 / 125	128 / 140	136 / 130	160 / 159	168 / 163	167	P	—"—
82	206 / 208	—"—	W# 9	K.C	B: / P:	W: 750 / S: 40	115 / 105	124 / 139	129 / 129	141 / 145	128 / 130	169 / 158	186 / 166	171	P	—"—
83	209 / 210	—"—	W# 9	KC	B: / P:	W: 750 / S: 40	128 / 153	128 / 123	122 / 122	120 / 128	133 / 128	167 / 173	178 / 179	172	P	—"—
84	210 / 211	—"—	W# 13	DN	B: / P:	W: 750 / S: 40	94 / 123	99 / 134	140 / 109	127 / 123	133 / 132	167 / 161	173 / 166	166	P	—"—
85	213 / 214	—"—	W# 13	DN	B: / P:	W: 750 / S: 40	130 / 138	127 / 137	143 / 125	126 / 129	133 / 127	136 / 144	142 / 146	141	P	—"—
86	211 / 213	—"—	W# 13	DN	B: / P:	W: 750 / S: 40	107 / 138	113 / 121	121 / 126	127 / 124	111 / 121	153 / 155	151 / 150	148	P	—"—
87	213 / 215	—"—	W# 9	KC	B: / P:	W: 750 / S: 40	122 / 125	117 / 129	117 / 125	127 / 118	109 / 109	145 / 144	149 / 153	153	P	—"—
88	215 / 218	—"—	W# 13	DN		750 / 40	111 / 114	123 / 113	111 / 120	129 / 105	127 / 115	149 / 148	144 / 150	153	P	—"—

89-90 teston 6-29-04
91-94 teston. 6-30-04
95-97 teston 7-1-04

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE: 13

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
89	217 / 220	J.C	W# 13	ON	B:	W: 750	121	117	122	125	115	161	160	157		
					P:	S: 40	131	117	121	122	111	167	165		P	at site
90	221 / 222	— " —	— " —	— " —	B:	W: 750	117	132	119	119	106	166	169	170		
					P:	S: 40	123	130	128	100	120	168	157		P	— " —
91	172 / 223	— " —	W# 13	ON	B:	W: 750	125	122	128	130	125	173	176	186		
					P:	S: 40	124	124	129	139	124	176	178		P	— " —
92	227 / 228	— " —	— " —	— " —	B:	W: 750	129	122	133	145	116	168	173	178		
					P:	S: 40	111	127	133	119	122	169	168		P	— " —
93	230 / 233	— " —	— " —	— " —	B:	W: 750	125	123	112	110	116	163	169	144		
					P:	S: 40	95	113	110	117	135	150	145		P	— " —
94	236 / 237	— " —	— " —	— " —	B:	W: 750	110	120	113	118	106	142	147	153		
					P:	S: 40	109	106	102	116	100	145	143		P	— " —
95	240 / 241	— " —	W# 9	KC	B:	W: 750	111	114	118	109	93	146	132	140		
					P:	S: 40	91	112	102	109	118	131	131		P	— " —
96	246 / 247	— " —	W# 9	KC	B:	W: 750	115	118	92	115	118	128	133	135		
					P:	S: 40	126	118	99	118	115	137	149		P	— " —
97	248 / 249	— " —	W# 9	KC	B:	W: 750	130	127	127	96	126	135	134	138		
					P:	S: 40	129	132	112	110	118	165	161		P	— " —

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DESTRUCTIVE TESTING REPORT FORM

test on. 7-2-04 14

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D. (DT#)	SEAM NO	Q.C. INT.	MACH NO	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
98-A	222 / 251	J.C	W# 9	K.C	B:	W: 750	107	122	138	107	135	176	168	165	P	at site
					P:	S: 40	142	128	123	139	122	163	153			
98-B	222 / 251	—11—	—11—	K.C	B:	W: 750	120	129	135	130	114	176	179	175	P	—11—
					P:	S: 40	120	100	137	118	104	173	174			
99	252 / 253	—11—	W# 9	K.C	B:	W: 750	123	96	96	123	113	165	169	170	P	—11—
					P:	S: 40	100	115	104	103	112	164	169			
98	222 / 251	11	W# 9	K.C.	B:	W:									F	
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
100	261-262	LS	13	DN	B:	W: 750	151	128	124	137	132	157	173	171		110' SOAT on seam 261-262
					P:	S: 40	138	140	119	116	117	176	178		P	
101	264-265	LS	13	DN	B:	W: 750	131	132	118	137	131	170	173	169		50' N of Tie on 264-265
					P:	S: 40	113	99	125	96	95	182	167		P	
102	265/266	LS	9	KC	B:	W: 750	99	107	119	138	119					
					P:	S: 40	126	X 59	103	130	X 59				F	Wet 265-266
102 A	265/266	LS	9	KC	B:	W: 750	125	121	104	119	107	170	171	165	P	
					P:	S: 40	119	128	112	115	128	170	172			265-266
102 B	265/266	LS	9	KC	B:	W: 750	110	116	118	117	106	174	169	73		
					P:	S: 40	111	108	116	112	102	173	169		P	265-266
103	270/271 270-271	LS	09	KC	B:	W: 750	113	138	99	118	101	156	156	163		90' SOAT 270,271
					P:	S: 40	122	123	116	108	108	154	157		P	
104	278 279	LS	13	DN	B:	W: 750	117	107	110	108	102	160	158	158		30' SOAT 278-279
					P:	S: 40	135	128	121	125	134	152	155		P	
274/277 105	~~274~~ 275	LS	13	DN	B:	W: 750	X 88	143	137	130	X 93					45' N
					P:	S: 30	127	136	123	132	129				F	Corner Seam
105 A	274 276	LS	13	DN	B:	W: 750	129	117	127	106	126	145	144	143		35' N'
					P:	S: 30	110	111	110	114	112	139	139		P	Corner Seam

105 a to main Drawing
Twice.

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
105B	274 / 276	LS	13	DN	B: P:	W: 750 S: 30	134 130	130 128	137 132	133 127	130 124	164 151	158 158	156	P	on site
106	282 / 283	LS	13	DN	B: P:	W: 750 S: 40	120 96	125 114	109 109	121 112	123 113	154 147	148 147	146	P	88'E
107	285 / 286	LS	13	DN	B: P:	W: 750 S: 40	121 109	106 117	113 117	113 118	110 108	149 140	147 141	145	P	106'E
108	290 / 291	LS	09	KC	B: P:	W: 750 S: 40	123 110	126 122	109 119	122 91	105 112	152 155	130 152	158	P	75'E
109	266 / 293	LS	13	DN	B: P:	W: 750 S: 40	112 127	111 124	99 130	138 136	116 124	171 170	166 167	162	P	132'N
110	295 / 296	LS	09	KC	B: P:	W: 750 S: 40	116 115	118 97	114 116	105 126	113 106	166 168	164 163	161	P	75'N
111	297 / 298	LS	13	DN	B: P:	W: 750 S: 40	131 122	127 124	122 119	128 110	111 105	168 168	165 170	159	P	42'N
112	298 / Cap 292	LS	MX 02	RAO	B: 250 P: 7	W: S:	113	108	113	116	122	163	149	160 160 157	P	cap tie in at 243'N
113	299 / 300	LS	09	KC	B: P:	W: 750 S: 40	134 108	122 130	127 106	117 107	106 111	162 160	158 162	159	P	105'E

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE ID (DT#)	SEAM NO:	Q.C. INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
114	302/303	LS	09	KC	B:	W: 750	147	142	145	142	135	192	192	194		
					P:	S:	141	148	136	140	147	192	192		P	45' E
115	311/312	LS	13	DN	B:	W: 750	121	108	116	111	105	156	149	154		
					P:	S: 40	109	105	111	104	123	156	154		P	25' N
116	265/314	LS	13	DN	B:	W: 750	127	109	105	129	130	139	141	141		
					P:	S: 40	109	103	106	109	120	141	140		P	11' Ex seam
117	316/317	LS	13	DN	B:	W: 750	120	119	125	121	106	146	142	140		
					P:	S: 40	121	121	106	119	113	141	141		P	340' N
118	318/320	LS	09	KC	B:	W: 750	104	126	124	121	121	159	160	156		
					P:	S: 40	103	110	108	111	100	160	157		P	81' N
119	320/322	LS	09	KC	B:	W: 750	106	128	104	120	129	163	162	157		
					P:	S: 40	92	93	94	125	97	162	164		P	242' N
120	323/325	LS	39	DN	B:	W: 750										
					P:	S: 40									F	334' N
120A	323/325	LS	39	DN	B:	W: 250										
					P:	S: 40									F	344' N
120B	323/325	LS	39	DN	B:	W: 750										
					P:	S: 40									F	324' N

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
120B1	322/323	LS	39	DN	B:	W: 750	114	108	91	102	92	NZ	132	134	P	10'N
					P:	S: 40	91	92	103	95	96	104	102			
120A1	323/325	LS	39	DN	B:	W: 750									F	314'N
					P:	S: 40										
120A2	323/325	LS	39	DN	B:	W:									F	275'N
					P:	S:										
120A3	323/325	LS	39	DN	B:	W:									F	
					P:	S:										
120A4	323/325	LS	39	DN	B:	W:									F	
					P:	S:										
120A5	309/326	LS	39	DN	B:	W:									F	8'W
					P:	S:										
120A6	323/328	LS	39	DN	B:	W:									P	215'N
					P:	S:	105	AVG				156	AVG			
121	324/326	LS	39	DN	B:	W:									F	40'N
					P:	S:										
121A	324/326		39	DN	B:	W:									F	30'N
					P:	S:										

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)	FIELD VALUES SHEAR (PPI)	P/F	LOCATION OF DESTRUCTIVE TEST
121A1	327/328		39	DN	B:	W:			F	205'N
					P:	S:				
121A2	327/328		39	DN	B:	W:			P	175'N
					P:	S:	125 AVG	160 AVG		
120B	323/325		39	DN	B:	W:			F	384'N
					P:	S:				
121B	324/326		39	DN	B:	W:			F	50'N
					P:	S:				
					B:	W:				
					P:	S:				
					B:	W:				
					P:	S:				
					B:	W:				
					P:	S:				
					B:	W:				
					P:	S:				

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES										
SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
122	328/330	LS	09	KC	B:	W: 750	96	97	114	112	100	145	147	138		
					P:	S: 40	113	117	98	97	113	141	145		P	155'N
123	330/331	LS	09	KC	B:	W: 750	115	117	98	97	108	141	134	139		
					P:	S: 40	106	93	115	117	95	137	147		P	35'N
124	334/335	LS	13	DN	B:	W: 750	117	117	127	123	111	145	144	138		
					P:	S: 40	111	107	113	109	113	141	136		P	93'N
125	337/338	LS	09	KC	B:	W: 750	116	117	113	113	128	137	137	137		
					P:	S: 40	114	102	114	110	93	142	138		P	77'E
126	341/342	LS	13	DN	B:	W: 750	126	119	114	109	116	152	145	150		
					P:	S: 40	107	109	114	119	117	145	146		P	66'E
127	345/346	LS	13	DN	B:	W: 750	99	120	114	113	96	148	142	146		
					P:	S: 40	106	95	91	104	99	142	148		P	44'E
128	351/352	LS	09	KC	B:	W: 750	117	122	123	120	102	166	158	165		
					P:	S: 40	113	123	103	110	110	159	157		P	88'E
129	354/355	LS	13	DN	B:	W: 750	123	117	107	110	104	143	145	143		
					P:	S: 40	108	109	95	107	91	144	144		P	103'E
130	359/360	LS	09	KC	B:	W: 750	122	100	99	104	113	140	141	148		
					P:	S: 40	115	95	103	98	103	146	147		P	29'E

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT	MACH NO.	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
131	364/365	LS	13	DN	B:	W: 750	110	122	112	109	113	144	146	148	P	91'E
					P:	S: 40	108	117	104	113	112	149	140			
132	366/367	LS	20	KC	B:	W: 750									F	469'N
					P:	S: 40										
132A	368/327	LS	20	KC	B:	W: 750	116	113	98	107	97	146	144	141	P	175'N
					P:	S: 40	115	99	99	96	101	143	140			
132B	327/366	LS	20	KC	B:	W: 750	114	107	101	106	107	143	145	140	P	437'N
					P:	S: 40	116	104	105	105	105	145	140			
133	326/366	LS	13	DN	B:	W: 750	114	124	98	106	110	161	161	161	P	320'N
					P:	S: 40	114	125	106	111	101	162	156			
344/367 134	367/344 Cap	LS	23	OS	B:	W: 750	141	118	134	144	128	156	163	169	P	768'N sm/TX
					P:	S: 40	131	129	116	122	113	166	164			
135	361/369	LS	20	KC	B:	W: 750	142	129	137	104	132	158	150	156	P	1198'N sm TX
					P:	S: 45	137	125	118	132	136	152	151			
136	348/349	LS	09	KC	B:	W: 750	128	125	125	118	132	161	157	152	P	70'E
					P:	S: 40	124	112	121	111	127	146	146			
137	376/377	LS	20	KC	B:	W: 750	143	114	123	125	126	176	176	176	P	25'N
					P:	S: 40	112	133	102	104	105	173	173			

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
138	370/372	LS	20	KC	B:	W: 750									F	45'SE SM/TX
					P:	S: 30										
138A	376/377	LS	20	KC	B:	W: 750	119	122	100	112	118	156	153	157	P	25'SE SM/TX
					P:	S: 30	108	109	117	117	118	155	157			
138B	370/372	LS	20	KC	B:	W: 750									F	57'SE SM/TX
					P:	S: 30										
138B1	370/372	LS	20	KC	B:	W: 750	112	111	120	107	107	140	146	144	P	72'SE SM/TX
					P:	S: 30	92	102	115	105	102	145	145			
139	383/384	LS	20	KC	B:	W: 750	106	113	111	117	125	169	164	161	P	142'E
					P:	S: 30	107	103	114	105	119	162	157			
140	371/379	LS	20	KC	B:	W: 750	131	143	135	125	126	162	161	165	P	87'E
					P:	S: 30	130	116	130	117	125	165	165			
141	328/385	LS	20	KC	B:	W: 750	130	111	129	127	128	169	157	158	P	72'E
					P:	S: 40	132	122	123	118	127	160	158			
142	388/389	LS	20	KC	B:	W: 750	105	106	101	110	115	154	154	155	P	55'E
					P:	S: 40	117	116	125	113	120	154	155			
143	390/391	LS	23	DN	B:	W: 750	120	112	125	128	107	159	158	157	P	80'SE
					P:	S: 40	133	100	114	118	104	155	155			

GSI
DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D (DT#)	SEAM NO.	O.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL/ PREHEAT	FUSION WEDGE/ SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
144	393/391	LS	23	DN	B:	W: 750	144	139	127	132	127	157	156	156		
					P:	S: 30	116	134	122	139	127	158	157		P	315E sm/tex
145	396/397	LS	23	DN	B:	W: 750	136	127	114	128	118	166	168	169		
					P:	S: 40	117	109	119	118	108	169	169		P	115's
146	378/379	LS	20	KC	B:	W: 750	110	89	116	106	123	148	150	153		
					P:	S: 40	104	106	105	100	96	150	151		P	145's
147	407/408	LS	23	DN	B:	W: 750	148	147	134	148	153	158	156	159		
					P:	S: 40	118	114	112	120	123	155	153		P	128'W
148	399/400	LS	20	KC	B:	W: 750	123	117	113	122	117	154	151	146		
					P:	S: 40	93	96	121	114	112	148	140		P	26'SE
149	402/403	LS	23	DN	B:	W: 750	113	128	136	122	141	173	175	170		
					P:	S: 40	132	128	111	112	113	173	171		P	182'SE
150	404/405	LS	20	KC	B:	W: 750	99	108	104	103	108	143	140	143		
					P:	S: 40	100	94	95	135	95	138	138		P	55'SE
151	416/417	LS	23	DN	B:	W: 750	133	119	141	134	MG	174	171	171		
					P:	S: 40	119	135	126	118	MG	170	171		P	170' S
152	420/42	LS	20	KC	B:	W: 750	134	111	131	130	119	167	151	167		
					P:	S: 40	116	113	115	111	111	171	165		P	135's

GSI
DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE ID (DT#)	SEAM NO	Q.C. INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
153	433/422	LS	20	KC	B:	W: 750	128	153	NO	117	120	159	164	151		
					P:	S: 40	142	138	127	131	136	162	160		P	56'N
154	428/429	LS	20	KC	B:	W: 750										
					P:	S: 40									F	7'E
154B	426/427	LS	20	KC	B:	W: 750	101	101	127	121	93	145	157	143		
					P:	S: 40	133	123	133	122	133	142	150		P	10'N
164A	427/428	LS	20	KC	B:	W: 750	108	115	138	116	116	155	154	157		
					P:	S: 40	136	95	123	119	111	154	154		P	104'N
155	428/430	LS	23	DN	B:	W: 750	124	141	115	134	134	162	162	159		
					P:	S: 40	141	114	117	132	135	161	163		P	127'N
164A	458/460		13	KC	B:	W: 750	135	134	118	117	117	178	179	180		
					P:	S: 40	104	103	96	118	124	178	125		P	105'N
164B	458/460		13	KC	B:	W: 750	106	114	120	101	128	170	169	168		
					P:	S: 40	116	114	102	109	115	172	174		P	85'N
DT-164	459/460		13	KC	B:	W: 750										
					P:	S: 40									F	95'N
					B:	W:										
					P:	S:										

GSI
DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D (DT#)	SEAM NO.	Q.C INT.	MACH NO.	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP-156	434/435		WH 13	K-C	B: AT 53, SE P:	W: 750 S: 40	116 111 114 139 103 117 115 127 97 139					186 180 175 180 182			P	SM/SM
DP-157	420/430		MX 02	R-AO	B: 250 P: 7	W: AT 1724E S: SM/Texsean	--- 148 149 135 152 147					157 162 160 159 155			P	SM/Tex
DP 158	492/444		WH 20	2N	B: AT 19'N P:	W: 750 S: 40	117 115 111 105 110 123 111 111 111 120					155 156 156 153 153			P	SM/SM
DP-159	445/446		WH 13	K-C	B: AT 260N P:	W: 750 S: 40	102 117 125 106 129 113 124 123 115 115					159 161 161 167 161			P	SM/SM
DP 160	449/451		WH 20	2N	B: AT 61'N P:	W: 750 S: 40	138 124 120 133 122 119 131 116 145 129					173 173 168 173 174			P	SM/SM
DP-161	450/452		WH 13	KC	B: AT 26N P:	W: 750 S: 40	120 107 97 129 120 130 126 122 103 99					151 159 156 159 159			P	SM/SM
DP 162	454/455	453/454	WH 20	2N	B: AT 243N P:	W: 750 S: 40	111 108 120 108 104 108 109 108 104 104					158 157 155 163 159			P	SM/SM
DP 163	454/455		WH 13	K-C	B: AT 30'N P:	W: 750 S: 40	113 111 91 92 109 117 97 107 103 95					161 156 162 164 160			P	SM/SM
					B: P:	W: S:	---									

Test on 7-26-04

GSI
DESTRUCTIVE TESTING REPORT FORM

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PA 26

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID::		

