DOCKET NO. _______

APPLICATION OF SOUTHWESTERN	**§**	**PUBLIC UTILITY COMMISSION**
PUBLIC SERVICE COMPANY FOR	**§**	
AUTHORITY TO CHANGE RATES	**§**	**OF TEXAS**

DIRECT TESTIMONY
of
JEFFREY T. KOPP

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(*Filename:* KoppRRDirect.doc)

Table of Contents

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	**Meaning**
AMM	American Metal Market
BMcD	Burns & McDonnell Engineering Company, Inc.
Dismantling Study or Study	SPS Dismantling Study, dated April 17, 2019
ENR	Engineering News Record
Plants	The nine electric generating assets
SPS	Southwestern Public Service Company, a New Mexico corporation
Xcel Energy	Xcel Energy Inc.

LIST OF ATTACHMENTS

Attachment	Description
JTK-RR-1	Resume of Jeffrey T. Kopp (*Filename*: JTK-1.doc)
JTK-RR-2	SPS Dismantling Study, dated April 17, 2019 (*Non-native format*)
JTK-RR-3(CD)	Workpapers (Various non-native files provided on CD)

DIRECT TESTIMONY
OF
JEFFREY T. KOPP

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Jeffrey (Jeff) T. Kopp. My business address is 9400 Ward Parkway, Kansas City, Missouri 64114.

Q. On whose behalf are you testifying in the proceeding?

A. I am filing testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel Energy Inc. ("Xcel Energy").

Q. By whom are you employed and in what capacity?

A. I am employed by Burns & McDonnell Engineering Company, Inc. ("BMcD") as the manager of the Utility Consulting Department of the Business & Technology Solutions Division. BMcD has been in business since 1898, serving multiple industries, including the electric power industry. In 2018, BMcD was rated No. 9 overall of the Top 500 Design Firms by the Engineering News Record ("ENR"). BMcD was rated as the No. 1 engineering design firm in the United States serving the electric power industry by ENR in 2018.

Q. Please briefly describe your experience and duties at BMcD.

A. I am a professional engineer with 19 years of experience providing consulting services to electric utilities. As the manager in the Utility Consulting Department of BMcD, I oversee a team of more than 60 project managers, consultants, and engineers, who provide consulting services to clients primarily in the electric power generation and electric power transmission industries, as well as to other industrial and commercial clients. The services provided by this group include dismantling cost studies, independent engineering assessments of power generation assets, economic evaluations of capital expenditures, new power generation development and evaluation, electric and water rate analysis, electric transmission planning, generation resource planning, renewable power development, and other related engineering and economic assessments.

In my role as a group manager, project manager, and project engineer, I have worked on and have overseen consulting activities for coal, natural gas, wind, solar, hydroelectric, and biomass power generation facilities. I have been involved in numerous dismantling studies and served as project manager on the majority of them. I have helped prepare dismantling studies on all types of power plants utilizing various technologies and fuels. These dismantling studies have been utilized in rate cases, have been used to estimate the liability associated with site demolition and retirement at the end of the facilities' useful lives, to satisfy Financial Accounting Standard 143 (accounting for asset retirement), or utilized for actual asset demolition planning.

Q. Have you prepared or co-authored any studies or reports on dismantling costs?

A. Yes, throughout my career I have provided dismantling cost estimating services for dozens of utilities throughout the United States in a majority of the states. I have been involved in the preparation of dismantling cost estimate reports for over 200 units. The units that I have prepared dismantling cost estimates for have consisted of various technologies including coal-fired boilers, natural gas fired boilers, natural gas fired simple and combined cycle units, wind farms, hydroelectric power plants, and solar farms.

Q. Briefly describe your educational background and certifications.

A. I have a Bachelor’s Degree in Civil Engineering from the University of Missouri – Rolla (now the Missouri University of Science and Technology) and a Masters of Business Administration from the University of Kansas. I am a registered Professional Engineer in the states of Missouri, Indiana, and Illinois. My resume is provided as Attachment JTK-RR-1.