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIV TEST at tale
DP 165	461 / 462		W# 13	KC	B: at 33'N P:	W: 750 S: 40	110 99	126 102	114 96	107 106	95 99	169 172	170 168	174	P	sm/sm
DP 166	464 / 465		W# 13	KC	B: at 26'N P:	W: 750 S: 40	110 123	124 115	110 118	110 116	121 110	151 157	153 154	152	P	sm/sm
DP 167	465 / 467		W# 20	DN	B: at 30'N P:	W: 750 S: 40	118 111	117 108	108 103	114 114	116 117	154 158	151 151	156	P	sm/sm
DP 168	468 / 470		W# 45	M-T	B: 750 P: 5.5	W: at 115'N S:	120 124	103 122	102 122	122 120	128 124	145 145	148 143	148	P	sm/sm
DP 169	470 / 471		W# 13	K-C	B: P: at 65'N	W: 750 S: 40	117 98	96 120	105 121	124 105	106 127	142 143	143 142	139	P	sm/sm
DP 170	472 / 474		W# 45	M-T	B: P: at 183'N	W: 750 S: 5.5	113 133	116 129	110 125	115 122	117 123	144 145	143 148	146	P	sm/sm
DP 171	476 / 477		W# 45	M-T	B: P: at 11'E	W: 750 S: 5,5	131 129	133 120	124 124	132 129	120 136	148 142	142 142	145	P	sm/sm
DP 172	478 / 480		W# 13	KC	B: P: at 24'N	W: 750 S: 40	95 108	104 112	102 120	104 109	102 109	162 159	153 157	153	P	sm/sm
DP 173	480 / 481		W# 45	M-T	B: P: at 188'N	W: 750 S: 5,5	121 116	143 115	113 140	133 107	136 111	159 161	163 154	164	P	sm/sm
DP 174	450 / 477 Patch	450 / 477	mx 17	D-P	at 5'N	450/450	108									sm/sm

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID::		

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
																at site
QP 174 B	475 / 449 Patch		MX 17	Q.P	B: 550	W:						138	146	147	P	sm/sm
					P: 450	S:	94	85	79	90	81	148	145			
QP 174-A	470 / Patch		-"-	-"-	B: 550	W:									F	sm/sm
					P: 450	S:	84	85								
QP 174A-1	454 / Patch		-"-	-"-	B: 550	W:						153	152	145	P	454/478-479 patch sm/sm
					P: 450	S:	94	81	78	93	109	146	152			
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

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DESTRUCTIVE TESTING REPORT FORM

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PROJECT NAME:					JOB NUMBER:		MAT'L TYPE:											
TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES										P/F	LOCATION OF DESTRUCTIVE TEST
SAMPLE ID (DT#)	SEAM NO	Q.C INT	MACH NO	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)						
175	482/484		45	MT	B: 17'N	W: 750	122	122	137	121	135	163	159	167	P	17'N at site
					P:	S: 5.5	116	111	115	113	129	158	155			
176	316/482		20	DN	B:	W: 780	103	94	117	108	109	139	151	148	P	272'N at site
					P:	S: 4.0	92	102	92	94	94	143	138			
177	485/462		45	MT	B:	W: 750	125	130	130	119	129	152	149	149	P	11'E at site
					P:	S: 55	126	128	133	128	137	144	144			
178	488/489		20	DN	B:	W: 750	109	111	67	108	119	153	156	159	P	63'N at site
					P:	S: 40	130	112	95	114	107	155	155			
179	490/491		15	KC	B:	W: 750	139	110	116	113	112	151	153	151		70'N at site
					P:	S: 40	112	130	116	140	126	148	150			
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: 60 mil smooth

TENSIOMETER ID:: | EXTRUSION | FUSION | FIELD VALUES

SAMPLE ID (DT#)	SEAM NO	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP 180	496 / 498		W# 20	DN	B:	W: 750	109	108	118	105	109	161	166	156	P	at site
					P:	S: 40	109	108	110	107	105	163	153			at ~~180~~ 225'N.
DP 181	494 / 495		W# 13	BC	B:	W: 750	115	127	128	128	124	164	149	163	P	
					P:	S: 40	128	126	126	122	122	161	168			at 40'N
DP 182	496 / 498		W# 20	DN	B:	W: 750	123	111	116	117	107	143	144	146	P	
					P:	S: 40	114	123	106	114	112	152	148			at 180'N
DP-183	475 / 498		W# 20	DN	B:	W: 750	120	122		F					F	
					P:	S: 40	118	109								at 11'E Xsea.
DP-183-A	473 / 496		W# 20	DN	B:	W: 750	115	128			F				F	
					P:	S: 40	132	104								at 4'W.
DP-183-B	476 / 499		W# 90	DN	B:	W: 750 120	94*	105	120	112	116	148	149	152		
					P:	S: 40 116	125	112	121	119	119	152	152		P	at 5'E
DP-183-A-1	472 / 495		—	—	B:	W: 750	122	91	101*		F				F	
					P:	S: 40	113	135								at 11'W
DP-183A-2	471 / 494		—	—	B:	W: 750	115	135	134	135	130	159	162	166		
					P:	S: 40	128	114	115	114	120	163	163		P	at 5'W
DP-184	/				B:	W:										
					P:	S:										

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GSI
DESTRUCTIVE TESTING REPORT FORM

test on 7-31-04

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
																at hole
DP-184	499 / 501		W# 13	MS	B: / P:	W: 750 / S: 40	134 / 136	134 / 132	132 / 128	130 / 133	129 / 125	174 / 174	176 / 175	175	P	at 260' N (Sm/Sm)
DP 185	502 / 504		W# 13	MS	B: / P:	W: 750 / S: 40	135 / 122	137 / 125	126 / 130	133 / 129	125 / 123	171 / 171	174 / 170	174	P	at 40' N (Sm/Sm)
DP 186	505 / 137		W# 13	MS	B: / P:	W: 750 / S: 40	124 / 125	125 / 147	123 / 125	131 / 127	129 / 132	167 / 166	145 / 171	160	P	at 11' S (Etc-in Sm/Sm)
DP-187	316 / 507		W# 20	DN	B: / P:	W: 750 / S: 40	109 / 104	111 / 111	116 / 108	103 / 107	107 / 110	146 / 147	146 / 148	148	P	at 204' S (Sm/Sm)
DP-188	507 / 509		W# 13	MS	B: / P:	W: 750 / S: 40	101 / 112	100 / 104	98 / 109	99 / 110	97 / 106	154 / 157	155 / 156	154	P	at 110' S (Sm/Sm)
DP 189	509 / 511		W# 15	KC	B: / P:	W: 750 / S: 40	106 / 101	132 / 115	106 / 108	133 / 118	105 / 127	150 / 152	155 / 154	151	P	at 32' N (Sm/Sm)
DP-190	507 / Patch		MX 17	KS	B: 550 / P: 450	W: / S:	111	115	114	114	124	138 / 139	138 / 139	137	P	at 3' S (Sm/Sm)
DP-191	515 / 516		W# 4	M-T	B: / P:	W: 750 / S: 5.00	118 / 105	110 / 113	106 / 122	108 / 119	117 / 136	149 / 160	149 / 154	155	P	at 72' N (Sm/Sm)
DP-192	516 / 518		W# 20	DN	B: / P:	W: 750 / S: 4	133 / 125	105 / 122	133 / 124	133 / 125	105 / 117	141 / 147	146 / 146	146	P	at 307' N (Sm/Sm

Test on- 7-31-04

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DESTRUCTIVE TESTING REPORT FORM

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

TENSIOMETER ID::

SAMPLE ID (DT#)	SEAM NO	Q.C. INT	MACH NO.	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP. 193	518 / 517		#5 15	K-C	B:	W: 750	126	103	131	111	130	142	143	139		at Stle
					P:	S: 40	127	128	125	128	103	145	144		P	64' N (5m/3m)
DP. 194	519 / 521		#3 13	MS	B:	W: 750	120	122	107	113	126	149	148	150		
					P:	S: HC	112	120	122	118	115	152	151		P	aT 74'S (5m/5m)
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

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DESTRUCTIVE TESTING REPORT FORM

test on 7-31-04

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST at hte
DP-184	499 / 501		W# 13	MS	B: / P:	W: 750 / S: 40	134 / 136	134 / 132	132 / 128	130 / 133	129 / 125	174 / 174	176 / 175	175	P	at 260' N. (Sm/Sm)
DP 185	502 / 504		W# 13	MS	B: / P:	W: 750 / S: 40	135 / 122	137 / 125	126 / 130	133 / 129	125 / 123	171 / 171	174 / 170	174	P	at 40' N (Sm/Sm)
DP 186	503 / 137		W# 13	MS	B: / P:	W: 750 / S: 40	124 / 125	125 / 147	123 / 125	131 / 127	129 / 132	167 / 166	145 / 171	160	P	at 11' S (Etie in Sm/Sm)
DP-187	316 / 507		W# 20	DN	B: / P:	W: 750 / S: 40	109 / 104	111 / 111	116 / 108	103 / 107	107 / 110	146 / 147	146 / 148	148	P	at 204' S (Sm/Sm)
DP-188	507 / 509		W# 13	MS	B: / P:	W: 750 / S: 40	101 / 112	100 / 104	98 / 109	99 / 110	97 / 106	154 / 157	155 / 156	154	P	at 110' S (Sm/Sm)
DP 189	509 / 511		W# 15	KC	B: / P:	W: 750 / S: 40	106 / 101	132 / 115	106 / 108	133 / 118	105 / 127	150 / 152	155 / 154	151	P	at 32' N (Sm/Sm)
DP-190	507 / Patch		MX 17	KS	B: 550 / P: 450	W: / S:	111	115	114	114	124	138 / 139	138 / 139	137	P	at 3' S (Sm/Sm)
DP-191	515 / 516		W# 4	M-T	B: / P:	W: 750 / S: 5.00	118 / 105	110 / 113	106 / 122	108 / 119	117 / 136	149 / 160	149 / 154	155	P	at 72' N (Sm/Sm)
DP-192	516 / 518		W# 20	DN	B: / P:	W: 750 / S: 4	133 / 125	105 / 122	133 / 124	133 / 125	105 / 117	141 / 147	146 / 146	146	P	at 307' N (Sm/Sm

test on- 7" 31-04

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DESTRUCTIVE TESTING REPORT FORM

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PROJECT NAME:

TENSIOMETER ID::

JOB NUMBER:

MAT'L TYPE:

SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP-193	518/519		WH 15	K-C	B:	W: 750	126	103	131	111	130	142	143	139		at tie
					P:	S: 40	127	128	125	128	103	145	144		P	64' N (5m/5m)
DP-194	519/521		WH 13	MS	B:	W: 750	120	122	107	113	126	149	148	150		
					P:	S: 40	112	120	122	118	115	152	151		P	at 94' S (5m/5m)
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

GSI
DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

TENSIOMETER ID::

SAMPLE ID (DT#)	SEAM NO	QC INT	MACH NO	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP 195	521 / 523		WH 15	K-C	B:	W: 750	115	116	112	117	118	144	143	145	P	aT 153'N, CSm/Sm
					P:	S: 40	104	129	109	114	106	145	139			
DP 196	522 / 524		WH 15	K-C	B:	W: 750	115	113	124	108	109	145	144	144	P	aT, 94'S (Sm/Sm)
					P:	S: 40	114	130	104	120	98	143	139			
DP 197	526 / 527		WH 4	M-T	B:	W: 750	119	121	135	120	126	143	139	141	P	aT 11'W (Sm/Sm)
					P:	S: 5	131	129	118	131	127	138	133			
DP 198	498 / 526		WH 20	DN	B:	W: 750	119	113	118	118	124	132	131	137	P	aT 11'W (Sm/Sm
					P:	S: 40	118	119	115	117	116	125	138			
DP 199	527 / 528		WH 4	M-T	B:	W: 750	128	137	123	138	126	142	146	141	P	aT 110'N (Sm/Sm)
					P:	S: 5	138	119	123	105	131	139	139			
DP 200	528 / 530		WH 20	DN	B:	W: 750	112	110	116	108	124	130	130	137	P	aT, 290'N (Sm/Sm)
					P:	S: 40	108	114	106	113	106	139	140			
DP 201	532 / 533		WH 15	KC	B:	W: 750	110	126	127	131	111	136	134	139	P	aT 95'N (Sm/Sm)
					P:	S: 40	117	117	108	107	112	135	134			
DP 202	532 / 534		WH 13	MS	B:	W: 750	124	120	113	116	110	130	132	129	P	aT 115'N (Sm/Sm)
					P:	S: 40	115	116	112	117	112	134	130			
DP 203	222 / 534		WH 15	KC	B:	W: 750	121	131	127	126	130	150	148	149	P	aT 15', SOF Sm/Sm tie-in
					P:	S: 40	132	127	128	113	120	151	148			

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DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:
TENSIOMETER ID::		

SAMPLE I.D. (DT#)	SEAM NO	Q.C. INT	MACH NO	SEAMER INT	EXTRUSION BARREL / PREHEAT	FUSION WEDGE / SET SPEED	FIELD VALUES PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
																at [illegible]
@P. 204	535 / 536		W# 20	@N	B:	W: 750	129	128	126	127	126	151	154	151		
					P:	S: 40	125	128	127	123	139	149	155		P	at 14' S of X 50a m.
@P 205	537 / 539		W# 13	ms	B:	W: 750	114	111	100	108	117	159	157	157		
					P:	S: 40	116	118	121	122	125	159	159		P	at 137' W.
@P 206	544 / 545		W# 13	ms	B:	W: 750	114	116	125	121	119	172	173	174		
					P:	S: 40	116	128	116	138	121	177	174		P	at 38' N.
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

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GSI
DESTRUCTIVE TESTING REPORT FORM

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

TENSIOMETER ID::					EXTRUSION	FUSION	FIELD VALUES									
SAMPLE I.D. (DT#)	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT.	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)					SHEAR (PPI)			P/F	LOCATION OF DESTRUCTIVE TEST
DP-207	549 / 550		WH 15	MT	B:	W: 750	125	137	134	132	126	192	185	190	P	at Nte
					P:	S: 40	117	115	114	99	118	192	192			at 82' N.
DP 208	552 / 553		WH 15	M-T	B:	W: 750	135	132	136	123	131	182	185	183	P	
					P:	S: 40	130	122	135	122	127	178	180			at 33' N.
DP-209	250 / 558		WH 4	M-T	B:	W: 750	106	110	110	124	117	152	151	150	P	
					P:	S: 40	108	100	106	112	105	150	148			at 38' N.
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										
					B:	W:										
					P:	S:										

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: 240016 | MAT'L TYPE: 60mil Textured

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	3|4	HS	mx-1	6-7-04	DN	Burn Patch	6-3-04	2x3	aT 5' S.	P
	— " —					EXT From BOS-P.		5'	aT 0-5' S.	
	4|5					Burn Patch		2x3	aT 32' S.	
	— " —					— " — — " —		2x3	aT 37' S.	
	— " —					EXT Patch to Patch		5'	aT 32-37' S.	
	9|10					Burn Patch		2x3	aT 5' S.	
	— " —					EXT Seam		5'	aT 0'-5' S.	
	18|19					EXT Seam		21,5	aT 0-21,5 W	
	17|19					EXT Seam.		5'	aT 0-5' S.	
	19|20					EXT Seam		5'	aT 0-5' S.	
	17|18,19					TJ Patch.		2x3	aT 65' S.	
	18,19|20					— " — — " —		2x3	aT 65' S	
	24|26,27					— " — — " —		2x3	aT 35' S.	
	24|26					Wriggle Burn Patch		6x4	aT 48'-54' S.	
	24|25,26					TJ Patch		2x3	aT 68' S.	
	32|34,35					— " — — " —		2x3	aT 28' W.	
	32|34					EXT Seam		27'	aT 28'-57' W.	

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: 240016 | MAT'L TYPE: 60mil Textured

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	32/33 34	HS	MX-1	6-7-04	DN	TJ Patch	6-3-04	2x3	at 57' w.	P
	32/33					Burn Patch		3x4	at 76' w.	
	10/11					∅P-1 Patch		4x2	at 35' S	
	20/21					∅P-2 —"—		4x2	at 44' S.	
	29/30					∅P-3 —"—		4x2	at 35' SW	
	32/35					∅P-4 —"—		4x2	at 18' SW.	
	36/37,38					TJ —"—		2x3	at 475' E	
	37/38					∅P-5 —"—		4x5	at 11' S.	
	36/38,39					TJ —"—		2x3	at 142' E	
	39/41					∅P-6 —"—		4x2	at 75' E	
	38,39/41					TJ —"—		2x3	at 142' E	
	38/40,41					—"— —"—		2x3	at 453' E	
	37,38/40					—"— —"—		2x3	at 472' E	
	41/43					∅P-8 —"—		4x2	at 361' E	
	40,41/42,43					TJ —"—		7x2	at 447'-454' E	
	36/14					∅P-7 —"—		4x2	at 294' E, Ice-in-N	

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	2,3|36	HS	mx-2	6.7.04	DN	TJ Patch	2x3	6-4-04	aT 44'E tie-in	P
	22,23|36					—"— —"—	3x3		aT 455'E tie-in	
	23|36					EXT Seam.	21'		aT 455'-476'E tie-in	
	23,24|36					TJ Patch.	3x3		aT 476' E tie-in	
	24,25|36					—"— —"—	2x3		aT 499' E tie-in	
	25,28|36					—"— —"—	2x4		aT 511' E tie-in	
	28|36					EXT Seam.	8'		aT 511'-519' E tie-in	
	28|36,37					TJ Patch.	3x3		aT 519' E tie-in	
	37,40|29,30					—"— —"—	5x3		aT 550-555' S tie-in	
	40|30.31	↓	↓			—"— —"—	2x3	↓	aT 577' S tie-in	
	33|44					BUNN —"—	2x2		aT 7' EJ	
	—"—			↓	↓	EXT Seam.	7'		aT 0-7' W.	↓
	50|51					⊘P-9 Patch	4x2		aT 65' W	
	55|56					⊘P-10 —"—	4x2		aT 20' W.	
	60|61					⊘P-11 —"—	4x2		aT 20' W.	
	43|62			6.7.04	DN	⊘P-12 —"—	4x2		aT 80' E	P
	—"—	↓	↓	—"—	—"—	⊘P-13 —"—	4x2	↓	aT 411' E	P.

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC...)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	43/62,63	HS	MX-2	6-7-04	DN	TJ Patch.	2x3	6-4-04	aT 61' E	P
	43/62					Wiggle burn Patch	3x3		aT 90' E	
	42,43/62					TJ Patch	2x3		aT 448' E	
	62,63/64					—u— —u—	2x3		aT 61' E	
	62/64					Burn Patch	3x3		aT 325' E	
	62/64,65					TJ —u—	2x3		aT 516' E	
	64/66,67					—u— —u—	2x3		aT 58' E	
	64/66					⊙P-14 —u—	4x2		aT 145' E	
	64,65/66					TJ —u—	2x3		aT 516' E	
	32/42 62					Pipe —u—	6x4		aT 600's @ 12' E	
	—u—					EXT Seam tie-in	21		aT 600'-621' SE	
	31,32/42					TJ Patch	3x3		aT 600's tie-in	
	62/33,44					—u— —u—	2x3		aT 621' S tie-in	
	66/46					Burn Patch	2x3		aT 669' S tie-in	
	46/66,68					TJ —u—	2x3		aT 676' S tie-in	
	66/46	↓	↓	↓	↓	EXT Patch-Patch	7'	↓	aT 669-676' S tie-in	↓

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC.)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	66,67/69	HS	mx-2	6-7-04	∅N	TJ Patch	2x3	6-7-04	aT 58' E	P
	66/68,69					—"— —"	3x2		aT 131 E	
	47/68	↓	↓	↓	↓	Burn —"	3x3	↓	aT 691 Stie-in	↓
	68,69/70	HS	mx2	67-04	∅N	TJ Patch	2x3	6-7-04	aT 131 E	P
	70/71					Burn —"	3x3		aT 182 E	
	—"—	↓	↓	↓	↓	—"— —"	2x3	↓	aT 196' E	↓
	64/66					∅P-15 —"	4x2		aT 469' E	
	67/69	↓	↓	↓	↓	∅P-16 —"	4x2	↓	aT 30' E	↓
	68/70	HS	mx2	6-8-04	BC	∅P-17 —"	4x2	6-8-04	aT 156' E	P
	68/70,73					T-J —"	7x2		aT 239' E	
	68/72,73					—"— —"	3x3		aT 315' E	
	68/72					∅P-18 —"	4x2		aT 558' E	
	70/73					EXT Seam	22'		aT 0-22' S	
	70,73/71,74					TJ Patch	2x3		aT 243' E	
	72/73,74					—" —"	3x2		aT 315' E	
	72/74					Burn —"	3x3		aT 425' E	
	71/74	↓	↓	↓	↓	EXT seam	22'	↓	aT 0-22' S.	↓

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	71,75/76	HS	mx-2	6-8-04	BC	TJ Patch.	2x3	6-8-04	aT 66' E	P
	71/75					ØP-19 —"—	4x2		aT 120' E	
	71,74/75	↓	↓	↓	↓	TJ —"—	2x3	↓	aT 243' E	↓
	72/74	HS	mx-2	6-10-04	BC	ØP-20 —"—	4x2	6-10-04	aT 458' E	P
	75/77					Burn —"—	2x3		aT 297' E	
	—"—				↓	ØP-21 —"—	4x2	↓	aT 337' E	↓
	74/75					ØP-22 —"—	4x2		aT 570' E	P
	78/79,80					TJ —"—	2x3		aT 67' E	
	77,78/79					—"— —"—	3x3		aT 75' E	
	79/80					ØP-24 —"—	4x2		aT 10' S	
	79,80/82					TJ —"—	3x2		aT 67' E	
	79/80,81					—"— —"—	3x2		aT 143' E	
	79/81					Burn —"—	3x3		aT 302' E	
	—"—					ØP-23 —"—	4x2		aT 560' E	
	81,82/84					TJ —"—	2x3		aT 143' E	
	81/83,84					—"— —"—	3x3		aT 177' E	
	83	↓	↓	↓	↓	Burn	3x2	↓	aT 325' E	↓

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	52/75,77	HS	mx2	6-10-04	BC	EXT Seam tie-in	~~44~~ 11'	6-10-04	aT 767'-811' E tie-in	P.
	52/79,81	—"	—"	—"	—"	TJ Patch	2x3		aT 811' E tie-in	—"
	52,81/54,83	—"	—"	—"	—"	EXT Seam tie-in	44	↓	aT 811 - 855' E tie-in	—"
	83,84/86	KS	mx2	6-14-04	RH	TJ Patch:	2x3	6-12-04	aT 177' E	P
	83/85,86					—" —"	2x3		aT 252' E	
	86/88					Burn —"	2x3		aT 180' E	
	—"					—" —"	2x3		aT 191' E	
	—"					EXT Seam	11'		aT 180'-191' E	
	85/87,88					TJ Patch	9x3		aT 266' E	
	87,88/90					—" —"	2x3		aT 265' E	
	84/86	KS	mx2			@P-25 —"	~~4x2~~	6-14-04	aT 111' E	
	81/83					@P-26 —"	4x2		aT 355' E	
	85/87					No overLap Patch	20x3		aT 335'-355' E	
	88/90					Burn Patch	2x2		aT 159' E	
	87/89,90					TJ Patch	2x3		aT 343' E	
	90/91,92					—" —"	2x3		aT 5' E	
	89,90/91					—" —"	2x3		aT 322' E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	91,92/94	RS	mx-2	6-14-04	RH	TJ Patch	2x3	6-14-04	at 50' E	P
	91/93,94					—"— —"—	2x3		at 56' E	
	91/93					Burn —"—	2x2		at 85' E	
	—"—					—"— —"—	2x3		at 260' E	
	—"—					—"— —"—	2x2		at 438' E	
	—"—					—"— —"—	2x2		at 475	
	—"—					EXT Patch to Patch	37		at 438'-475' E	
	—"—					Burn Patch	2x3		at 503' E	
	—"—					—"— —"—	2x3		at 514' E	
	—"—					EXT Patch to Patch	11'		at 503'-514' E	
	83,85/54	RS	mx-2			TJ Patch	2x3	6-12-04	at 855' S tee-in	P
	85,87/55					—"— —"—	2x3		at 877 S tee-in	
	89,91/57					—"— —"—	3x3		at 921 S tee-in	
	89/57					EXT tee-in	66'		at 855'-921' tee-in	
	83/85					@P-27 Patch	4x2	6-14-04	at 520' E	P
	86/88					@P-28 —"—	4x2		at 220' E	
	88/90					@P-29 —"—	4x2		at 175' E	
	7/89					@P-30 —"—	4x2		at 465' E	
	90/91					@P-31 —"—	4x2		at 308' E	
	91/93					@P-32 —"—	4x2		at 390' E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: Skorco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	61/95	KS	mx-2	6-17-04	BC	damage Patch	2x2	6-15-04	at 19'w @ 2'N	P
	—"—					Burn —"	3x4		at 50' w	
	—"					—" —"	2x2		at 75' w.	
	—"					EXT seam :	10'		at 75'-85' w.	
	95/96					@P-33 Patch	4x2		at 2c' w	
	97/98					A-T at Patch	2x2		at 12' w.	
	99/100					@P-34 Patch	4x2		at 55' w	
	104/105					@P-35 —"	4x2		at 67' w.	
	106/107					Burn —"	2x2		at 5' w.	
	—"					EXT O-Patch	5		at 0-5' w.	
	109/110					@P-36 Patch	4x2		at 25' w	
	114/115					@P-37 —"	4x2		at 20' w.	
	61/118	KS	mx2	6-16-04	@N	EXT tee-in	66	6-16-04	at 943-1009	P

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	61/118	KS	mx-2	6-16-04	DN	EXT tie-in	66	6-16-04	at 943 - 1009'	P
	94/116,117	KS	mx2	6-17-04	BC	TJ Patch	2x3	6-17-04	at 50' E	P
	93,94/116					—"— —"—	2x3		at 56' E	
	94/116					EXT Seam :	6		at 50'-56' E	
	93/116					DP-38 Patch	4x2		at 168' E	
	—"—					Burn —"—	2x3		at 323' E	
	116,117/119					TJ —"—	2x3		at 52' E	
	116/118,119					—"— —"—	2x3		at 366' E	
	116/118					cap no overlap	15x3		at 520'-535' E	
	119/120,121					TJ Patch	2x3		at 56' E	
	118,119/120					—"— —"—	3x2		at 369' E	
	118/120					Burn Patch	2x2		at 375' E	
	—"—					EXT Patch to Patch	6'		at 369-375 E	
	116/119					DP-39 Patch	4x2		at 320' E	
	118/120					DP-40 —"—	4x2		at 540' E	
	120,121/123					TJ —"—	2x3		at 54' E	
	120/122,123					—"— —"	2x3		at 63' E	

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: Sherco Generating Station | JOB NUMBER: 24016 | MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	120/122	RS	mx-2	6-17-04	BC	Bmn Patch	2x2	6-17-04	at 300' E	P
	—"—					DP-41 Patch	4x2		at 430' E	
	123/124,125					TJ Patch	2x3		at 55' E	
	122,123/124					—" —"	3x2		at 63' E	
	122/124					Bmn —"	2x2		at 168' E	
	—"—					—"— —"	2x3		at 315' E	
	—"—					DP-42 —"—	4x2		at 420' E	
	126/97,98					EXT tie-in	70'		at 1009 to 1079	
	120/122	RAO	mx 01			DP-43-B Patch.	4x2		at 296' E	
	—"—					EXT Seam	4		at 296'-300' E	
	123/125					DP-43A Patch	4x2		at 5' E	
	—"—					DP-43A-1 —"	4x2		at 15' E	
	—"—					EXT Seam	10'		at 5'-15' E	
	124/125					DP-43 Patch	4x2		at 11' S	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC.)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	124,125/127	KS	mx-2	6-18-04	RH	TJ Patch	2x3	6-17-04	aT 55' E	P
	124/126,127					—" —"	2x3		aT 60' E	
	124/126					@P-44 —"	4x2		aT 112' E	
	—" —					Bum —"	2x2		aT 312' E	
	126,127/129					TJ —"	2x3		aT 60' E	
	126/128,129					—" —"	2x3		aT 118' E	
	126/128					@P-45 —"	4x2		aT 208' E	
	126/128					Bum —"	2x3		aT 310' E	
	128,129/131					TJ —"	2x3		aT 118' E	
	128/130,131					—" —"	2x3		aT 193' E	
	128/130					@P-46 —"	4x2	↓	aT 565' E	
	131/133					Bum —"	2x2	6-18-04	aT 100' E	
	130,131/133					TJ —"	2x3		aT 186' E	
	130/132,133					—" —"	2x3		aT 194' E	
	130/133					EXT Seam	8'		aT 186'-194' E	
	130/132					@P-47 Patch	4x2		aT 320' E	
	—" —					Bum —"	2x3		aT 425' E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC.)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	132,133/135	KS	mx-2	6-18-04	SR-H	TJ Patch	2x3	6-18-04	aT 184'E	P
	132/134,135					—" —"	2x3		aT 241'E	
	134,135/137					—" —"	2x3		aT 240'E	
	132/135					@P-48 —"	4x2		aT 206'E	
	134/136					@P-50 —"	4x2		aT 388'E	
	136/137					@P-49 —"	4x2		aT 11' S	
	137/139					@P-51 —"	4x2		aT 105'E	
	—"					Burn —"	2x2		aT 132'E	
	—"					—" —"	2x2		aT 140'E	
	—"					EXT Seam	99'		aT 132'-231'E	
	—"					Burn Patch	2x2		aT 231'E	
	136,137/139					TJ —"	2x3		aT 287'E	
	136/138,139					—" —"	2x3		aT 330'E	
	136/138					@P-52 Patch	4x2		aT 364'E	
	139/140,141			6-19-04	BC	TJ —"	2x3		aT 46'E	P
	139/140					Burn —"	2x2		aT 125'E	P
	—"					—" —"	2x3		aT 230'E	
	103/136,138			6-18-04	RH	EXT tie-in	128'	6-17-04	aT 1079-1207	P

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE: 14

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	138,139/140	KS	mx2	6-19-04	BC	TJ Patch	2x3	6-18-04	at 328' E	P
	138/140	—"	—"	—"	—"	Burn —"	2x2	—"	at 478' E	—"
	124/126			6-19-04	R-H	DP-44-A	4x2	6-19-04	at 125' E	P
	—"					DP-44B	4x2		at 92' E	
	—"					DP-44A-1	4x2		at 135' E	
	—"					DP-44B-1	4x2		at 82' E	
	—"					EXT Seam	53'		at 82' - 135' E	
	140,141/143	KS	mx2		BC	TJ Patch	2x3		at 46' E	
	140/142,143					—" —"	2x3		at 68' E	
	140/142					Burn —"	2x3		at 296' E	
	142/106	KS	mx2			EXT tee-in	86	6-18-04	at 1187 - 1273	
	139/140	KS	mx2			DP-53 Patch	4x2	6-19	at 150' E	P.
	142,143/144					TJ —"	2x3		at 58' E	
	142/144					Burn —"	2x2		at 508' E	
	—"					—" —"	2x2		at 514' E	
	—"					EXT P-P	6'		at 508' - 514' E	
	106/142					DP-54 Patch	4x2		at 1263' S tee-in	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC.)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	142/144	K S	mx2	6-19.04	B C	@P-55 Patch	4x2	6-19.04	aT 39s' E	P
	144/146					@P-56 —"—	4x2		aT 20' E	
	144/145,146					TJ Patch	2x3		aT 59' E	
	144/145					@P-57 —"—	4x2		aT 550' E	
	145,146/148					TJ —"—	2x3		aT 59' E	
	145/147,148					—"— —"—	2x3		aT 61 E	
	145/147					EXT Seam	2'		aT 59'-61' E	
	145/147					@P-58 Patch	4x2		aT 182' E	
	—"—					Burn —"—	2x2		aT 358' E	
	147/109					EXT tie-in	56'		aT 1273'-1329' S tie-in	
	142,144/106 107					TJ Patch	2x3		aT 1273' S tie-in	
	144,145/107 108					—"— —"—	2x3		aT 1295' S tie-in	
	85/149	KS	mx2			Burn Patch	2x2	6-21-04	aT 6' W	
	—"—					EXT Seam	6'		aT 0-6' W	
	150/151					@P-59 Patch	4x2		aT 30' W.	
	153/154					Burn —"—	2x2		aT 6' W	
	—"—					EXT Seam	6		aT 0-6' W	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC.)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	155/156	KS	mx2	6-28-04	KS	@P- 60 Patch	4x2	6-21-04	aT 30' W	D
	161/162					@P- 61 —"	4x2		aT 50' W	
	163/164					Burn —"	2x2		aT 61' W	
	—"					EXT Seam :	24'		aT 61'-85' W	
	148/176/177	KS	mx2	6-23-04	R-H	TJ Patch	2x3	6-22-04	aT 56' E	P
	147,148/176					—" —"	2x3		aT 61' E	
	147/176					@P-63 —"	4x2		aT 105' E	
	—"					Burn —"	2x3		aT 160'-164' E	
	—"					—" —"	2x3		aT 325' E	
	171,175/168/172					EXT CORNER Seam	10H		aT 0-104' SE	
	173/174			6-23-04	R-H	@P-62 Patch	4x2		aT 58' N	
	176,177/179					TJ Patch	2x3		aT 56' E	
	176/178,179					—" —"	2x3		aT 61' E	
	176/179					EXT Seam	5'		aT 58'-61' E	
	176/178					Burn Patch	2x3		aT 309' E	
	—"					@P 64 —"	4x2		aT 398' E	
	178,179/181					TJ —"	2x3		aT 61' E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (PATCH, BEAD, EXT WELD, CAP STRIP, DT, ETC..)	SIZE	REPAIR DATE	LOCATION OF REPAIR	V BOX PASS
	113/182	KS	mx-2	6.23.04	R.H	EXT tee-in	98'	6.22.04	1329-1427	P
	112/180	—n—	—n—			@P. 67 Patch	4x2	—n—	aT 1391' S tee-in	
	178/180,181	RAO	mx2			TJ —n—	2x3	6.23.04	aT 116'E	
	178/180					Burn —n—	2x2		aT 291'E	
	—n—					@P-65 —n—	4x2		aT 325'E	
	180,181/183					TJ —n—	2x3		aT 117'E	
	180/183					@P-66 —n—	4x3		aT 138'E	
	180/182,183					TJ —n—	3x2		aT 165'E	
	180/182					Burn —n—	2x2		aT 280'E	
	183/185					@P-68 —n—	4x2		aT 78'E	
	182,183/185					TJ —n—	2x3		aT 165'E	
	182/184,185					—n— —n—	2x3		aT 175'E	
	184,185/187					—n— —n—	2x3		aT 175'E	
	185/187					Burn —n—	2x2		aT 84'E	
	184/187					—n— —n—	2x2		aT 219'E	
	184/186,187					T-J —n—	2x3		aT 250'E	
	184/186					Burn —n—	8x3		aT 292'-300'E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dry)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	184/186	R.A.O	mx 2	6-25-04	DN	@P-69 Patch	6-24-04	4x2	at 275'E	P
	186,187/189					T.J —"—		2x3	at 250'E	
	186/188,189					—"— —"—		2x3	at 319'E	
	186/188					@P-70 —"—		4x2	at 445	
	189,190/191				KS	T-J —"—		2x3	at 10'E	
	189/190					@P-71-B —"—		4x2	at 158'E	
	—"—					@P-71-A —"—		4x2	at 178'E	
	—"—					EXT Seam.		20'	at 158'-178'E	
	—"—					@P-71 Patch		4x2	at 168'E	
	188,189/190					TJ —"—		2x3	at 317'E	
	190,191/193					—"— —"—		2x3	at 10'E	
	190/192,193					—"— —"—		2x3	at 25'E	
	190/192					Burn —"—		2x2	at 300'E	
	—"—					@P-72 —"—		4x2	at 400'E	
	—"—					Wrigle @ NoLap		10x3	at 510'-520'E	
	—"—					Burn Patch		2x2	at 525'E	
	149/188					Tie-IN EXT		65'	at 1427-1492 S	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Fetch, Bead, Ext Weld, Cap Strip, DTV)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	115,149/186,188	RAO	mx 2	6.25.04	KS	TJ Patch	6.24.04	3x3	at 147' S tie-in	P
	113,114/182,184	—"	—"			—" —"	—"	3x2	at 1427' S tie-in	
	114/184	—"	—"			@P-73 Patch	6.25.04	4x2	at 1437' S tie-in	
	192,193/195					TJ —"		2x3	at 25' E	
	192/194,195					—" —"		2x3	at 47' E	
	192/194					Burn —"		2x3	at 275' E	
	—"					No overlap —"		2x3	at 440' E	
	195/196,197					TJ Patch		2x3	at 15' E	
	194,195/196					—" —"		3x2	at 80' E	
	192/194					@P-74 Patch		4x2	at 566' E	
	194/196					@P-75 —"		4x2	at 130' E	
	—"					Burn —"		2x2	at 265' E	
	196,197/199					TJ —"		2x3	at 17' E	
	196/198,199					—" —"		2x3	at 23' E	
	196/198					Burn —"		2x3	at 260' E	
	—"	OS	mx05	6.25.04	KS	@P-76 —"	6.25.04	4x2	at 545' E	P

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	Size	LOCATION OF REPAIR	V BOX PASS
	156/202	OS	mx05	6.25.04	KS	EXT tie-in	6.25.04	145'	aT 1492-1637	P
	149,150/188,190					TJ Patch		4x3	aT 1492' S tie-in	
	194,196/152,153					—"— —"—		3x5	aT 1559' S tie-in	
	196,198/153,154					—"— —"—		6x3	aT 1581' S tie-in	
	200/155,156					—"— —"—		2x3	aT 1625' S tie-in	
	188/190	RAO	mx2			Burn —"—		2x2	aT 561' E	
	—"—					EXT Seam		24'	aT 561'-585' E	
	190/192					Burn Patch		2x2	aT 578' EOS	
	—"—					EXT Seam		20'	aT 578'-598' EOS	
	192/194					Burn Patch		2x2	aT 583' E	
	—"—					EXT Seam		5	aT 583'-588' EOS	
	194/196					Burn Patch		2x2	aT 575' E	
	—"—	OS	mx05			EXT Seam		17'	aT 575'-592' EOS	
	196/198					Burn Patch		2x2	aT 588'	
	—"—					EXT Seam		7'	aT 588'-592' EOS	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext. Weld, Cap Strip, Dirt)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
	196/198	RAO	mx 2	6.28.04	KS	Burn Patch	6.25.04	2 x 2	at 260' E	P
	198,199/201					T J —"—		2 x 3	at 20' E	
	198/200,201					—"— —"—		2 x 3	at 68' E	
	198/200					Burn —"—		2 x 2	at 250' E	
	—"—	RAO	mx05			—"— —"—	6.26.04	2 x 2	at 425' E	
	—"—	OS	mx05			@P-77 Patch	6.25.04	4 x 2	at 565' E	
	201/203	RAO	mx05			@P-78 —"—	6.26.04	4 x 2	at 6' E	
	200,201/203					T.J —"—		2 x 3	at 67' E	
	200/202,203					—"— —"—		2 x 3	at 145' E	
	200/202					Burn —"—		2 x 2	at 370' E	
	—"—	OS	mx05			—"— —"—	6-25-04	2 x 2	at 538' E	
	202,203/205	RAO	mx05			T-J Patch	6.26.04	2 x 3	at 148' E	
	202/204,205					—"— —"—		2 x 3	at 245' E	
	204/205					@P-79 —"—		4 x 2	at 11' N	
	204,205/207					T-J —"—		3 x 2	at 245' E	
	204/206,207					—"— —"—		2 x 3	at 318' E	
	204/206					Burn —"—		2 x 2	at 446' E	