Q. Have you previously testified before any regulatory commission regarding dismantling costs?

A. Yes, I have provided testimony regarding power plant dismantling costs as part of the development of depreciation rates to the following regulatory authorities, the details of which are provided in my resume, Attachment JTK-RR-1.

Florida Public Service Commission
Public Utilities Commission of the State of Colorado
Kentucky Public Service Commission
North Carolina Utilities Commission
Oklahoma Corporation Commission
Regulatory Commission of Alaska

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to describe and support SPS's Dismantling Cost Estimate Study ("Dismantling Study") prepared by me and my team for power generation assets in Texas and New Mexico. The study was completed and a report was issued on April 17, 2019. This report sets forth the results of my Dismantling Study and is provided as Attachment JTK-RR-2.

Q. How does your testimony relate to other witnesses testifying in this proceeding?

A. I present the results of the Dismantling Study, while SPS witness Dane A. Watson uses the results of my study to calculate net salvage rates on SPS's production plant for purposes of developing depreciation rates for SPS's electric generating plants, which are then used to calculate SPS's requested depreciation expense.

Q. Please summarize the results of your Dismantling Study.

A. The total net cost associated with all units was estimated to be $306,217,800. The breakdown of this cost is presented and discussed in Attachment JTK-RR-2.

Q. What recommendation are you making in your testimony?

A. I recommend that the Public Utility Commission of Texas find that the results of the Dismantling Study are reasonable and appropriate for use as the basis for the cost of removal estimates in the development of depreciation rates for SPS's electric generating plants.

Q. Were the Dismantling Study attached to your testimony as Attachment JTK-RR-2, and all Attachments prepared by you or under your direct supervision?

A. Yes.

III. DISMANTLING COST STUDY METHODOLOGY

Q. Please describe the Dismantling Study prepared for SPS.

A. SPS retained BMcD to provide a recommendation regarding the total cost, in 2018 dollars, for dismantling each generation unit and the common facilities at each of the generating plants at the end of the useful life of each facility, net of salvage value for scrap materials at each plant. Our estimates are inclusive of direct costs associated with decommissioning and demolishing the plant equipment and facilities and restoring the sites to an industrial condition. The direct costs include environmental remediation costs for asbestos removal and other hazardous material handling and disposal, as well as costs for closing any ponds and cleaning up potentially contaminated soil.

Q. What was the extent of your personal involvement in the preparation of the Dismantling Study?

A. I served as the BMcD project manager on the Dismantling Study. I worked directly with all individuals and parties involved in the preparation of the dismantling cost estimates in the Dismantling Study. I was responsible for the overall project and was involved in the development of the decommissioning and dismantling assumptions, decommissioning and dismantling estimating methodology, preparation and review of the estimates, and preparation and review of the report. In addition, BMcD representatives and engineers visited each generation unit (excluding the Hale Wind Project, which was not yet in commercial operation at the time the study was prepared) to perform a tour of each facility with plant personnel to review the equipment, and I relied on information obtained during those tours in my analyses.

Q. What power generation assets did you evaluate in the Dismantling Study?

A. We evaluated nine electric generating assets ("Plants"), consisting of the fuel types listed in the following table:

Table 1: Power Generation Assets

Plant	Primary Fuel Type
Cunningham Generating Station	Natural Gas
Hale Wind Project	Wind
Harrington Generating Station	Subbituminous Coal
Jones Generating Station	Natural Gas
Maddox Generating Station	Natural Gas
Nichols Generating Station	Natural Gas
Plant X	Natural Gas
Quay County	Distillate Fuel Oil
Tolk Generating Station	Subbituminous Coal

Descriptions of the Plants covered by the Dismantling Study are provided in Section 3.0 of Attachment JTK-RR-2.