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch / Bead Ext Weld, Cap Strip, DTW)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	200/202	RAO	MX05	6.28.04	KS	∂P-80 Patch	6.26.04	4x2	aT 545'E	P
	205/207					∂P-81 —"		4x2	aT 215'E	
	204/206					Burn —"		2x2	aT 595'E	
	202/156					∂amage —"		2x2	aT 1637' S tie-in	
	209/159,160					T-J —"		2x3	aT 1711' S tie-in	
	210/160					EXT tie-in		9'	aT 1637-1730' Stie-in	
	207/208	RAO	MX05			No overlap EXT	6.28.04	20'	aT 0-20'E	
	—"					Burn Patch		2x2	aT 20'E	
	—"					—" —"		2x2	aT 200'E	
	206,207/208					T-J —"		2x3	aT 32'E	
	206/208					∂P-82 —"		4x2	aT 408'E	
	206/208,209					T-J —"		2x3	aT 513'E	P
	208/210			6-30.04	MN	Burn —"		2x2	aT 268'E	
	208,209/210					T-J —"		2x3	aT 488'E	
	209/210					∂P-83 —"		4x2	aT 517'E	
	210/211,212					T-J —"		2x2	aT 65'E	
	210/211					∂P-84 —"		4x2	aT 193'E	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM NO	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dt)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	210|211	RAO	mx05	6.30.04	MN	BURN PATCH	6.28.04	2x2	aT 265' E	P
	—u—					—u— —u—		2x2	aT 405' E	
	211,212|213					TJ —u—		2x3	aT 65' E	
	212|213,214					—u— —u—		2x3	aT 61' E	
	211|213					∅P-86 PATCH		4x2	aT 178' E	
	—u—					BURN —u—		2x2	aT 285' E	
	213|214					∅P-85 —u—		4x2	aT 13' N	
	213,214|215,216					T.J —u—		2x3	aT 64-66 E	
	213|215					BURN —u—		2x2	aT 258' E	
	—u—					∅P-87 —u—		4x2	aT 569' E	
	215,216|218					T.J —u—		2x3	aT 49' E	
	215|217,218					—u— —u—		2x3	aT 113' E	
	215|217					BURN —u—		2x2	aT 256' E	
	217,218|220					T.J —u—		2x3	aT 115' E	
	217|219,220					—u— —u—		2x3	aT 210' E	
	217|220					∅P-89 —u—		4x2	aT 200' E	
	215|218					∅P-88 —u—		4x2	aT 108' E	

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INIT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dill)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	219,220/222	RMO	MX05	6.30.04	MN	T.J Patch	6.29.04	2x3	aT 211' E	P
	219/221,222					—"— —"—		2x3	aT 266' E	
	221/222					@P-90 Patch		4x2	aT 8' N	
	211/213					Burn —"—		2x2	aT 570' E	
	213/215					—"— —"—		2x2	aT 573' E	
	215/217					—"— —"—		2x2	aT 564' E	
	217/219					—"— —"—		2x2	aT 567' E	
	219/221					—"— —"—		2x2	aT 565' E	
	—"—					—"— —"—		2x2	aT 525' E	
	210/160,161					T.J Patch		6x4	aT 1730' S tie-in	
	162/211,213					—"— —"—		2x3	aT 1757' S tie-in	
	213/162,163					—"— —"—		9x3	aT 1774' S tie-in	
	217/164,165					—"— —"—		2x3	aT 1818' S tie-in	
	219/165,166					—"— —"—		8x3	aT 1839' S tie-in	
	166/219,221					—"— —"—		5x3	aT 1845' S tie-in	
	166/221					EXT tie-in		13i	aT 1730-1861' S tie-in	
	172/223					@P-91 Patch		4x2	aT 60' N	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
	223|224	RAO	mx05	6.30.04	MN	Burn Patch	6.29.04	2x2	at 100' N	P
	227|228	RAO	mx02			—n— —n—	6.30.04	2x4	at 91' N	
	—n—					Wriggle Stock EXT		18'	at 91' N @ 18' W	
	—n—					—n— —n—		12'	at 91' N @ 12 NW	
	—n—					@P. 92 Patch		4x2	at 145' N	
	228|229					Wriggle Stock Patch		2x4	at 70' N	
	—n—					—n— EXT		12'	at 70' N @ 12' NW	
	—n—					—n— EXT		10'	at 70' N @ 12' NW @ 10' SW	
	229|230					Cap NO overlap		40x3	at 0-40' N.	
	232|230					EXT tie-in		210'	at 1861-2071 W	
	229|230					Burn Patch		2x2	at 126' N	
	230|233					@P-93 —n—		4x2	at 61' N	
	236|237					@P-94 —n—		4x2	at 50' N	
	240|241	RAO	mx02			@P-95 —n—	7-1-04	4x2	at 89' N	
	241|242					EXT Seam		22'	at 100'-122' N EOS	
	—n—					Burn Patch		2x2	at 100' N	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DTV)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	246/247	RAO	mx02	7-1-04	MN	DP-96 Patch	7-1-04	4x2	at 20' N.	P
	248/249					DP-97 —"—		4x2	at 80' N.	
	221/231					Burn —"—		2x2	at 184' W	
	231/232.252					T.J —"—		2x3	at 184' W	
	221,222/231-251					—"— —"—		3x3	at 312-315' W.	
	231,251/252					—"— —"—		2x3	at 313' W.	
	230/239					EXT Seam.		8	at 2071-2079 tie-in	
	230,239/233 252					T J Patch		2x3	at 2079 tie-in	
	252/233,234					—"— —"—		2x3	at 2100 tie-in	
	252/234,235					—"— —"—		2x3	at 2122' W tie-in	
	252/235,236					—"— —"—		2x3	at 2144' W tie-in	
	252/236-237					—"— —"—		2x3	at 2165 W tie-in	
	252/237,238					EXT Seam.		39'	at 2165-2204 W tie-in	
	252/253,238					T.J Patch.		2x3	at 2204 W tie-in	
	238/253,254					—"— —"—		2x3	at 2220 S.tie-in	
	238/239,254					—"— —"—		5x6	at 2231 S. tie-in	
	254/241					Burn —"—		2x2	at 2284 W tie-in	

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GEOMEMBRANE REPAIR REPORT

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PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dll)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	222/251	RAO	mx-02	7-2-04	m N	OP-98 Patch	7-2-04	4x2	at 332' W	P.
	—11—					OP-98-A —n		4x2	at 320' W	
	—11—					OP-98-B —n		4x2	at 342' W	
	—n—					EXT Seam.		22'	at 320-342' W	
	252/253					OP-99 . Patch		4x2	at 164' W	
	253/255-256					TJ —n—		2x3	at 150' W.	
	253/254,255					—n— —n—		2x3	at 75' W	
	254/255					EXT Seam		5	at 0-5' N	
	255/256					—n— —n—		5	at 0-5' N	
	254/241,242					TJ Patch		2x3	at 2294' W tie-in	
	242/254,255					—n— —n		2x3	at 2309' W tie-in	
	245/255,256					—n— —n—		2x3	at 2382' W tie-in	
	245/256					EXT Seam.		15	at 2382-2397 N tie-in	
	245,246/256					TJ Patch		2x3	at 2397' N tie-in	
	256/246,247					—n— —n—		2x3	at 2418' W tie-in	
	256/247,248					—n— —n—		2x3	at 2441' W tie-in	
	256/248,249					—n— —n—		2x3	at 2462' W tie-in	
	256/249,250					—n— —n—		2x3	at 2484' W tie-in	

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:

JOB NUMBER: 24 016

MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	265	A.O.R	04	7-8-04	JC	Patch's 3	7-8-04		25' 9' 7' N of tie seam 1' in from 264-265	P
	263-264	A.O.R	04	7-8-04	JC	Patch	7-8-04		11' N of tie	P
	264-265	A.O.R	04	7-8-04	JC	Patch	7-8-04		10' N of tie	P
	265 259	AOR	04	7-8-04	JC	Cap	7-8-04	12'L 4'W	from 266-265 East	P
	259 260	AOR	04	7-8-04	JC	Cap	7-8 04	4'L 2'W	South	P
	274 275	AOR	02	7-8-04	MN	patch Exout	7-8-04		5' in Exout	P
	275 276	AOR	02	7-8-04	MN	Cap	7-8-04	6' L 2'W	S of 275	P
	276 277	AOR	02	7-8-04	MN	patch Exout	7-8-04		5' Exout	P
	275 276	AOR	02	7-8-04	MN	patch Exout	7-804		5' Exout	P
	297	AOR	02	7-10-04	MN	Patch's 3	7-10-04	1'	5' 8' 11' N of tie 296-297, 1' in	P
	302/303	AOR	02	7-10-04	MN	Cap	7-10-04	from 92'-108'	Exout to 124'	P
	307	AOR	02			Patch's 2		1'	2' 7' N in 307-308	P
86'	tie	AOR	02	7-10-04	MN	Cap	7-10	6'L 2'W	86' tie	P
108'	tie	AOR	02	7-10	MN	Patch	7-10	1'	108' tie	P
103'	tie	AOR	02	7-10	MN	Cap	7-10	10'L 2'W	103' tie 5' south 5' North	P
152'	tie	AOR	02	7-10	MN	Patch	7-10	1'	152' tie	P
174'	tie	AOR	02	7-10	MN	Patch	7-10	1'	174' tie	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
195'	tie	AOR	02	7-10	MN	Patch	7-10	1'	195' tie	P
217'	tie	AOR	02	7-10	MN	Patch Ex out	7-10	Patch 1' Ex 5'	217' tie Ex out 5'	P
233'	tie	AOR	02	7-10	MN	Cap	7-10	233'-275'	233'-275' tie	P
275'	tie	AOR	02	7-10	MN	Cap	7-10	275-277	275'-277' tie	P
298'	tie	AOR	02	7-10	MN	Patch	7-10	1'	298 tie	P
320'	tie	AOR	02	7-10	MN	Patch	7-10	1'	320' tie	P
342'	tie	AOR	02	7-10	MN	Patch	7-10	1'	342' tie	P
364'	tie	AOR	02	7-10	MN	Patch	7-10	1'	364' tie	P
385'	tie	AOR	02	7-10	MN	Patch	7-10	1'	385' tie	P
406'	tie	AOR	02	7-10	MN	Patch	7-10	1'	406' tie	P
428'	tie	AOR	02	7-10	MN	Patch	7-10	1'	428' tie	P
450'	tie	AOR	02	7-10	MN	Patch	7-10	1'	450' tie	P
316/263	316	AOR	02	7-12	MN	Patchs	7-12	1'	15' w of 316/263 8'N 2'+5'	P
316/317		AOR	02	7-12	MN	Cap	7-13	5'L 2W	5'L at 155N	P
315/317		AOR	02	7-12	MN	Patch	7-13	1'	at 165N	P
317/318		AOR	02	7-12	MN	Patch	7-13	1'	20'N But	P
318/320		AOR	02	7-12	MN	Patch	7-13	1'	But	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	Size	LOCATION OF REPAIR	V BOX PASS
330/313		AOR	02	7-13	MN	Cap	7-12	13'	P320 -13'N	P
322/312		AOR	02	7-13	MN	Cap	7-12	7'L	from 323	P
323/312		AOR	02	7-13	MN	P	7-12	1'	164'N	P
317/318		AOR	02	7-13	MN	P	7-12	1'	But 165'N	P
318/320		AOR	02	7-13	MN	P	7-12	1'	But 144'N	P
318/319		AOR	02	7-13	MN	P	7-13	1'	6' E	P
320/321		AOR	02	7-13	MN	P	7-13	1'	But 312'N	P
320/319		AOR	02	7-13	MN	P	7-13	1'	But 157'N	P
311/310		AOR	02	7-13	MN	Cap	7-13	4'L 2'W	166'N	P
323/310		AOR	02	7-13	MN	Cap	7-13	5'	But	P
323/324		AOR	02	7-13	MN	P	7-13	1'	155'N But 324-325	P
326/310	310	AOR	02	7-13	MN	P	7-13	1'	170N 164N But But 326/310	P
326/328		AOR	02	7-13	MN	P	7-13	1'	5'N But	P
325/326		AOR	02	7-13	MN	Cap	7-13	5'	200'N to 205'N	P
325/329		AOR	02	7-13	MN	Cap	7-13	4'	But	
323/322		AOR	02	7-13	MN	Cap	7-13	3'	339'N - 341'N	
330/329		AOR	02	7-13	MN	P	7-13	1	But	

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dll)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
329/322		AOR	02	7-13	MN	patch	7-13	1'	5' from But	P
321/322		AOR	02	7-13	MN	P	7-13	1'	38'N	P
322/331		AOR	02	7-13	MN	P	7-13	1'	8'N	P
334/331		AOR	02	7-13	MN	P	7-13	1'	81'N	P
331/330		AOR	02	7-13	MN	P	7-13	1'	86'N	P
334/332		AOR	02	7-13	MN	P	7-13	1'	204'N	P
332/330		AOR	02	7-13	MN	P	7-13	1'	120'N	P
	333	AOR	02	7-13	MN	P's	7-13	1'	202', 214', 220'N 1'in	P
334/331		AOR	02	7-13	MN	P	7-13	1'	2'N	P
342/343		AOR	02	7-15	MN	P's	7-15	1'	102', 107' Ex mid	P
348/349		AOR	02	7-15	MN	P's	7-15	1'	95' 102' 109' Ex mid	P
360/361		AOR	02	7-15	MN	CAP	7-15	5'	41'-46'E	P
326/366		AOR	02	7-15	MN	P	7-15	1'	362'N 326/366	P
309/326		AOR	02	7-15	MN	CAP	7-15	5'	309/326	P
309/366		AOR	02	7-15	MN	P	7-15	1'	309/366 4' Ex	P
327/366		AOR	02	7-15	MN	P	7-15	1'	147'N 327/366	P
366/368		AOR	02	7-15	MN	P			161 N 366/368	P

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PANEL SEAMING FORM

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
7-13	9:50	323	325	295	DN	750	40	39	81° W25mph	F	F
7-13	9:45	323	324	145	KC			09			
7-13	10:30	325	326	205	KC			09			
7-13	10:35	324	326	145	DN			39		F	F
7-13	10:15	324	310	22	KC			09			
7-13	10:25	324	325	22	DN			39		F	F
7-13	11:15	326	309	22	DN			39		F	F
	2:45	327	328	232	DN			39			
	3:15	328	329	236	KC			09			
	4:10	329	330	240	KC			09			
	4:50	330	332	120	KC			09			
	5:20	330	333	36'	DN			13			
	5:35	333	334	37'	KC			09			
	5:35	334	335	231	DN			13			
	5:40	334	332	120	KC			09			
	5:55	334	331	81	KC			09			
	5:15	332	333	22	DN			13			
	4:55	331	332	22	DN			13			
	2:20	326	327	22	KC			09			
	5:45	330	331	78	KC			09			

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
383/384		AOR	02	7-17	MN	P	7-17	1'	148's 383/384	P
383/384		AOR	02	7-17	MN	P	7-17	1'	115's 383/384	P
297/299	Tie	AOR	02	7-13	MN	Cap	7-13	1'	471'N on tie	P
299/298	Tie	AOR	02	7-13	MN	P	7-13	1'	477'N on tie	P
635'N	Tie	AOR	02	7-15	MN	Cap	7-15	11'	635'N - 646'N	P
337/338	Tie	AOR	02	7-15	MN	P	7-15	1'	687'N tie	P
708'/799'	Tie	AOR	02	7-15	MN	Strip	7-15	98'	708'N - 799'N	P
ST	Tie	AOR	02	7-15	MN	Ex	7-15	5'	737'N - 741'N	P
343/344	tie	AOR	02	7-15	MN	P	7-15	1'	817'N tie	P
347/348	tie	AOR	02	7-15	MN	P	7-15	1'	903'N	P
348/349	tie	AOR	02	7-15	MN	P	7-15	1'	925'N	P
349/350	tie	AOR	02	7-15	MN	P	7-15	1'	946'N	P
351/352	tie	AOR	02	7-15	MN	P	7-15	1'	989'N	P
Tie	353	AOR	02	7-15	MN	P	7-15	1'	1030 N tie	P
355/356	tie	AOR	02	7-15	MN	P	7-15	1'	1075'N	P
356/357	tie	AOR	02	7-15	MN	P	7-15	1'	1097'N	P
357/358	tie	AOR	07	7-15	MN	P	7-15	1'	118'N	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
308/367		AOR	02	7-15	MN	cap	7-15	6'	308/368	P
366/367		AOR	02	7-15	MN	P	7-15	1'	185 N 366/367	P
366/367		AOR	02	7-15	MN	P	7-15	1'	300 'N 366/367	P
366/367		AOR	02	7-15	MN	P	7-15	1'	522 'N 366/367	P
368/369		AOR	02	7-15	MN	P	7-15	1'	8'N Ex S 367/369	P
382/374		AOR	02	7-17	MN	P	7-17	1'	381/382 24'E	P
382/374		AOR	02	7-17	MN	P	7-17	1'	382/374 24'E	P
374/372		AOR	02	7-17	MN	P	7-17	1'	374/372 30'E out	P
382/374		AOR	02	7-17	MN	P	7-17	1'	382/374 45'S	P
381/382		AOR	02	7-17	MN	P	7-17	1'	381/382 45'S	P
NW/Slope	371	AOR	02	7-17	MN	P	7-17	1'	NW slope 35'S	P
NW/Slope	371	AOR	02	7-17	MN	P	7-17	1'	NW slope 66'S	P
NW/Slope	371	AOR	02	7-17	MN	P	7-17	1'	NW slope 100'S	P
NW/Slope	371	AOR	02	7-17	MN	P	7-17	1'	NW slope 132 S	P
NW/Slope	371	AOR	02	7-17	MN	P	7-17	1'	NW slope 152 S	P
375/376		AOR	02	7-17	MN	P	7-17	1'	46'E - 51'S Ex mid	P
375/376		AOR	02	7-17	MN	P	7-17	1'	74'E - 90'E Ex mid	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
1161N	1167'	AOR	02	7-15	MN	Ext	7-15	8'	1161 – 1167 N tie	P
361/362	tie	AOR	02	7-15	MN	Ext	7-15	7'	DT135 – 1204'N patch 361/362	P
366	367	AOR	02	7-19	MN	Ext	7-19	253'	366/367 – 300'N – 553'N	P
324	326	AOR	02	7-19	MN	Ext	7-14		326 – 324 seam all	P
391	398	AOR	02	7-20	MN	P	7-20	1'	13'N	P
	391	AOR	02	7-20	MN	P	7-20	1'	240's 396/397	P
	391	AOR	02	7-20	MN	P	7-20	1'	192's 395/396	P
	391	AOR	02	7-20	MN	P	7-20	1'	96's 392/394	P
	391	AOR	02	7-20	MN	P	7-20	1'	70's 391/392	P
	391	AOR	02	7-20	MN	Ext	7-20	26'	96's – 70's	P
384	390	AOR	02	7-20	MN	P	7-20	1'	125's	P
390	391	AOR	02	7-20	MN	P	7-20	1'	125's	P
395	396	AOR	02	7-20	MN	P	7-20	1'	94's	P
396	397	AOR	02	7-20	MN	P	7-20	1'	144's	P
376/370	Tie	AOR	02	7-20	MN	P	7-20	1'	1325'N tie	P
	Tie	AOR	02	7-20	MN	P	7-20	1'	1226'N tie	P
401	402	AOR	02	7-22	MN	P	7-22	1'	10's Exout	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dti)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
403	404	ROA	02	7-22	MN	P	7-22	1'	106's	P
404	405	ROA	02	7-22	MN	P	7-22	1'	168's	P
417	419	ROA	02	7-22	MN	P	7-22	1'	16's	P
419	420	ROA	02	7-22	MN	P	7-22	1'	125	P
418	420	ROA	02	7-22	MN	P	7-22	1'	37's - 50's Extmid	P
387/388		DP	04	7-22	MN	P	7-22	1'	23' N	P
388/389		DP	04	7-22	MN	P	7-22	1'	44' N	P
389/407		DP	04	7-22	MN	P	7-22	1'	66' N	P
407/408		DP	04	7-22	MN	P	7-22	1'	87' N	P
408/409		DP	04	7-22	MN	P	7-22	1'	109' N	P
409/410		DP	04	7-22	MN	P	7-22	1'	131' N	P
427	429	DP	04	7-22	MN	P	7-22	1'	88' N	P
429	430	DP	04	7-22	MN	P	7-22	1'	88' N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1325' N P Extmid 1339 P	P
	Tie	DP	04	7-22	MN	EXT	7-22	5'	1339 N - 1334' N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1365' N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1381' N	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dll)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
421	427	RAO	02	7-23	MN	P	7-23	1'	1758'E	P
431	444	RAO	02	7-23	MN	P	7-23	1'	1771'E	P
427	433	RAO	02	7-23	MN	P	7-23	1'	1784'E	P
433	434	RAO	02	7-23	MN	P	7-23	1'	1805'E	P
434	435	RAO	02	7-23	MN	P	7-23	1'	111'S	P
435	436	RAO	02	7-23	MN	CAP	7-23	5'	1828'E	P
446	448	RAO	02	7-23	MN	P	7-23	1'	1853'E	P
436	437	RAO	02	7-23	MN	P	7-23	1'	1825'E	P
448	449	RAO	02	7-23	MN	P	7-23	1'	1887'E	P
437	438	RAO	02	7-23	MN	P	7-23	1'	1897'E	P
451	449	RAO	02	7-23	MN	P	7-23	1'	1910'E	P
438	442	RAO	02	7-23	MN	P	7-23	1'	1918'E	P
441	442	RAO	02	7-23	MN	P	7-23	1'	1932'E	P
441	440	RAO	02	7-23	MN	P	7-23	1'	1955'E	P
36	39	RAO	02	7-23	MN	CAP	7-23	5'	1997'E	P
458	335	DP	04	7-24	MN	P	7-24	1'	93'N	P
458	335	DP	04	7-24	MN	P	7-24	1'	234'N	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
	454	RAO	02	7-23	MN	P	7-23	1'	38'N 452/453 E corner	P
	457	RAO	02	7-23	MN	P	7-23	1'	39/41 butt	P
	452	RAO	02	7-23	MN	P	7-23	1'	41/43 butt	P
	457	RAO	02	7-23	MN	P	7-23	1'	43/63 butt	P
	457	RAO	02	7-23	MN	P	7-23	1'	63/64 butt	P
	457	RAO	02	7-23	MN	P	7-23	1'	64/67 butt	P
	457	RAO	02	7-23	MN	P	7-23	1'	67/69 butt	P
	69	RAO	02	7-23	MN	P	7-23	1'	457/456	P
	456	RAO	02	7-23	MN	P	7-23	1'	69/70	P
	456	RAO	02	7-23	MN	P	7-23	1'	70/71	P
	456	RAO	02	7-23	MN	P	7-23	1'	71/76	P
	456	RAO	02	7-23	MN	P	7-23	1'	76/78	P
	456	RAO	02	7-23	MN	P	7-23	1'	78/80	P
	80	RAO	02	7-23	MN	P	7-23	1'	455/456	P
	455	RAO	02	7-23	MN	P	7-23	1'	80/82	P
	455	RAO	02	7-23	MN	P	7-23	1'	82/84	P
	455	RAO	02	7-23	MN	P	7-23	1'	84/86	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
	Tie	RAO	02	7-23	MN	P	7-22	1'	1692'E	P
	Tie	RAO	02	7-23	MN	Cap	7-22	10'	1708'E - 1718'E	P
	Tie	RAO	02	7-23	MN	Ext	7-22		1718'E - 1727'E	P
	Tie	RAO	02	7-23	MN	CAP	7-22	12'L	1727'E - 1739'E	P
	Tie	RAO	02	7-23	MN	EXT	7-22		1739'E Ext 1758	P
433	434	RAO	02	7-23	MN	P	7-23	1'	111's	P
434	435	RAO	02	7-23	MN	Cap	7-23	8'L 2'W	434/435 39's - 42's	P
439	1	RAO	02	7-23	MN	Ext	7-22	64'	439/1	P
438	443	RAO	02	7-23	MN	P	7-22	1'	438/443 55's	P
	444			7-23	MN	P	7-23	1'	31'N 431/432	P
431	444			7-23	MN	P	7-23		134'N 431/444	P
447	448			7-23	MN	P	7-23		89'N w corner	P
	450			7-23	MN	P	7-23		227'N 454/450 w corner	P
	449			7-23	MN	P	7-23		80'N 447/448 E corner	P
	452			7-23	MN	Cap	7-23		26'N - 32'N 450/452	P
	453			7-23	MN	P	7-23		188'N 450/451	P
453	454			7-23	MN	P	7-23		150'N	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
	Tie	DP	04	7-22	MN	P	7-22	1'	1389'N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1411'N	P
391/398	Tie	DP	04	7-22	MN	Cap	7-22	12'L	1428'N 391/398 12'L	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1450 N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1462 N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1470 N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1492 N	P
	Tie	DP	04	7-22	MN	P	7-22	1'	1514 N	P
	376	RAD	02	7-20	MN	Pipe boot	7-20		200'E mid panel	P
	384	RAD	02	7-22	MN	Pipe boot	7-21		260's mid panel	P
	Tie	RAD	02	7-23	MN	Cap	7-22	23'	1536'E - 1559'E	P
	Tie	RAD	02	7-23	MN	P	7-22		1559'E 1565'E EXTmid	P
	Tie	RAD	02	7-23	MN	P	7-22		1580'E EXTmid 1587'E	P
	Tie	RAD	02	7-23	MN	P	7-22		1602'E EXTmid 1609'E	P
	Tie	RAD	02	7-23	MN	P	7-22	1'	1625'E	P
	Tie	RAD	02	7-23	MN	CAP	7-22	15'-2'W	1693'E CAP 406/416	P
	Tie	RAD	02	7-23	MN	P	7-22	1'	1669'E	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
458	385	RAD	02	7-24	MN	P	7-24	1'	256'N	P
458	386	RAD	02	7-24	MN	P	7-24	1'	276'N	P
459	460	RAD	02	7-24	MN	P	7-24	1'	159'N	P
458	460	RAD	02	7-24	MN	P	7-24	1'	129'N	P
317	335	DP	04	7-24	MN	EXT P each End	7-24	22'	seam 317-335	P
458	316	DP	04	7-24	MN	EX 15'E	7-24	15'	458/316	P
459/460	461	RAD	02	7-24	MN	P E corner	7-24	1'	459/460 E corner	P
462	461	RAD	02	7-24	MN	P	7-24	3'	426/425	P
461	460	RAD	02	7-24	MN	P	7-24	3'	425/424	P
463	464	RAD	02	7-26	MN	P	7-26		53'N W corner	P
463	464	RAD	02	7-26	MN	P	7-26		54'N E corner	P
462	464	RAD	02	7-26	MN	P	7-26		17'N	P
464	465	RAD	02	7-26	MN	P	7-26		91'N	P
467	466	RAD	02	7-26	MN	P	7-26		110.N W corner	P
468	467	RAD	02	7-26	MN	P	7-26		113'N E corner	P
473	474	RAD	02	7-26	MN	P	7-26		57'N W corner	P
475	474	RAD	02	7-26	MN	P	7-26		222'N	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	Size	LOCATION OF REPAIR	VBOX PASS
475	474	RAD	02	7-26	MN	P	7-26	1	204'N	P
475	474	RAD	02	7-26	MN	P	7-26		60'N E corner	P
476	475	RAD	02	7-26	MN	P	7-26		134'N W corner	P
478	476	RAD	02	7-26	MN	P	7-26		138'N 478 476 E corner	P
88/90	479	DP	17	7-26	MN	P	7-26		88/90 479	P
90	479	DP	17	7-26	MN	P	7-26		P 90/479	P
90/92	481	DP	17	7-26	MN	P	7-26		P 481 90/92	P
131/133	481	BU	4	7-26	MN	P	7-26		131/133	P
94/117	481	BU	4	7-26	MN	P	7-26		94/117	P
117/119	481	BU	4	7-26	MN	P	7-26		117/119	P
119/121	481	BU	4	7-26	MN	P	7-26		119/121	P
121/	481	BU	4	7-26	MN	P	7-26		121/481	P
123/125	481	BU	4	7-26	MN	P	7-26		123/125	P
125/127	481	BU	4	7-26	MN	P	7-26		125/127	P
127/129	481	BU	4	7-26	MN	P	7-26		127/129	P
129/131	481	BU	4	7-26	MN	P	7-26		129/131	P
482	484	RAD	02	7-27	MN	P	7-27	1'	61'N W corner	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DTT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
484	485	RAO	02	7-27	MN	P	7-27	1'	79'N E corner	P
316	482	RAO	02	7-27	MN	P	7-27	1'	250'N	P
316	482	RAO	02	7-27	MN	P	7-27	1'	257'N	P
485	487	RAO	02	7-27	MN	P	7-27	1'	34'N W corner but	P
487	488	RAO	02	7-27	MN	P	7-27	1'	40'N E corner but	P
488	490	RAO	02	7-27	MN	P	7-27	1'	121'N W corner but	P
490	491	RAO	02	7-27	MN	P	7-27	1'	129'N E corner but	P
459/461	483	RAO	02	7-27	MN	P	7-27	1'	459/461 seam P 483	P
461	485	RAO	02	7-27	MN	P	7-27	1'	P 461/485 but	P
461/462	485	RAO	02	7-27	MN	P	7-27	1'	461/462 seam P 485 but	P
462/463	485	RAO	02	7-27	MN	P	7-27	1'	462/463 seam P 485 but	P
485	486	RAO	02	7-27	MN	P	7-27	1'	485/486 but	P
316	458	RAO	02	7-27	MN	Cap	7-27	10'	316/458 but	P
463	488	RAO	02	7-27	MN	P	7-27	1'	463/488 but	P
465	489	RAO	02	7-27	MN	P	7-27	1'	465/489 but	P
468	489	RAO	02	7-27	MN	P	7-27	1'	468/489 but	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dll)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
494	495	AOR	02	7-29	MN	P	7-29	1'	270'N	P
495	497	AOR	02	7-29	MN	P	7-29	1'	78'N	P
~~495~~	497	AOR	02	7-29	MN	P	7-29	1'	75'N 1' in East	P
497	498	AOR	02	7-29	MN	P	7-29	1'	72'N	P
498	500	AOR	02	7-29	MN	P	7-29	5'	154'N	P
500	501	AOR	02	7-29	MN	P	7-29	1'	147'N	P
	501/470	AOR	02	7-29	MN	P	7-29	1'	20'N in 5' East	P
492/494	-	AOR	02	7-29	MN	P	7-29	1'	T Beam	P
502	504	AOR	02	7-29	MN	P	7-29	1'	90'N	P
502	506	AOR	02	7-29	MN	P	7-29	1'	84'N	P
470/471	492	AOR	02	7-29	MN	P	7-29	1'	but seam T	P
492/494	471	AOR	02	7-29	MN	P	7-29	1'	but seam T	P
471	492	AOR	02	7-29	MN	Ext	7-29	6'	Seam Ex 471/492	P
494/495	471	AOR	02	7-29	MN	P	7-29	1'	but seam T	P
471	495	AOR	02	7-29	MN	Ext	7-29	3'	but seam T	P
471/472	495	AOR	02	7-29	MN	P	7-29	1'	but seam T	P
473	495	AOR		7-29	MN	Cap	7-29	8'	but seam	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
475	496	RAD	02	7-29	MN	Pap	7-29	5'	butt seam	P
475	499	RAD	02	7-29	MN	Pap	7-29	5'	butt seam	P
476/478	499	RAD	02	7-29	MN	P	7-29	1'	butt T	P
499/501	478	RAD	02	7-29	MN	P	7-29	1'	butt T	P
499	478	RAD	02	7-29	MN	Ext	7-29	4'	butt seam	P
478	502	RAD	02	7-29	MN	cap	7-29	8'	butt seam	P
480/481	502	RAD	02	7-29	MN	P	7-29	1'	butt T	P
502	481	RAD	02	7-29	MN	Ext	7-29	4'	butt seam	P
502/503	481	RAD	02	7-29	MN	P	7-29	1'	butt T	P
481/133	503/505	RAD	02	7-29	MN	P	7-29	6'	corner butt seams	P
135/137	505	RAD	02	7-29	MN	P	7-29	1'	butt T	P
137/139	506	RAD	02	7-29	MN	P	7-29	1'	butt T	P
503/505	506	RAD	02	7-29	MN	P	7-31	1'	butt T	P
139/141	506	RAD	02	7-29	MN	P	7-31	1'	butt T	P
141/143	506	RAD	02	7-29	MN	P	7-31	1'	butt T	P
143	506	RAD	02	7-29	MN	P	7-31	1'	18'S	P
141	143	RAD	02	7-29	MN	EXT	7-31	5'	5'E	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
143/144	506	RAO	02	7-31	MN	P	7-31	5'	T but onto P506	P
144	506	RAO	02	7-31	MN	Ex	7-31	12'	but 144/506	P
506	503	RAO	02	7-31	MN	P	7-31	1'	but 506/503 seam	P
144	503	RAO	02	7-31	MN	Ex	7-31	10'	but 144/503	P
144/146	503	RAO	02	7-31	MN	P	7-31	5'	but T going East	P
146/148	503	RAO	02	7-31	MN	P	7-31	1'	but T	P
148/177	503	RAO	02	7-31	MN	P	7-31	1'	but T	P
177/179	503	RAO	02	7-31	MN	P	7-31	1'	but T	P
179/181	503/504	RAO	02	7-31	MN	P	7-31	5'	corner but	P
181/183	504	RAO	02	7-31	MN	P	7-31	1'	but T	P
183/185	504	RAO	02	7-31	MN	P	7-31	1'	but T	P
185/187	504	RAO	02	7-31	MN	P	7-31	1'	but T	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
263	507	RAG	02	7-31	MN	P	7-31	1'	176'N	
263/316	507	RAD	02	7-31	MN	P	7-31	1'	224'N	
263	507	RAD	62	7-31	MN	P EXT	7-31	1'	214'N EXT 10'N	
316	507	RAD	02	7-31	MN	P	7-31	1'	306'N	
316	507	KS	17	7-31	MN	Cap	7-31	7'6-2W	428'N west into P316	
507	509	RAD	02	7-31	MN	P	7-31	1'	225'N	
509	511	RAD	02	7-31	MN	P	7-31	1'	295'N	
508/509	510	KS	17	7-31	MN	P	7-31	1'	82'N	
510/511	512	RAD	02	7-31	MN	P	7-31	1'	101'W	
513	515	KS	17	7-31	MN	Cap	7-31	5'	112'N	
513	515	KS	17	7-31	MN	P	7-31	1'	185'W	
512/513	514	RAD	02	7-31	MN	P	7-31	1'	70'N	
515	517	KS	17	7-31	MN	P	7-31	1'	54'N	
514/515	516	KS	17	7-31	MN	P	7-31	1'	68'N	
516/517	518	KS	17	7-31	MN	P	7-31	1'	58'N	
519	521	KS	17	7-31	MN	P	7-31	1'	371'N	
521	523	KS	17	7-31	MN	P	7-31	1'	298'N	

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
522/523	524	KS	17	7-31	MN	P	7-31	1'	77'N	P
520/521	522 525	RAO	02	7-31	MN	P	7-31	1'	73'N	P
523		KS	17	7-31	MN	P	7-31	1'	224'N	P
524/525	526	RAO	02	7-31	MN	P	7-31	1'	64'N	P
525	527	RAO	02	7-31	MN	P	7-31	1'	160'N	P
526/527	528	RAO	02	7-31	MN	P	7-31	1'	62'N	P
527	529	RAO	02	7-31	MN	P	7-31	1'	80'N	P
482/507	316	KS	17	7-31	MN	P	7-31	10'	but T	P
982/507	508	RAO	02	7-31	MN	P	7-31	1'	but T	P
482	507	RAO	02	7-31	MN	EXT	7-31	20	seam EXT	P
482	508	RAO	02	7-31	MN	EXT	7-31	10'	seam EXT	P
484	508	RAO	02	7-31	MN	EXT	7-31	20'	seam EXT	P
485	508	RAO	02	7-31	MN	P	7-31	10'		P
510/512	485	RAO	02	7-31	MN	P	7-31	1'	but T	P
485	512	RAO	02	7-31	MN	EXT	7-31	5'	seam EXT	P
485/487	512	RAO	02	7-31	MN	P	7-31	1'	but T	P
512	488	RAO	02	7-31	MN	P	7-31	5'	but	P

GSI

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	Size	LOCATION OF REPAIR	V BOX PASS
	488/516	RAO	02	7-31	55	P	7-31	5'		P
	491/516	RAO	02	7-31		P	7-31	5'		P
	491/518	RAO	02	7-31		P	7-31	5'	20' EST EXT 1'	P
	491/493 518/519	RAO	02	7-31		P	7-31	3'		P
	493/494 519/520	RAO	02	7-31		P	7-31	3'		P
	494/495 520/522	RAO	02	7-31		P	7-31	3'		P
	495/497 523/524	KS	17	7-31		P	7-31	5'		P
	497/498 524	KS	17	7-31		P	7-31	5'		P
	498/500 526/528	KS	17	7-31		P	7-31	5'		P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
529	531	RAO	02	8-2	MN	P	8-2	1'	39'N	P
531	532	RAO	02	8-2	MN	P	8-2	1'	40'N	P
532	534	RAO	02	8-2	MN	P	8-2	1'	211'N	P
534	541	RAO	02	8-2	MN	P	8-2	1'	34'N	P
538	539	RAO	02	8-4	MN	EXT	8-4	6'	but seam 538/539	P
535/536	538	RAO	02	8-2	MN	P	8-2	1'	but T	P
538E/W	537 E/W	RAO	02	8-3	MN	P	8-3	1'	but 535-537	P
500/501	528/530	RAO	02	8-2	MN	P	8-2	5'	4 corner but	P
501/502	530/532	RAO	02	8-2	MN	P	8-2	5'	4 corner but	P
504	532	RAO	02	8-2	MN	P	8-2	5'	T but	P
504/187	533/189	RAO	02	8-2	MN	P	8-2	5'	corner 4 but	P
189/190	533	RAO	02	8-2	MN	P	8-2	1	but T	P
190/193	533	RAO	02	8-2	MN	P	8-2	1'	but T	P
193/195	533	RAO	02	8-2	MN	P	8-2	1'	but T	P
195/197	533	RAO	02	8-2	MN	P	8-2	1'	but T	P
197/199	533	RAO	02	8-2	MN	P	8-2	1'	but T	P
199/533	532	RAO	02	8-2	MN	P	8-2	1'	but T	P