Q. At the time the Dismantling Study was prepared, were all of the Plants in service?

A. All units were in service at the time the Dismantling Study was performed except for the Hale Wind Project, which was under construction at the time of the Study, but not in commercial operation yet. This unit went into commercial operation before SPS filed this rate filing package.

Q. Is it common that dismantling studies are performed for wind projects that have not yet reached commercial operation?

A. Yes, dismantling studies are commonly performed for wind projects prior to a facility reaching commercial operation. For instance, as part of the permitting process for zoning wind projects, a dismantling study is typically required. Also, many counties require financial assurance to be in place in advance of construction for the decommissioning and dismantling of the project in the event the project becomes a stranded asset. In these cases, wind project dismantling estimates are prepared based on a review of drawings and other relevant documentation without a site visit, since at this stage none of the wind project equipment is in place.

Although the Hale Wind Project was not in commercial operation at the time of the Dismantling Study, my team and I were able to rely on construction drawings, including site plans, floor plans, foundation drawings, turbine locations and types, and transmission line documentation to prepare the study and recommend a dismantling cost for these facilities, which is information commonly relied on when performing dismantling studies prior to a facility entering commercial operation.

Q. Explain the type of costs reflected in a dismantling study.

A. Dismantling study cost estimates generally include direct costs associated with decommissioning and demolishing the plant equipment and facilities and restoring the sites to a suitable condition, which in this case was to an industrial condition. The direct costs include environmental remediation costs for asbestos removal and other hazardous material handling and disposal, as well as costs for removing and disposing of contaminated soil. In addition to these direct costs, dismantling studies also generally include estimates of indirect costs to be incurred by an entity during dismantling and contingency costs, both of which I address in the next section of my testimony.

Q. What does restoring the site for industrial use require?

A. Each site will have all above grade buildings and equipment removed, foundations removed to four feet below grade, be rough graded, and seeded. The sites also will have underground piping 24 inches and larger filled with flowable concrete fill or grout and capped. Ponds will have liners removed and be graded to match surrounding areas. Since the future use of each site is unknown, restoring each site to the standard of industrial use allows SPS flexibility regarding the potential future use. The sites can alternately remain in this condition in perpetuity.

In addition, the site of the Hale Wind Project will be restored to a condition predetermined by lease agreements.

Q. Why is it reasonable to restore the fossil fuel sites to the standard for industrial use?

A. It is reasonable to assume the sites of the fossil units would be restored to the standard of industrial use as this is a common practice, removes liabilities, and avoids future carrying costs associated with maintaining or insuring the remaining facilities that could at some point exceed the cost of demolition, while maintaining flexibility of future site use. For example, restoring the site in this manner enables the site to be reused for another power plant, to be redeveloped for industrial use, or to be sold for similar uses.

Q. What types of liabilities and carrying costs are you referring to?

A. This would include, but not be limited to items such as liability insurance and property taxes, site security, structural inspections of stacks, and maintaining environmental permits. All of these costs would be necessary to maintain a safe site and be in compliance with applicable regulations.

Q. What approach was used to develop the direct cost estimates in the Dismantling Study?

A. As mentioned prior, the dismantling cost estimates were developed based on estimates of direct costs, indirect costs, and contingency. The direct dismantling cost estimates were based on what I would expect an outside contractor, selected through a competitive bidding process, to charge SPS to demolish the site, dismantle all equipment, address environmental issues, and restore the site to a condition suitable for industrial use, based on performing known decommissioning and dismantling tasks within the set of assumptions outlined in the Dismantling Study and under ideal conditions. Site-specific direct cost estimates were developed using a "bottom-up" cost estimating approach, where cost estimates are developed from scratch through the development of site-specific quantity estimates and the application of unit pricing to the quantity estimates. The quantity estimates include but are not limited to items such as tons of steel; pounds of other metals such as copper and stainless steel; tons of debris; cubic yards of concrete; linear feet of asbestos pipe insulation; square feet of asbestos boiler insulation; cubic yards of site grading; acres of seeding; and the labor hours required to complete the decommissioning and demolition activities.