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, Dil)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
257	542	RAD	02	8-3	MN	P Extrusion	8-3	1'	6'N EXTrusion	P
257/263	537	KS	17	8-3	MN	Cap	8-3	10'	Toe T	P
257	537	KS	17	8-3	MN	Ex	8-3	4'	Toe	P
257 542	537	KS	17	8-3	MN	P	8-3	1	Toe T	P
542 543	537	RAD	02	8-3	MN	P	8 3	1	Toe T	P
543 544	537	RAD	02	8-3	MN	P	8 3	1	T toe	P
544 545	537	RAD	02	8-3	MN	P	8-3	1	T toe	P
545/546	537	RAD	02	8-3	MN	P	8-3	1	T Toe	P
546/547	537	RAD	02	8-3	MN	P	8-3	1	T Toe	P
547/548	537	RAD	02	8-3	MN	P	8-3	1	T toe	P
548/549	537	RAD	02	8-3	MN	P	8-3	1	T Toe	P
549	537	RAD	02	8-3	MN	EXT	8-3	4	Toe	P
550 549	537	RAD	02	8-3	MN	P	8-3	1	T Toe	P
550 551	537	RAD	02	8-3	MN	P	8-3	1	Toe T	P
551 552	537	RAD	02	8-3	MN	P	8-3	1	Toe T	P
552 553	537	RAD	02	8-4	MN	P	8-4	1	Toe T	P
553/554	537	RAD	02	8-4	MN	P	8-4	1	Toe T	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:

JOB NUMBER:

MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
537/539	535/263	KS	17	8-3	MN	P	8-3	1'	but T	P
263/507	535	KS	17	8-3	MN	P	8-3	1'	but T	P
507/509	535	KS	17	8-3	MN	P	8-3	1'	but T	P
509/511	535	KS	17	8-3	MN	P	8-3	1'	but T	P
511/513	535	KS	17	8-3	MN	P	8-3	1'	but T	P
513/515	535	KS	17	8-3	MN	P	8-3	1'	but T	P
515/517	535	RAD	02	8-3	MN	P	8-3	1'	but T	P
517/518	535	RAD	02	8-3	MN	P	8-3	1'	but T	P
518/519	535	RAD	02	8-3	MN	P	8-3	1'	but T	P
535/536	519	RAD	02	8-3	MN	P	8-3	1'	but T	P
519	536	RAD	02	8-3	MN	EXT	8-3	5'	but 519/536	P
519/521	536	RAD	02	8-3	MN	P	8-3	1'	but T	P
521/523	536	RAD	02	8-3	MN	P	8-3	1'	but T	P
523/525	536	RAD	02	8-3	MN	P	8-3	1'	but T	P
525/527	536	RAD	02	8-3	MN	P	8-3	1'	but T	P
527/529	536	RAD	02	8-3	MN	P	8-3	1'	but T	P
529/531	536	RAD	02	8-3	MN	P	8-3	1'	but T	P

GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
553	554	RAD	02	8-4	MN	EXT	8-4	25'	75'N - 100'N	P
554	537	RAD	02	8-4	MN	P	8:4	1'	15'E	P
554	655	RAD	02	8-4	MN	P	T-4	1'	5'N Ext wt	P
553	554	RAD	02	8-4	MN	P	8-4	1'	5'N Ext wt	P
556	557	RAD	02	8-4	MN	P	8-4		6'N Ext wt	P
557	558	RAD	02	8-4	MN	P	8-4	[redacted]	6'N Ext wt	P
558	250	RAD	02	8-4	MN	P	8-4	CL 4' wt	6'N	P
557	558	RAD	02	8-4	MN	P	8-4	1	85'N	P
557	558	RAD	02	8-4	MN	P	8-4	1	41'N	T
557	558	RAD	02	8-4	MN	EXT	8-4	20'	41'N - 61'N	P
557	558	RAD	02	8-4	MN	P	8-4	1	61'N	P
557	558	RAD	02	8-4	MN	P	8-4	5	85'W	P
557	558	RAD	02	8-4	MN	P	8-4	6	114 - 120'N	P
558	250	RAD	02	8-4	MN	P	84	1	104'W	P
250	558	KS	17	8-4	MN	EX	8-4	6'	104'N - 110'N	T
253 256	558	KS	17	8-4	MN	P	8-4	1	wt T	P
256 250	558	KS	17	8-4	MN	P	8-4	5'	T wt	P

GSI

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
263 341	558	K5	17	8-4	MW	P	8-4	1'	butt T	P
534 341	558	K5	17	8-4	MW	P	84	1'	butt T	P
388 557	534	RAO	02	8-4	MW	P	8-4	1'	butt T	P
531 538	536	RAO	02	8-4	MW	P	8-4	1'	butt T	P
532 554	536/537	RAO	02	8-4	MW	P	8-4	2'	corner	P
557 559	536	RAO	02	8-4	MW	P	8-4	1'	butt T	P
538 536	559	RAO	02	8-4	MW	P	8-4	1'	butt T	P
537 559	538	RAO	02	8-4	MW	P	8-4	1'	butt T	P
537 [redacted]	559	RAO	02	8-4	MW	EXT	8-4	5'	butt	P
537 559	557	RAO	02	8-4	MW	P	8-4	1'	butt T	P
556 557	537	RAO	02	8-4	MW	P	8-4	1'	butt T	P
555 556	537	RAO	02	8-4	MW	P	8-4	1'	butt T	P
	556	RAO	02	8-4	MW	P	8-4	1'	52'N 3' in	P
	556	RAO	02	8-4	MW	P	8-4	1'	60'N 3' in	P
	556	RAO	02	8-4	MW	P	8-4	1'	68'N 3' in	P
	556	RAO	02	8-4	MW	P	8-4	1'	76'N 3' in	P
	556	RAO	02	8-4	MW	P	8-4	1'	83'N 3' in	P
	556	RAO	02	8-4	MW	P	8-4	1'	91'N 3' in	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
199/201	532	RAD	02	8-2	MN	P	8-2		but T	P
201/203	532	RAD	02	8-2	MN	P	8-2		but T	P
203/205	532	RAD	02	8-2	MN	P	8-2		but T	P
205/207	532	RAD	02	8-2	MN	P	8-2		but T	P
207/208	532	RAD	02	8-2	MN	P	8-2		but T	P
208/210	534	RAD	02	8-2	MN	P	8-2		but T	P
210	534	RAD	02	8-2	MN	EXT	8-2	22	but 210/534	P
210/212	534	RAD	02	8-2	MN	P	8-2		but T	P
212/214	534	RAD	02	8-2	MN	P	8-2		but T	P
214/216	534	RAD	02	8-2	MN	P	8-2		but T	P
216/218	540/534	RAD	02	8-2	MN	P	8-2	5'	corner but	P
218/220	540	RAD	02	8-2	MN	P	8-2		but T	P
220	540	RAD	02	8-2	MN	P	8-2		but T	P
220	540	RAD	02	8-2	MN	P	8-2		but T	P
220	534	RAD	02	8-2	MN	P	8-2		but T	P
220/222	534	RAD	02	8-2	MN	P	8-2		but T	P
222/251	534	KS	17	8-2	MN	P	8-2		but T	P
205/252	541	KS	17	8-2	MN	P	8-2		but T	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	V BOX PASS
312	322	RAO	02	7-12	MN	EXT	7-12	22	312/322 Seat	P
323	325	RAO	02	7-14	MN	EXT	7-14	208'	All seam DT 120-121	P
324	325	RAO	02	7-14	MN	EXT	7-14	22	Seat "	P
323	329	RAO	02	7-14	MN	EXT	7-14	22	Seat "	P
309	326	RAO	02	7-14	MN	EXT	7-14	22	Seat "	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
261	262	RAO	02	7-2	MN	DT 100	7-2	5'	261-262	P
264	265	RAO	02	7-2	MN	DT 101	7-2	5'	264-265	P
265	266	RAO	02	7-8	MN	DT 102 Fail	7-8	5'	265-266	P
265	266	RAO	02	7-8	MN	DT 102A	7-8	5'	265-266 10'A 102	P
265	266	RAO	02	7-8	MN	DT 102 B.	7-8	5'	265-266 10' B 102	P
270	271	RAO	02	7-8	MN	DT 103	7-8	5'	270 271	P
278	279	RAO	02	7-8	MN	DT 104	7-8	5'	278-279	P
274	275	RAO	02	7-8	MN	DT 105 fail	7-8	5'	45'N corner seam	P
274	276	RAO	02	7-8	MN	DT 105A	7-8	5'	35'N corner seam	P
274	276	RAO	02	7-8	MN	DT 105B	7-8	5'	@ 55'N	P
283	284	RAO	02	7-8	MN	DT 106	7-8	5'	88'E	P
285	286	RAO	02	7-8	MN	DT 107	7-8	5'	106 E	P
290	291	RAO	02	7-8	MN	DT 108	7-8	5'	75'E	P
266	293	RAO	02	7-9	MN	DT 109	7-9	5'	132'N	P
295	296	RAO	02	7-9	MN	DT 110	7-8	5'	75'N	P
297	298	RAO	02	7-9	MN	DT 111	7-9	5'	42 N	P
298	Cap	RAO	02	7-9	MN	DT 112	7-9	5'	Tie in seam 243'W	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
299	300	RAD	02	7-9	MN	DT113	7-9	5'	105'E	P
302	303	RAD	02	7-10	MN	DT 114	7-10	5'	45'E	P
311	312	RAD	02	7-10	MN	DT 115	7-10	5'	25'N	P
265	311	RAD	02	7-10	MN	DT 116	7-10	5'	11' Extrusion	P
316	317	RAD	02	7-10	MN	DT 117	7-10	5'	340'W	P
318	320	RAD	02	7-12	MN	DT 118	7-12	5'	81'N	P
320	322	RAD	02	7-12	MN	DT119	7-12	5'	247'W	P
323	325	RAD	02	7-12	MN	DT 120 fail	7-12	5'	334'W	P
323	325	RAD	02	7-12	MN	DT120A Fail	7-12	5'	344'N	P
323	325	RAD	02	7-12	MN	DT 120 A1 fail	7-12	5'	314'W	P
323	325	RAD	02	7-12	MN	DT 120 A2 fail	7-12	5'	27'S	P
323	325	RAD	02	7-12	MN	DT 120 A3 Fail	7-12	5'	225'W	P
323	325	RAD	02	7-12	MN	DT 120 A4 fail	7-12	5'	235N	P
309	326	RAD	02	7-12	MN	DT120 A5 fail	7-12	5'	8'W	P
327	328	RAD	02	7-12	MN	DT 120 A6 pass	7-12	5'	215'W	P
324	326	RAD	02	7-12	MN	DT 121 fail	7-12	5'	40'N	P
327	328	RAD	02	7-12	MN	DT 121 A1 fail	7-12	5'	20'S	P
32'	326	RAD	02	7-12	MN	121B	7-12	5'	50'N	P
324	326	RAD	02	7-12	MN	121A	7-12	5'	20'N	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT.	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
327	328	RAD	02	7-12	MN	DT 121 A2	7-12	5'	175' N	P
323	325	RAD	02	7-12	MN	DT 120 B	7-12	5'	324' N	P
322	325	RAD	07	7-12	MN	DT 120B1	7-12	5'	10' W	P
328	330	RAD	02	7-14	MN	DT 122	7-14	5'	155' N	P
330	331	RAD	02	7-14	MN	DT 123	7-14	5'	35' W	P
334	335	RAD	02	7-14	MN	DT 124	7-14	5'	93' N	P
337	338	RAD	02	7-14	MN	DT 125	7-14	5'	77' E	P
341	342	RAD	02	7-14	MN	DT 126	7-14	5'	66' E	P
345	346	RAD	02	7-14	MN	DT 127	7-14	5'	44' E	P
351	352	RAD	02	7-15	MN	DT 128	7-15	5'	88' E	P
354	355	RAD	02	7-15	MN	DT 129	7-15	5'	103' E	P
359	360	RAD	02	7-15	MN	DT 130	7-15	5'	29' E	P
364	365	RAD	02	7-15	MN	DT 131	7-15	5'	91' E	P
366	367	RAD	02	7-16	MN	DT 132 fail	716	5'	469' N	P
368	327	RAD	02	7-16	MN	DT 132 A	7-16	5'	175' N	P
327	366	RAD	02	7-16	MN	DT 132 B	7-16	5'	437' N	P
326	366	RAD	02	7-16	MN	DT 133	7-16	5'	320' N	P

GSI
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
367	Cap	RAD	02	7-16	MN	DT 134	7-16	5'	768' N Ie	P
361	369	RAD	02	7-16	MN	DT 135	716	5'	1398' N Ie	P
348	349	RAD	02	7-17	MN	DT 136	7-17	5'	70' E	P
376	377	RAD	02	7-17	MN	DT 137	7-17	5'	25' N	P
370	372	RAD	02	7-17	MN	DT 138	7-17	5'	45' S	P
370	372	RAD	02	7-17	MN	DT 138 A	7-17	5'	25' S	P
370	372	RAD	02	7-17	MN	DT 138 B	7-17	5'	57' S	P
370	372	RAD	02	7-17	MN	DT 138 B1	7-17	5'	72' S	P
383	384	RAD	02	7-19	MN	DT 139	7-19	5'	142' E	P
371	379	RAD	02	7-19	MN	DT 140	7-19	5'	87' SE	P
328	385	RAD	02	7-19	MN	DT 141	7-19	5'	72' E	P
388	389	RAD	02	7-19	MN	DT 142	7-19	5'	55' E	P
390	391	RAD	02	7-20	MN	DT 143	7-20	5'	80' SE	P
393	391	RAD	02	7-20	MN	DT 144	7-20	5'	31' SE	P
396	397	RAD	02	7-20	MN	DT 145	7-20	5'	115 S	P
378	379	RAD	02	7-20	MN	DT 146	7-20	5'	145 S	P
407	408	RAD	02	7-21	MN	DT 147	7-21	5'	128 W	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
399	400	RAO	02	7-21	MN	DT 148	7-21	5'	26' SE	P
402	403	RAO	02	7-21	MN	DT 149	7-21	5'	182' S	P
404	405	RAO	02	7-21	MN	DT 150	7-21	5'	55' SE	P
416	417	RAO	02	7-22	MN	DT 151	7-22	5'	170' S	P
420	421	RAO	02	7-22	MN	DT 152	7-22	5'	135' S	P
423	422	RAO	02	7-22	MN	DT 153	7-22	5'	56' S	P
428	429	RAO	02	7-22	MN	DT 154 fail	7-22	5'	7' E	P
426	427	RAO	02	7-22	MN	DT 154 B	7-22	5'	10' N	P
427	428	RAO	02	7-22	MN	DT 154 A	7-22	5'	104' N	P
428	430	RAO	02	7-22	MN	DT 155	7-22	5'	117' N	P
434	435	RAO	02	7-23	MN	DT 156	7-23	5'	53' SE	P
420	470	RAO	02	7-23	MN	DT 157	7-23	5'	1724 E Tie	P
437	444	RAO	02	7-23	MN	DT 158	7-23	5'	19' N	P
445	446	RAO	02	7-23	MN	DT 159	7-23	5'	260' N	P
449	451	RAO	02	7-23	MN	DT 160	7-23	5'	61' N	P
450	452	RAO	02	7-23	MN	DT 161	7-23	5'	26' W	P
454	453	RAO	02	7-23	MN	DT 162	7-23	5'	243' W	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
454	455	RAO	02	7-23	MN	DT 163	7-23	5'	70' N	P
458	460	RAO	02	7-24	MN	DT 164 fail	7-24	5'	95' N	P
458	460	RAO	02	7-24	MN	DT 164 A	7-24		105' N	P
458	460	RAO	02	7-24	MN	DT 164 B	7-24		85' N	P
461	462	RAO	02	7-26	MN	DT 165	7-26		33' N	P
464	465	RAO	02	7-26	MN	DT 166	7-26		261' N	P
465	467	RAO	02	7-26	MN	DT 167	7-26		30' N	P
468	470	RAO	02	7-26	MN	DT 168	7-26		115' N	P
470	471	RAO	02	7-26	MN	DT 169	7-26		65' N	P
472	474	RAO	02	7-26	MN	DT 170	7-26		183' N	P
476	477	RAO	02	7-26	MN	DT 171	7-26		11' E	P
478	480	RAO	02	7-26	MN	DT 172	7-26		24' N	P
480	481	RAO	02	7-26	MN	DT 173	7-26		188' N	P
450	patch	RAO	02	7-26	MN	DT 174 fail	7-26		5' N	P
475	patch	RAO	02	7-26	MN	174 B	7-26		patch	P
470	patch	RAO	02	7-26	MN	174A fail	7-26		patch	P
454	patch	RAO	02	7-26	MN	174 A 1	7-26	5'	patch	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME:	JOB NUMBER:	MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	S13E	LOCATION OF REPAIR	V BOX PASS
482	484	RAO	02	7-27	MN	DT 175	7-27	5'	17'N	P
316	482	RAO	02	7-27	MN	DT 176	7-27	5'	272'N	P
485	462	RAO	02	7-27	MN	DT 177	7-27	5'	11'E	P
488	489	RAO	02	7-27	MN	DT 178	7-27	5'	63'N	P
490	491	RAO	02	7-27	MN	DT 179.	7-27	5'	70'W	P
491	492	RAO	02	7-28	MN	DT 180	7-28	5'	225'W	P
494	495	RAO	02	7-28	MN	DT 181	7-28	5'	40'W	P
496	498	RAO	02	7-28	MN	DT 182	7-28	5'	180'W	P
475	498	RAO	02	7-28	MN	DT 183	7-28	5'	11'E extrusion	P
473	496	RAO	02	7-28	MN	DT 183A	7-28	5'	4'W	P
478	495	RAO	02	7-28	MN	DT 183A1	7-28	5'	11'W	P
474	494	RAO	02	7-28	MN	DT 183A2	7-28	5'	5'W	P
476	499	RAO	02	7-28	MN	DT 183B	7-28	5'	5'E	P
499	501	RAO	02	7-38	MN	DT 184	7-38	5'	260N	P
502	504	RAO	02	7-38	MN	DT 185	7-38	5'	40'N	P
503	137	RAO	02	7-38	MN	DT 186	7-38	5'	115'W	P
316	507	RAO	02	7-38	MN	DT 187	7-38	5'	204'S	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
507	509	RAO	02	7-31	MN	DT 188	7-31	5'	110 S	P
509	511	RAO	02	7-31	MN	DT 189	7-31	5'	32 N	P
507	patch	RAO	02	7-31	MN	DT 190	7-31	5'	3 S	P
515	516	RAO	02	7-31	MN	DT 191	7-31	5'	72 'N	P
516	518	RAO	02	7-31	MN	DT 192	7-31	5'	307 N	P
518	519	RAO	02	7-31	MN	DT 193	7-31	5'	64 'N	P
519	521	RAO	02	7-31	MN	DT 194	7-31	5'	94 'S	P
521	523	RAO	02	8-2	MN	195	8-2	5'	153 'W	P
522	524	RAO	02	8-2	MN	196	8-2	5'	94 'S	P
526	527	RAO	02	8-2	MN	197	8-2	5'	11 'W	P
498	526	RAO	02	8-2	MN	198	8-2	5'	11 'W	P
527	528	RAO	02	8-2	MN	199	8-2	5'	110 'N	P
528	530	RAO	02	8-2	MN	200	8-2	5'	290 N	P
532	533	RAO	02	8-2	MN	201	8-2	5'	95 'N	P
532	534	RAO	02	8-2	MN	202	8-2	5'	115 'N	P
222	534	RAO	02	8-2	MN	203	8-2	5'	15' S of Ex seam	P
535	536	RAO	12	8-3	MN	204	8-3	5'	14' S of Ex seam	P