Q. Where are the assumptions outlined in the Dismantling Study?

A. The assumptions applied to the cost estimates are documented in Section 4.1 of the Dismantling Study.

Q. How were specific quantities and unit pricing estimated for purposes of estimating site-specific direct costs?

A. The BMcD team estimated quantities based on a visual inspection of the facilities, discussions with plant staff, review of engineering drawings, our in-house database of plant quantities, and our professional judgment. Using this information, we estimated the reasonable costs for the tasks required to decommission and demolish each of the subject facilities. Current market pricing for labor rates, equipment, and unit pricing were then developed for each task. These rates were applied to the quantities for the Plants to determine the total direct cost of dismantling each site. Additionally, unit pricing for scrap values was applied to the scrap quantities to determine anticipated salvage values, which are addressed later in my testimony.

Q. What sources did you rely on to develop the direct cost estimates for the Plants?

A. The labor rates, equipment costs, and disposal costs used to develop the Dismantling Study cost estimates were specific to the locations in which the work is to be performed. These rates were applied to the quantities associated with each Plant to determine the total cost of decommissioning and demolishing. Disposal costs were obtained from publicly available information and communications with landfills and scrap processors located in the area in which the work is to be performed to result in estimates that are site-specific and account for local markets, costs and conditions.

Pricing developed by the American Metal Market ("AMM") was also used to develop scrap credits, as discussed in more detail in Section V of my testimony. The AMM is an industry standard publication routinely relied upon by demolition contractors. Scrap costs also included a deduction for transportation from each site to the selected scrap market in order to create estimates that are site-specific and account for local markets, costs, and conditions.

Q. Did you rely on any other sources?

A. Yes. The RS Means online database was utilized to obtain labor rates, equipment costs, and disposal costs for the study area. RS Means labor rates are national averages and include site cost indices to provide localized costs in order to determine costs that are as site-specific as possible. RS Means is widely utilized within the construction industry as a tool for estimating and projecting project costs.

Q. Are these sources generally accepted in the industry and relied upon by other regulatory authorities in setting dismantling costs?

A. Yes. These sources are recognized industry-wide, and I have relied on them for the dismantling cost estimates I have prepared for over 200 units; furthermore, my recommended dismantling costs based on these sources have been approved in regulatory proceedings in which I have participated in other states.

Q. Did you utilize "craft labor" or overtime in you cost estimates?

A. No. As shown in my study, I utilized the B-8 Crew from RS Means, which is an appropriate crew for these types of activities.

Q. Did you consider whether the resale of any equipment would be feasible to offset your estimated dismantling costs?

A. Yes. I do not believe resale is feasible due to the limited and opportunistic market for equipment resale. In our recent experience with power plant retirements, it has been difficult to find buyers of used equipment willing to pay more than the scrap value of the equipment because the market for specific buyers with a need for the specific equipment at the time of dismantling is typically very limited. Furthermore, according to the U.S. Energy Information Administration, more than 100 gigawatts of fossil-fueled capacity has been retired in the last decade and there are more than 30 gigawatts of additional announced retirements in the next five years, representing closures of more than 200 additional units, so it is anticipated the market would be flooded with used equipment and the potential buyers of that used equipment would be even further reduced, putting downward pressure on used equipment pricing. Based on these conditions, I do not think resale is feasible or reasonable to presume in my cost estimates. It is reasonable to assume the expected value of the equipment should be limited to its scrap value.

Q. Have you relied on this same methodology in the past to prepare estimates of dismantlement costs?

A. Yes. Over the years, we have worked closely with demolition contractors in developing dismantling cost estimates in order to more accurately estimate the costs for activities that the demolition contractors will perform. We have prepared numerous dismantling studies for various clients considering different technologies in several different states and have provided services to clients on dismantling project execution that has included review and evaluation of bids from demolition contractors. We have utilized this experience preparing dismantling cost estimates as well as reviewing demolition contractor bids to confirm the reasonableness of the cost estimates we have prepared.