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GEOMEMBRANE REPAIR REPORT

PROJECT NAME: | JOB NUMBER: | MAT'L TYPE:

FIELD SEAM	PANEL NO	REPAIR CREW	MACH NO	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch Bead Ext Weld Cap Strip DT)	REPAIR DATE	SIZE	LOCATION OF REPAIR	VBOX PASS
537	539	RAO	02	8-3	MN	DT 205	8-3	5'	137'W	P
544	545	RAO	01	8-3	MN	DT 206	8-3	5'	38'N	P
549	550	RAO	02	8-4	MN	DT 207	8-4	5'	82'W	P
552	553	RAO	02	8-4	MN	DT 208	8-4	5'	37'W	P
250	538	RAO	02	8-4	MN	DT 209	8-4	5'	38'N	P

Laboratory Destructive Testing Summary and Reports

Laboratory Geomembrane Destructive Testing Summary

Sherco Pond 3N
Xcel Energy
Becker, Minnesota

						Lab									Field									Lab (avg)		Field (avg)		Spec		P/F		% difference(lab-field)	
			Seamer			Peel (PPI)				Shear (PPI)					Peel (PPI)					Shear (PPI)														
Date	Sample #	Seam #	I.D.	Tool	I.D.	Location																		Peel	Shear	Peel	Shear	Peel	Shear	Peel	Shear	Peel	Shear
5/28/2004	1	11/10	8411	9		35' S	128	132	121	124	114	162	164	162	125	120	124	133	120	141	142	160		123	165	123	150	91	120	P	P	0%	10%
							117	136	116	115	128	169	170		121	122	123	122	118	146	162													
5/28/2004	2	20/21	8411	9		44' S	138	145	126	139	130	172	154	160	131	126	115	121	119	150	146	146		133	164	123	148	91	120	P	P	9%	11%
							123	137	119	140	137	165	171		126	123	120	126	122	148	149													
5/28/2004	3	29/30	621	13		35' S	128	140	142	136	146	149	163	169	115	110	118	119	118	151	149	150		131	163	115	150	91	120	P	P	14%	9%
							119	126	119	129	121	172	162		113	115	111	116	114	150	148													
5/28/2004	4	32/35	621	13		11' S	122	131	124	132	134	152	151	152	120	120	116	116	114	144	148	146		126	152	116	142	91	120	P	P	9%	7%
							126	120	122	124	120	152	151		112	118	119	103	118	141	132													
6/2/2004	5	37/38	8411	3		11' S	106	136	113	127	124	144	144	142	119	118	111	120	107	133	132	134		120	144	112	136	91	120	P	P	7%	6%
							115	117	114	122	124	143	146		104	115	108	107	111	142	140													
6/2/2004	6	39/41	8411	3		75' E	115	113	114	113	120	145	142	139	107	112	103	101	112	144	146	144		112	142	106	143	91	120	P	P	5%	-1%
							105	115	108	110	107	139	145		111	104	100	109	104	146	135													
6/2/2004	7	14/36	621	3		294' E	118	131	132	122	126	146	149	146	120	136	123	132	136	146	149	146		130	149	133	149	91	120	P	P	-2%	0%
							140	125	134	137	136	150	152		144	135	134	139	134	150	152													
6/2/2004	8	41/43	8411	3		361' E	119	110	127	126	101	123	127	117	117	101	108	119	122	152	155	157		116	135	113	155	91	120	P	P	3%	-13%
							123	127	117	102	106	154	156		114	110	102	122	110	154	156													
6/10/2004	23	79/81	VP	9		500' E	109	105	117	114	110	144	144	141	103	122	121	118	101	185	175	175		112	141	112	176	91	120	P	P	-1%	-20%
							119	115	112	110	104	138	140		121	102	101	112	123	172	173													
6/14/2004	35	104/105	NS	9		67' W	97	120	123	122	99	157	164	150	126	128	120	113	102	151	153	156		110	154	118	153	91	120	P	P	-6%	1%
							105	111	115	108	102	148	151		120	122	115	117	115	151	153													
6/16/2004	43	124/125	DN	39		12' S	121	123	122	120	120	143	145	145	NOT RECORDED									111	144	NOT RECORDED		91	120	F	F	NA	NA
							114	87	102	102	99	148	138																					
6/19/2004	56	144/146	KC	9		20' E	120	126	94	119	99	158	157	158	101	117	99	131	116	166	173	161		118	158	113	169	91	120	P	P	5%	-7%
							119	131	125	124	125	159	159		132	99	115	119	97	173	173													
6/22/2004	66	180/183	DN	13		138' E	108	125	127	137	110	161	161	159	123	122	128	121	128	183	164	163		119	161	123	167	91	120	P	P	-3%	-3%
							114	127	108	116	122	161	163		128	127	106	136	111	163	160													
6/25/2004	78	201/203	DN	13		62' E	138	132	134	126	137	157	153	160	112	114	144	148	95	186	185	184		117	158	121	186	91	120	P	P	-3%	-15%
							110	98	101	96	100	161	157		117	117	115	109	140	186	190													
6/28/2004	85	213/214	DN	13		13' N	118	123	119	127	129	141	141	141	130	127	143	126	133	136	142	141		120	141	132	142	91	120	P	P	-9%	-1%
							120	120	114	119	113	141	139		138	137	125	129	127	144	146													
6/30/2004	95	240/241	KC	9		89' N	116	115	116	109	110	149	148	149	111	114	118	109	93	146	132	140		114	148	108	136	91	120	P	P	6%	9%
							119	114	117	118	103	148	144		91	112	102	109	118	131	131													
7/9/2004	105	274/277	DN	13		45' E	128	120	114	121	127	159	154	162	88	143	127	130	93	NOT RECORDED				115	158	123	N.R.	91	120	P	F	-6%	NA
							121	104	99	101	116	156	159		127	136	123	132	129															
7/10/2004	113	299/300	KC	9		105' E	128	106	108	119	109	165	168	169	134	122	127	117	106	162	158	159		119	168	117	160	91	120	P	P	2%	5%
							127	116	127	129	118	167	169		108	130	106	107	111	160	162													
7/14/2004	126	341/342	DN	13		66' E	121	128	131	117	125	165	165	157	126	119	114	109	116	152	145	150		121	161	115	148	91	120	P	P	5%	9%
							117	127	119	104	118	157	159		107	109	114	119	117	145	146													
7/15/2004	133	326/366	DN	13		320' N	115	103	129	121	126	124	130	149	114	124	98	106	110	161	161	161		114	139	111	160	91	120	P	P	3%	-13%
							117	102	120	104	107	141	152		114	125	106	111	101	162	156													
7/19/2004	142	388/389	KC	20		55' E	116	101	109	100	112	158	159	159	105	106	101	110	115	154	154	155		105	159	113	154	91	120	P	P	-7%	3%
							101	96	96	114	100	161	159		117	116	125	113	120	154	155													
7/22/2004	155	428/430	DN	23		127' N	108	108	144	96	100	165	159	156	124	141	115	134	134	162	162	159		113	160	129	161	91	120	P	P	-12%	-1%
							108	119	132	116	98	161	160		141	114	117	132	135	161	163													
7/26/2004	165	461/462	KC	13		33' N	108	119	96	109	118	156	156	157	110	126	114	107	95	169	170	174		109	156	105	171	91	120	P	P	3%	-8%
							108	100	113	110	104	158	155		99	102	96	106	99	172	168													
7/26/2004	173	480/481	MT	45		188' N	111	110	116	111	110	165	168	169	121	143	113	133	136	159	163	164		106	169	124	160	91	120	P	P	-14%	5%
							103	94	106	97	101	173	170		116	115	140	107	111	161	154													
7/31/2004	187	316/507	DN	20		204' S	114	119	98	99	101	149	154	152	109	111	116	103	107	146	146	148		103	151	109	147	91	120	P	P	-5%	3%
							108	111	89	96	94	149	150		104	111	108	107	110	147	148													
7/31/2004	193	518/519	KC	15		64' N	135	131	96	107	105	156	152	158	126	103	131	111	130	142	143	139		117	156	121	143	91	120	P	P	-4%	9%
							126	117	85	134	133	157	156		127	128	125	128	103	145	144													
8/4/2004	207	549/550	MT	15		82' N	107	123	113	104	100	171	175	175	125	137	134	132	126	192	185	190		110	174	122	190	91	120	P	P	-9%	-9%
							113	133	98	106	106	178	170		117	115	114	99	118	192	192													
																												AVG % DIFFERENCE*				**-1%**	**0%**

*Note: Field vs. Lab Testing Data % differences take into account positive and negative differences in each individual sample.

BRAUN INTERTEC

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

August 11, 2004

Project SC-04-03359

Mr. Isaac Fuhr
McCain and Associates, Inc.
434 2nd Street
Excelsior, MN 55331

Dear Mr. Fuhr:

Re: 60 mil HDPE Seam Testing, Excel Energy Sherco Pond 3N

This report summarizes testing performed on High Density Polyethylene (HDPE) liner from the above-referenced location. The purpose of our services was to test the seam samples for shear and peel strength.

Services Performed

Field Seams - Peel and Shear Testing. A total of 27 HDPE samples were tested for peel and shear strength according to the following American Society for Testing and Materials (ASTM) test methods.

- ASTM D 6392, "Standard Test Method for Determining the Integrity of Non-Reinforced Geomembranes Seams Produced Using Thermo-Fusion Methods."

Shear and peel tests were performed on one-inch wide samples. The shear tests were loaded at two inches per minute constant rate of extension. The peel tests were loaded at two inches per minute constant rate of extension. The results of the peel, shear and material tests are attached.

General

Services performed by Braun Intertec for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is made.

It has been a pleasure to provide these testing services. If you have any questions regarding the content of this report, or if we may be of further service, please call Simone Tschida at (952) 995-2000.

Sincerely,

BRAUN INTERTEC CORPORATION

Simone T. Tschida
Laboratory Technician

Attachments:
Field Seam Testing Data Sheets

rpt1

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Field Seam Testing Data Sheet

Date: August 11, 2004

Project: SC-04-03359

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Phone: (952) 470-5340
Fax: (952) 470-0728

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT1	1. 162	BRK	128	SE1	117	SE1	
P10/P11	2. 164	BRK	132	AD-BRK	136	SE1	
W#9	3. 162	BRK	121	SE1	116	SE1	
800/50 @ 35'S	4. 169	BRK	124	SE1	115	SE1	
5.28.04	5. 170	BRK	114	SE1	128	SE1	
	Avg. 165		Avg. 124		Avg. 122		
DT2	1. 172	BRK	138	SE1	123	SE1	
P20/P21	2. 154	BRK	145	SE1	137	SE1	
W#9	3. 160	BRK	126	SE1	119	SE1	
800/50 @ 44'S	4. 165	BRK	139	SE1	140	SE1	
5.28.04	5. 171	BRK	130	SE1	137	SE1	
	Avg. 164		Avg. 136		Avg. 131		
DT3	1. 149	BRK	128	SE1	119	SE1	
P29/P30	2. 163	BRK	140	SE1	126	SE1	
W#13	3. 169	BRK	142	SE1	119	SE1	
750/55 @ 35'SW	4. 172	BRK	136	SE1	129	SE1	
5.28.04	5. 162	BRK	146	SE1	121	SE1	
	Avg. 163		Avg. 138		Avg. 123		

FTB = Film Tear Bond

Break Codes for Dual Hot Weld Seams
AD = Adhesion Failure
BRK = Break in Sheeting
AD-BRK = Break in first seam after some adhesion failure
SE1 = Break in outer edge of seam
SE2 = Break in inner edge of seam through both sheets
SIP = Separation in the plan of the sheet

Break Codes for Fillet Extrusion Weld Seams
AD1 = Adhesion failure. Specimens may also delaminate under the bead and breakthrough thin extruded material in the outer area.
AD2 = Adhesion failure.
AD-WLD = Break through the fillet.
SE1 = Beak at seam edge in the bottom sheet (shear only).
SE2 = Break at seam edge in the top sheet (shear only).
SE3 = Break at seam edge in the bottom sheet (peel only).
BRK1 = Break in the bottom sheeting.
BRK1(B) = Break in the buffed area of the bottom sheet.
BRK2 = Break in the top sheeting.
BRK2(B) = Break in the buffed area of the top sheet.
AD-BRK = Break in the bottom sheeting after some adhesion failure between the fillet and the bottom sheet.
HT = Break at the edge of the hot tack.
SIP = Separation in the plane of the sheet.

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Field Seam Testing Data Sheet

Date: August 11, 2004

Project: SC-04-03359

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Phone: (952) 470-5340
Fax: (952) 470-0728

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT4	1. 152	BRK	122	SE1	126	SE1	
P32/P35	2. 151	BRK	131	SE1	120	SE1	
W#13	3. 152	BRK	124	SE1	122	SE1	
750/55 @ 18'SW	4. 152	BRK	132	SE1	124	SE1	
5.28.04	5. 151	BRK	134	SE1	120	AD-BRK	
	Avg. 152		Avg. 129		Avg. 122		
DT5	1. 144	BRK	106	SE1	115	SE1	
P37/P38	2. 144	BRK	136	SE1	117	SE1	
W#03	3. 142	BRK	113	SE1	114	SE1	
750/50 @ 11'S	4. 143	BRK	127	SE1	122	SE1	
6.2.04	5. 146	BRK	124	SE1	124	SE1	
	Avg. 144		Avg. 121		Avg. 118		
DT6	1. 145	BRK	115	SE1	105	SE1	
P39/P41	2. 142	BRK	113	SE1	115	SE1	
W#03	3. 139	BRK	114	SE1	108	SE1	
750/50 @ 75'E	4. 139	BRK	113	SE1	110	SE1	
6.2.04	5. 145	BRK	120	SE1	107	SE1	
	Avg. 142		Avg. 115		Avg. 109		
DT7	1. 145	BRK	118	SE1	140	SE1	
P14/P36	2. 151	BRK	131	SE1	125	SE1	
W#20	3. 147	BRK	132	SE1	134	SE1	
750/40 @ 294'E	4. 143	BRK	122	SE1	137	SE1	
6.2.04	5. 146	BRK	126	SE1	136	SE1	
	Avg. 146		Avg. 126		Avg. 134		
DT8	1. 130	BRK	119	SE1	123	SE1	
P41/P43	2. 142	BRK	110	SE1	127	SE1	
W#03	3. 140	BRK	127	SE1	117	SE1	
750/50 @ 361'E	4. 146	BRK	126	SE1	102	SE1	
6.2.04	5. 145	BRK	101	SE1	106	SE1	
	Avg. 141		Avg. 117		Avg. 115		

FTB = Film Tear Bond

Seamdata1

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Field Seam Testing Data Sheet

Date: August 11, 2004

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Phone: (952) 470-5340
Fax: (952) 470-0728

Project: SC-04-03359

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT23	1. 144	BRK	109	SE1	119	SE1	
P79/P81	2. 144	BRK	105	SE1	115	SE1	
W#9	3. 141	BRK	117	SE1	112	SE1	
750/55 VP @ 500'E	4. 138	BRK	114	SE1	110	SE1	
6.10.04	5. 140	BRK	110	SE1	104	SE1	
	Avg. 141		Avg. 111		Avg. 112		
DT35	1. 157	BRK	97	SE1	105	SE1	
P104/P105	2. 164	BRK	120	SE1	111	SE1	
W#9	3. 150	BRK	123	SE1	115	SE1	
750/55 NS @ 67'W	4. 148	BRK	122	SE1	108	SE1	
6.14.04	5. 151	BRK	99	SE1	102	SE1	
	Avg. 154		Avg. 113		Avg. 108		
DT43	1. 143	BRK	121	SE1	114	SE1	
P124/P125	2. 145	BRK	123	SE1	87	AD-BRK	
W#39	3. 145	BRK	122	SE1	102	SE1	
750/45 DN @ 12'S	4. 148	BRK	120	SE1	102	SE1	
6.16.04	5. 138	BRK	120	SE1	99	SE1	
	Avg. 144		Avg. 121		Avg. 101		
DT56	1. 158	BRK	120	SE1	119	SE1	
P144/P146	2. 157	BRK	126	SE1	131	SE1	
W#9	3. 158	BRK	94	SE1	125	SE1	
750/40 KC @ 20'E	4. 159	BRK	119	SE1	124	SE1	
6.19.04	5. 159	BRK	99	SE1	125	SE1	
	Avg. 158		Avg. 112		Avg. 125		
DT66	1. 161	BRK	108	SE1	114	SE1	
P180/P183	2. 161	BRK	125	SE1	127	SE1	
W#13	3. 159	SE1	127	SE1	108	SE1	
750/45 DN @138'E	4. 161	SE1	137	SE1	116	SE1	
6.22.04	5. 163	BRK	110	SE1	122	SE1	
	Avg. 161		Avg. 121		Avg. 117		

FTB = Film Tear Bond

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Field Seam Testing Data Sheet

Date: August 11, 2004

Project: SC-04-03359

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Phone: (952) 470-5340
Fax: (952) 470-0728

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT78	1. 157	BRK	138	SE1	110	SE1	
P201/P203	2. 153	BRK	132	SE1	98	SE1	
W#13	3. 160	BRK	134	SE1	101	SE1	
750/40 DN @ 62'E	4. 161	BRK	126	SE1	96	SE1	
6.25.04	5. 157	BRK	137	SE1	100	SE1	
	Avg. 158		Avg. 133		Avg. 101		
DT85	1. 141	BRK	118	SE1	120	SE1	
P213/P214	2. 141	BRK	123	SE1	120	SE1	
W#13	3. 141	BRK	119	SE1	114	SE1	
750/40 DN @ 13'N	4. 141	SE1	127	SE1	119	SE1	
6.28.04	5. 139	SE1	129	SE1	113	SE1	
	Avg. 141		Avg. 123		Avg. 117		
DT95	1. 149	BRK	116	SE1	119	SE1	
P240/P241	2. 148	SE1	115	AD-BRK	114	SE1	
W#9	3. 149	SE1	116	SE1	117	SE1	
750/40 KC @ 89'N	4. 148	SE1	109	AD-BRK	118	SE1	
6.30.04	5. 144	BRK	110	SE1	103	SE1	
	Avg. 148		Avg. 113		Avg. 114		
DT105	1. 159	SE1	128	SE1	121	SE1	
P274/P277	2. 154	BRK	120	SE1	104	SE1	
W#13	3. 162	BRK	114	SE1	99	SE1	
750/30 DN @ 45'E, 7.9.04	4. 156	SE1	121	SE1	101	SE1	
N Corner Seam	5. 159	SE1	127	SE1	116	SE1	
	Avg. 158		Avg. 122		Avg. 108		
DT113	1. 165	SE1	128	SE1	127	SE1	
P299/P300	2. 168	SE1	106	SE1	116	SE1	
W#9	3. 169	SE1	108	SE1	127	AD-BRK	
750/40 KC @105'E	4. 167	BRK	119	SE1	129	SE1	
7.10.04	5. 169	SE1	109	SE1	118	SE1	
	Avg. 168		Avg. 114		Avg. 123		

FTB = Film Tear Bond

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Field Seam Testing Data Sheet

Date: August 11, 2004

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Phone: (952) 470-5340
Fax: (952) 470-0728

Project: SC-04-03359

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT126	1. 165	SE1	121	SE1	117	SE1	
P341/P342	2. 165	SE1	128	SE1	127	SE1	
W#13	3. 157	BRK	131	SE1	119	SE1	
750/40 DN	4. 157	BRK	117	SE1	104	SE1	
7.14.04	5. 159	BRK	125	SE1	118	SE1	
	Avg. 161		Avg. 124		Avg. 117		
DT133	1. 124	SE1	115	SE1	117	SE1	
P326/366	2. 130	SE1	103	SE1	102	SE1	
W#13	3. 149	BRK	129	SE1	120	SE1	
750/40DN @320'	4. 141	SE1	121	SE1	104	SE1	
7.15.04	5. 152	BRK	126	SE1	107	SE1	
	Avg. 139		Avg. 119		Avg. 110		
DT142	1. 158	SE1	116	SE1	101	SE1	
P388/P389	2. 159	SE1	101	SE1	96	SE1	
W#20	3. 159	BRK	109	SE1	96	SE1	
750/40 KC@55'E	4. 161	BRK	100	SE1	114	SE1	
7.19.04	5. 159	BRK	112	SE1	100	SE1	
	Avg. 159		Avg. 108		Avg. 101		
DT155	1. 165	BRK	108	SE1	108	SE1	
P428/P430	2. 159	BRK	108	SE1	119	SE1	
W#23	3. 156	BRK	144	SE1	132	SE1	
750/40 DN @127'N	4. 161	BRK	96	SE1	116	SE1	
7.22.04	5. 160	BRK	100	SE1	98	SE1	
	Avg. 160		Avg. 111		Avg. 115		
DT165	1. 156	BRK	108	SE1	108	SE1	
P461/P462	2. 156	BRK	119	SE2	100	SE1	
W#13	3. 157	SE1	96	SE1	113	SE1	
750/40 KC @33'N	4. 158	SE1	109	SE1	110	SE1	
7.26.04	5. 155	SE1	118	SE1	104	SE1	
	Avg. 156		Avg. 110		Avg. 107		

FTB = Film Tear Bond

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Field Seam Testing Data Sheet

Date: August 11, 2004

Project: SC-04-03359

Client: Mr. Isaac Fuhr
McCain and Associates, Inc.