In addition, I am able to rely on my firm's long history, experience and familiarity with demolition practices to effectively and accurately estimate costs that are consistent with the industry and trends. For instance, we have reviewed competitive bids from demolition contractors for power plant demolition projects and worked with demolition contractors over the years to refine our estimating process to align our costs with theirs.

Q. Have you used this same model to estimate dismantling costs for both fossil fuel and renewable production assets in the past?

A. Yes, I have used the same methodology and model to estimate dismantling costs for various types of non-nuclear power generating assets. Technology-specific variations of the model have been developed and utilized over the last 10 years for asset types including coal fired boilers, natural gas fired boilers, natural gas fired combined cycles and simple cycles, peakers, reciprocating engines, hydroelectric power plants, wind farms, and solar farms. These models were utilized in the development of the cost estimates for each decommissioning and dismantling study referenced in my resume, Attachment JTK-RR-1.

Q. Did you review Xcel Energy's experience demolishing facilities in other states in preparing your study?

A. Yes. Xcel Energy has prior experience with the demolition of its production facilities in the other states in which it operates. For instance, we relied on Xcel Energy's recent experience with the demolition of facilities in Colorado, including its experience with removal and remediation of potentially contaminated soil below coal piles, which helped me to better understand and apply their specific practices to the cost-estimating process.

Q. Does your Study dictate to the demolition contractor the actual dismantling methods that will be used to dismantle these facilities in the future and, therefore does your cost estimate rely on those means and methods?

A. No. At the time SPS decides to decommission the plants, its dismantling contractor will determine the means and methods by which the dismantling will occur. It will be the contractor's responsibility to determine means and methods that result in safely decommissioning and dismantling the Plants at the lowest possible cost. However, based on our experience with dismantling projects, discussions with demolition contractors, and discussions with other Xcel Energy utilities and other utilities throughout the United States, the cost estimates we prepared are reflective of what contractors would bid, through a competitive bidding process given the option to select safe and efficient means and methods.

IV. INDIRECT AND CONTINGENCY COSTS

Q. What is included in the project indirect costs?

A. Indirect costs include those costs expected to be incurred by SPS during the dismantling process that are in addition to the direct costs paid to demolition contractors. This includes the internal administrative costs (e.g., permitting, fees, and SPS employee allocated expense) or costs associated with third-party project managers or engineers providing oversight during demolition activities, inspections, and testing to confirm that remediation has been completed.

Q. How were the indirect costs determined?

A. Indirect costs were determined as a percentage of the direct costs, as is a typical approach when preparing these types of cost estimates. We developed the percentage of direct costs that was applied to determine the indirect costs based on input from SPS regarding their approach to managing the execution of the dismantling projects.

Q. What input did you receive from SPS regarding the indirect costs?

A. SPS provided input on its actual expenditures on indirect costs experienced on actual demolition projects for Xcel Energy's Colorado utility, Public Service Company of Colorado. Accordingly, we based the indirect costs in the Dismantling Study on Xcel Energy's actual indirect costs experience.

Q. What is included in the contingency costs?

A. This category includes costs reasonably expected to be incurred by SPS during the execution of decommissioning and demolition activities, as discussed previously. For dismantling projects, there is uncertainty associated with work conditions and how the work will be performed. There is also some uncertainty associated with estimating the quantities for dismantlement of facilities, due to the age and limits on drawings available, and the absence of testing results for environmental contamination prior to preparation of these types of studies. Contingency costs account for these unspecified but expected costs and are in addition to the direct costs associated with the base dismantling costs for known scope items.

Q. Are contingency costs a necessary component of your cost estimates?

A. Yes. Contingency costs are a critical component for estimating the cost of almost any large construction project, and especially one that is as large and complex as the demolition of a large power plant. Contingency costs account for the potential circumstances that can result in an increase in costs over the direct costs for known scope items under ideal conditions. Some of these costs cannot be determined until the dismantlement process has begun. Therefore, contingency is applied on top of the base estimated cost in order to formulate a reasonable estimate to dismantle the generating facilities.

Q. Please explain.

A. It is important to note that many of these decommissioning and demolition projects will not commence until well into the future and site-specific conditions cannot always be identified until dismantling has commenced. It is not uncommon for unexpected conditions to occur. For example, contractors discover unaccounted for structures or facilities, like underground storage tanks, after demolition has begun that have to be dismantled, which entail additional costs. Or contractors will discover a greater quantity of contaminated soil than was originally anticipated, which entail additional costs. Also, the estimated cost to dismantle assumes ideal weather and working conditions, which is an appropriate starting point for cost estimating but realistically cannot be achieved for the duration of a project and can result in cost increases. These types of circumstances can lead to significant increased costs that are difficult to specifically identify this far in advance of a project.

Q. Is including contingency costs in a dismantling project standard industry practice?

A. Yes. The application of contingency is standard industry practice. Even on a project where firm pricing has been agreed to with a successful bidder, it is typical that a client will carry some level of contingency to cover potential change orders or other unforeseen circumstances associated with a project.

Q. Does the age of a facility affect the need for contingency?

A. Yes. When compared to the contingency assigned to a new construction project, the contingency on a dismantlement project should be higher because older facilities with long operating histories often lack site plans or drawings, well-defined quantities of structural materials, environmental records, or foundation or subsurface information. To that end, the majority of the units analyzed in this Dismantling Study will have been in-service for more than 20 years, and at the time of the Study, 11 of the units had been in operation for more than 50 years.

Q. What contingency costs are you recommending in your Study?

A. I have recommended a contingency cost of 20 percent for the direct costs. The percentage was based on similar dismantling cost contingencies I have prepared for dismantling projects for other electric utilities that have been approved by regulatory agencies in other states.[1]

Q. How did you arrive at the contingency percentages that you applied in this Dismantling Study?

A. The percentage of contingency applied to any cost estimate is directly related to the level of unknowns associated with the project. For instance, when preparing construction cost estimates for a new fossil-fuel generation facility on a greenfield site, we would typically determine the level of contingency based on the stage of planning or execution that we are in, which impacts the level of unknowns. As noted before, these would include potential scope changes as well as weather delays and other factors.

The dismantlement cost estimates prepared as part of this filing are similar to the types of cost estimates one makes in the early stages of planning for a new fossil-fuel generation facility on a greenfield site. However, a dismantlement cost estimate presents additional risks that must be accounted for in the contingency. As noted before, dismantlement activities occur on sites where power generation has been ongoing for many years and environmental contamination is more likely than on a greenfield site. In addition, no on-site testing for hazardous materials and potential environmental contamination has been performed during these planning stages to fully identify all of these items. No subsurface investigations or groundwater sampling has been performed to identify and define remediation requirements. And some unknowns, such as below grade storage tanks or piping,

[1] *See, e.g.*, Kentucky Public Service Docket No. 2017-00321; Florida Public Service Commission Docket Nos. 090079-EI, 160021-EI, and 160062-EI.

which may contain hazardous materials, may not be uncovered until the dismantlement process is underway.

Typically, my team and I would apply between 10% and 15% contingency to a screening level cost for new generation construction cost estimate in the early planning stages. But, because dismantlement projects involve aged facilities that inherently carry more unknowns, a 20% contingency to cover this greater level of risk is reasonable.