Project Description:
Peel & Shear 60 mil HDPE
Xcel Energy
Sherco Pond 3N

Phone: (952) 470-5340
Fax: (952) 470-0728

Sample ID	Shear, lbs.	Failure Type	Peel, lbs.	Failure Type	2nd Peel, lbs.	Failure Type	Comments
DT173	1. 165	BRK	111	SE1	103	SE1	
P480/P481	2. 168	BRK	110	SE1	94	SE1	
W#45	3. 169	BRK	116	SE1	106	SE1	
750/55 MT @188'N	4. 173	SE1	111	SE1	97	SE1	
7.26.04	5. 170	BRK	110	SE1	101	SE1	
	Avg. 169		Avg. 112		Avg. 100		
DT187	1. 149	SE1	114	SE1	108	SE1	
P316/P507	2. 154	SE1	119	SE1	111	SE1	
W#20	3. 152	BRK	98	SE1	89	SE1	
750/40 @204'S	4. 149	BRK	99	SE1	96	SE1	
7.31.04	5. 150	BRK	101	SE1	94	SE1	
	Avg. 151		Avg. 106		Avg. 100		
DT193	1. 156	BRK	135	SE1	126	SE1	
P518/P519	2. 152	SE1	131	SE1	117	SE1	
W#15	3. 158	BRK	96	SE1	85	SE1	
750/40 KC @64'N	4. 157	SE1	107	SE1	134	SE1	
7.31.04	5. 156	SE1	105	SE1	133	SE1	
	Avg. 156		Avg. 115		Avg. 119		
DT207	1. 171	BRK	107	SE1	113	SE1	
P549/P550	2. 175	BRK	123	SE1	133	AD-BRK	
W#15	3. 175	BRK	113	SE1	98	AD-BRK	
750/40 MT @ 82'N	4. 178	BRK	104	SE1	106	SE1	
8.4.04	5. 170	SE1	100	SE1	106	SE1	
	Avg. 174		Avg. 109		Avg. 111		
	1.						
	2.						
	3.						
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	Avg.		Avg.		Avg.		

FTB = Film Tear Bond

As-Built Panel Layout

GEOMEMBRANE PANEL AS-BUILT DRAWING
POND 3 NORTH SHERBURNE CO. GENERATING PLANT
BASE LINER AND UPSTREAM BARRIER CONSTRUCTION
NORTHERN STATES POWER CO. (NSP)

15+00 20+00 25+00 30+00 35+00 40+00 45+00 50+00 55+00 0+00/55+93 5+00 10+00

BL

5/28/04 6/3/04 6/8/04 6/10/04 6/12/04 6/14/04 6/16/04 6/17/04 6/18/04 6/19/04 6/21/04 6/23/04 6/24/04 6/29/04 6/30/04 7/1/04 7/2/04 7/6/04 7/7/04 7/8/04 7/10/04 7/12/04 7/13/04 7/14/04 7/15/04 7/16/04 7/19/04 7/20/04 7/21/04 7/23/04 7/24/04 7/26/04 7/27/04 7/28/04 7/31/04 8/3/04 8/4/04 9/10/04

DT-1 DT-2 DT-3 DT-4 DT-5 DT-6 DT-7 DT-8 DT-9 DT-10 DT-11 DT-12 DT-13 DT-14 DT-15 DT-16 DT-17 DT-18 DT-19 DT-20 DT-21 DT-22 DT-23 DT-24 DT-25 DT-26 DT-27 DT-28 DT-29 DT-30 DT-31 DT-32 DT-33 DT-34 DT-35 DT-36 DT-37 DT-38 DT-39 DT-40 DT-41 DT-42 DT-43 DT-44 DT-45 DT-46 DT-47 DT-48 DT-49 DT-50 DT-51 DT-52 DT-53 DT-54 DT-55 DT-56 DT-57 DT-58 DT-59 DT-60 DT-61 DT-62 DT-63 DT-64 DT-65 DT-66 DT-67 DT-68 DT-69 DT-70 DT-71 DT-72 DT-73 DT-74 DT-75 DT-76 DT-77 DT-78 DT-79 DT-80 DT-81 DT-82 DT-83 DT-84 DT-85 DT-86 DT-87 DT-88 DT-89 DT-90 DT-91 DT-92 DT-93 DT-94 DT-95 DT-96 DT-97 DT-98 DT-99 DT-99A DT-99B DT-100 DT-101 DT-102 DT-103 DT-104 DT-105 DT-106 DT-107 DT-108 DT-109 DT-110 DT-111 DT-112 DT-113 DT-114 DT-115 DT-116 DT-117 DT-118 DT-119 DT-120 DT-120-B1 DT-120-B2 DT-120A1 DT-120A2 DT-121 DT-121A1 DT-121A2 DT-122 DT-123 DT-124 DT-125 DT-126 DT-127 DT-128 DT-129 DT-130 DT-131 DT-132 DT-132A DT-132B DT-133 DT-134 DT-135 DT-136 DT-137 DT-138 DT-139 DT-140 DT-141 DT-142 DT-143 DT-144 DT-145 DT-146 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99A-1 99A DT-99 99B AB-1

QC. from GSI paper work received as of 7/21/04

N

0 50 100 150 200

SCALE: 1" = 50'

FIELD DRAFT

Warranty

GEO-SYNTHETICS, INC.

5 YEAR INSTALLATION WARRANTY FOR GEO-SYNTHETICS, INC. MEMBRANE LINERS

PROJECT: SHERBURNE COUNTY GENERATING PLANT
BECKER, MINNESOTA

Subject to the terms and conditions set forth below, Geo-Synthetics, Inc., warrants to Purchaser, XCEL ENERGY, the Solmax 60 mil smooth as well as textured liner installed at the Sherburne County Generating Plant in Becker, Minnesota, was installed by Geo-Synthetics, Inc., in accordance with specifications in a good and workmanlike manner and that the installation of the liner is free from defects in workmanship for a period of 5 years from the date upon which the material was installed.

This warranty covers only defects in workmanship occuring during the installation of the liner. This warranty does not cover any damage to, or defects in the liner found to have been a result of misuse, abuse or conditions existing after it was installed, including, but not limited to, rough handling; malicious mischief; vandalism; sabotage; fire; acts of God; acts of the public enemy; acts of war, public rebellion, severe weather conditions of all types; damage due to ice; excessive stress from any source; floating debris; damage due to machinery; foreign objects or animals. Nor does this warranty cover any defects which are found to have been a result of improper of defective design or engineering unless the design or engineering was performed by Geo-Synthetics, Inc.

In the event circumstances are found to exist which purchaser believes may give rise to a claim under this warranty, the following procedure shall be followed.

a) Purchaser shall give Geo-Synthetics, Inc. written notice of the facts and circumstances of said claim within ten (10) days of becoming aware of said facts and circumstances.

   Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Construction Manager, Geo-Synthetics, Inc., W239 N428 N. Pewaukee Road, Waukesha, WI 53188. The words "WARRANTY CLAIM" shall be clearly marked on the face of envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the name and address of the installer, the date upon which the material was purchased and the facts known to Purchaser upon which the claim is based. Failure to strictly comply with all the requirements of this paragraph shall void this warranty.

b) Within twenty days after receipt of the notice described in paragraph a., above, Geo-Synthetics, Inc. shall notify Purchaser either that it will send a representative to inspect the allegedly defective liner or that it does not wish to do so. Purchaser shall pay the expenses incurred by Geo-Synthetics, Inc. in

making the inspection, including current per diem rates for personnel involved in making the inspection, in the event Geo-Synthetics, Inc. determines that the claim is not covered by this warranty.

c) Purchaser SHALL NOT REPAIR, REPLACE, REMOVE, ALTER OR DISTURB ANY LINER, NOR SHALL Purchaser ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER PRIOR TO SUCH INSPECTION OR RECEIPT OF GEO-SYNTHETICS INC.'S NOTICE THAT IT ELECTS NOT TO INSPECT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THIS WARRANTY OR MAY LEAD TO A DETERMINATION THAT THE ALLEGED DEFECTS ARE NOT WITHIN THE SCOPE OF THIS WARRANTY.

d) If Geo-Synthetics, Inc. determines that the alleged defects are covered by this warranty, Geo-Synthetics, Inc. shall, in its sole discretion, either repair the defective liner or provide Purchaser with replacement liner. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY. Any determination as to whether a particular defect is covered by this warranty will be made by Geo-Synthetics, Inc. in its sole and complete discretion.

e) Purchaser agrees that it shall provide Geo-Synthetics, Inc. with clean, dry and unobstructed access to the liner in order for Geo-Synthetics, Inc. to perform the inspections and warranty work which may be required pursuant to this warranty.

THE REMEDIES PROVIDED TO Purchaser HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF Purchaser. NEITHER THIS WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE. GEO-SYNTHETICS, INC. SHALL HAVE NO LIABILITY UNDER THIS WARRANTY TO THIRD PARTIES OR STRANGERS TO THIS AGREEMENT. THE WARRANTY SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL GEO-SYNTHETICS, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, ANY LOSS RESULTING FROM THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN IT ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, Purchaser SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS
GEO-SYNTHETICS, INC. DETERMINES IN ITS SOLE DISCRETION, TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN. EXCEPT FOR THE WARRANTY SET FORTH ABOVE, NO REPRESENTATION OR WARRANTY MADE BY ANY SALES OR OTHER REPRESENTATIVE GEO-SYNTHETICS, INC., OR ANY OTHER PERSON, CONCERNING THE LINER SHALL BE BINDING UPON GEO-SYNTHETICS, INC.

Any waiver of the terms and conditions of this warranty shall be in writing signed by GEO-SYNTHETICS, INC. the failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions or this warranty and shall not operate as a waiver as to any of the terms and conditions of this warranty as to future claims under this warranty.

GEO-SYNTHETICS INC

BY: _____
Robert Gron / President

I have read and agree to be bound
by the terms and conditions of the
foregoing warranty.

By: _____

Title: _____

Company: _____

Date: _____

SOLMAX
INTERNATIONAL

2801 Marie-Victorin Blvd.
Varennes (Quebec) Canada.
J3X 1P7
Tel.: (450) 929-1234
Fax: (450) 929-1227

Varennes, September 9th, 2004

Geo-Synthetics, Inc.
W239 N428 Pewaukee Road
Waukesha WI 53188-2442

To the attention of Barb Heinz

Re : Manufacturing warranty / Excel Energy Shelburne County

Dear Barb:

Please find herein attached two (2) originals of our manufacturing warranty for the above-mentioned project.

We would ask you to have a duly authorized representative sign said warranties and return said originals to the undersigned at their earliest convenience for their proper execution by an authorized representative of Solmax. We will then send you back one (1) original duly executed and keep one (1) original for our file.

If not signed and returned to SOLMAX before December 9th, 2004, this warranty will not take effect and in such event the goods are sold "as is" and SOLMAX disclaims all express or implied warranties of the product in addition to its disclaimers set forth in the warranty.

We trust the foregoing is satisfactory and we await your response to our above-referenced requests on this matter.

Very truly yours,

S Hudon for

Pierre Rompré
Contract Administrator

Encl.

SOLMAX INTERNATIONAL

SOLMAX INTERNATIONAL INC. – LIMITED WARRANTY

PROJECT: Excel Energy Shelburne County

GEOMEMBRANE TYPE: Solmax 460, 460 T

ADDRESS: Becker, Mn

EFFECTIVE DATE: August 1, 2004

SOLMAX hereby warrants to **EXCEL ENERGY** that the geomembrane sold for the above mentioned **PROJECT** (**"SOLMAX geomembrane"**) conforms at the time of sale to the specifications of SOLMAX, and to be free from manufacturing defects, and to be able to withstands normal weathering for a period of 20 years from the above **EFFECTIVE DATE** for normal use in approved applications.

This Warranty does not include damages or defects in the **SOLMAX geomembrane** resulting from acts of God, casualty or catastrophe including but not limited to: earthquakes, floods, piercing hail, tornadoes or force majeure. The term "normal use" as used herein does not include, among other things, the exposure of **SOLMAX geomembrane** to harmful chemicals; abuse of **SOLMAX geomembrane** by machinery, equipment, people, animals; improper site preparation or covering materials; existing conditions, including, but not limited to, subsurface conditions beneath the geomembrane such as a settlement of the ground, cave-in, etc...; excessive pressures or stresses from any source or improper application or installation; improper operation and maintenance by the Owner. **SOLMAX geomembrane** Warranty is intended for commercial use only and is not in effect for the consumer. The parties expressly agree that the sale hereunder is for commercial or industrial use only.

Should defects or premature loss of use within the scope of the above Warranty occur, **SOLMAX** will, at its option, repair or replace **SOLMAX geomembrane** on a pro-rata basis at the then current price in such a manner as to charge **EXCEL ENERGY** only for that portion of the warranted life which has elapsed since the **EFFECTIVE DATE**. **SOLMAX** will have the right to inspect and determine the cause of any alleged defect in **SOLMAX geomembrane** and to take the appropriate steps to repair or replace **SOLMAX geomembrane** if a defect exist which is covered under this Warranty. Any determination as to what constitutes the appropriate steps of remedying a defect will be made by **SOLMAX**. This Warranty extends only to **SOLMAX's geomembrane**, and does not extend to the installation service of **SOLMAX** or third parties.

Any claim for any alleged defect under this Warranty must be made in writing, by certified mail, to the President of **SOLMAX** within ten (10) days of becoming aware of the alleged defect. Should the require notice not be given within that timeframe, the defect and all warranties are waived by **EXCEL ENERGY**, and **EXCEL ENERGY** shall not have any rights of recovery against **SOLMAX**. **SOLMAX** shall not be obligated to perform repairs or replacements under this Warranty unless and until the area to be repaired or replaced is clean, dry and unencumbered. This includes, but is not limited to, the area made available for repair and/or replacement of **SOLMAX geomembrane** to be free from all water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this Warranty, **EXCEL ENERGY** shall reimburse **SOLMAX** for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, **EXCEL ENERGY** shall be entitled to a return of the purchase price for so much of the material as **SOLMAX** determines to have violated the Warranty provided herein. **SOLMAX** shall not be liable for any direct, indirect, incidental, specific or consequential damages of any kind or any loss of profits resulting from failure of **SOLMAX geomembrane** or the breach of this Warranty, whether such damage are for breach of warranty, negligence or otherwise. **SOLMAX** shall not be obligated to reimburse **EXCEL ENERGY** for any repairs, replacement, modifications or alterations made by **EXCEL ENERGY** unless **SOLMAX** specifically authorized, in writing, said repairs, replacements, modifications or alterations in advance of them having been made. **SOLMAX's liability under this Warranty shall in no event exceed the replacement cost of the SOLMAX geomembrane sold for the above mentioned PROJECT which has violated the Warranty provided herein.**

SOLMAX
INTERNATIONAL

SOLMAX neither assumes nor authorizes any person other than the undersigned of **SOLMAX** to assume for it any other or additional liability in connection with **SOLMAX geomembrane** made on the basis of the Warranty. The Warranty on **SOLMAX geomembrane** herein is given in lieu of all other possible material warranties, either expressed or implied; and by accepting delivery of the material, **EXCEL ENERGY** waives all other possible warranties, except those specifically given. This Warranty is for the sole benefit of **EXCEL ENERGY** and is non-transferable and non-assignable; i.e., there are no third-party beneficiaries to this Warranty.

EXCEL ENERGY acknowledges by acceptance that the Warranty herein given is accepted in preference to any and other possible materials warranties.

SOLMAX MAKES NO WARRANTY OF ANY OTHER KIND OTHER THAN THAT GIVEN ABOVE AND HEREBY DISCLAIMS ALL WARRANTIES, BOTH EXPRESSED OR IMPLIED, OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS IS THE ONLY WARRANTY THAT APPLIES TO THE MATERIALS REFERRED TO HEREIN AND SOLMAX DISCLAIMS ANY LIABILITY FOR ANY WARRANTIES GIVEN BY ANY OTHER PERSON OR ENTITY, EITHER WRITTEN OR ORAL.

In the event any term or provision of this Warranty is inconsistent with or in conflict with any writing, purchase order, or contract executed by **SOLMAX**, then, to the extent such inconsistency or conflict exists, the terms and conditions of this Warranty shall control in all respects.

The legal relations of **SOLMAX** and **EXCEL ENERGY** shall be determined and governed exclusively by the laws of the province of Quebec, Canada. **EXCEL ENERGY** consents to the exclusive jurisdiction of the courts sitting in Montreal, Quebec, Canada.

SOLMAX'S WARRANTY BECOMES AN OBLIGATION OF **SOLMAX** TO PERFORM UNDER THE WARRANTY ONLY UPON RECEIPT OF FINAL PAYMENT BY **SOLMAX** AND **EXCEL ENERGY** SAID WARRANTY SHALL NOT BE HONORED UNTIL AN ORIGINAL DATED AND SIGNED COPY BY AN AUTHORIZED OFFICER OF **EXCEL ENERGY** HAS BEEN DULY RETURNED TO **SOLMAX** AND IF NOT SIGNED AND RETURNED TO **SOLMAX** BEFORE **December 9, 2004**, THIS WARRANTY WILL NOT TAKE EFFECT AND IN SUCH EVENT, **SOLMAX'S** GEOMEMBRANE IS SOLD "AS IS" AND **SOLMAX** DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES OF THE PRODUCT IN ADDITION TO ITS DISCLAIMERS SET FORTH IN THIS LIMITED WARRANTY.

SOLMAX INTERNATIONAL INC.

_____

BY- Contract Administrator

I hereby state that I have read and understand the above and foregoing Warranty and agree to such by signing hereunder.

EXCEL ENERGY

BY:_____

TITLE:_____

DATE:_____