V. SCRAP

Q. How were scrap values calculated in your study?

A. Scrap metal prices used in the development of the scrap credit were based on a review of current pricing trends for various types of materials published by AMM, which reports the prices paid for scrap metals in transactions worldwide. The salvage value of equipment was included in the cost estimates based on scrap metal prices from the AMM report, less a deduction for transporting the scrap to market. This methodology is appropriate because demolition contractors routinely rely on the values published by AMM to develop the prices they are willing to credit a demolition project for scrap metals because this publication also provides information regarding the price the demolition contractors can expect to receive when they resell the scrap metals to a scrap metal broker or scrap metal processor.

Q. Is AMM a reputable source for calculating scrap pricing?

A. Yes. AMM is the leading independent supplier of market intelligence and pricing to the North American metals industries and publisher of the widely-used reference prices for scrap. AMM has extensive experience in reporting scrap prices in a wide range of grades and locations. AMM has been reporting on the U.S. scrap market for more than 100 years, providing benchmark prices to users in the scrap metal industry. AMM develops index prices based on actual transactions, which are reported by market participants conducting scrap metal trades.

Q. What are your recommendations for the value of scrap metal applied in the Study?

A. Table 4-1 in the Study shows the scrap metal prices used. As noted above, the market value for each type of scrap metal was adjusted to account for transportation costs, in order to determine the net value of the scrap material.

Q. How were transportation costs calculated for purposes of valuing the scrap metal?

A. Transportation costs include the costs necessary to haul the scrap metal to the scrap market location. Costs for transportation are based on published railroad tariffs and the costs to truck the material from the site to the rail line, as determined at the time my study was conducted.

VI. DISMANTLING COST STUDY RESULTS

Q. What are the total cost estimates for decommissioning and dismantling SPS's production plants resulting from the Dismantling Study?

A. The resulting dismantling cost estimates, including the credits for scrap materials, are summarized below and further detailed in Appendix A of the Dismantling Study.

Table 2: Site-Specific Decommissioning Cost Summary (2018$)

Plant	Total Cost	Total Credits	Total Net Cost
Cunningham Generating Station	$23,014,000	($4,857,000)	$18,157,000
Hale Wind Project	$31,350,800	($14,710,000)	$16,640,800
Harrington Generating Station	$68,203,000	($12,939,000)	$55,264,000
Jones Generating Station	$36,554,000	($7,417,000)	$29,137,000
Maddox Generating Station	$11,639,000	($1,770,000)	$9,869,000
Nichols Generating Station	$37,077,000	($7,020,000)	$30,057,000
Plant X	$33,034,000	($6,870,000)	$26,164,000
Quay County	$724,000	($165,000)	$559,000
Tolk Generating Station	$131,194,000	($10,824,000)	$120,370,000
Fleet Total	**$372,789,800**	**($66,572,000)**	**$306,217,800**

Q. Are the dismantling costs set forth in your testimony and Attachment JTK-RR-2 reasonable and necessary estimates for purposes of calculating depreciation rates for SPS in this proceeding?

A. Yes. These costs are reasonably reflective of the actual costs necessary for SPS to dismantle the Plants and are an appropriate basis for setting electric rates in this matter and for SPS to use for planning for dismantling costs going forward.

Q. Does this conclude your direct testimony?

A. Yes, it does.

AFFIDAVIT

STATE OF MISSOURI)
)
COUNTY OF JACKSON)

JEFFREY T. KOPP, first being sworn on his oath, states:

I am the witness identified in the preceding testimony. I have read the testimony and the accompanying attachment(s) and am familiar with the contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.

Jeffrey T Kopp
JEFFREY T. KOPP

Subscribed and sworn to before me this 5 day of August, 2019 by JEFFREY T. KOPP

AMANDA L. G. DUNN
Notary Public - Notary Seal
STATE OF MISSOURI
Jackson County
My Commission Expires Sep. 15, 2020
Commission # 16012249

Amanda L G Dunn
Notary Public, State of Missouri

My Commission Expires: Sept. 15, 2020

JEFFREY T. KOPP, PE

Manager, Utility Consulting

Jeff is the Utility Consulting Department Manager at Burns & McDonnell, specializing in consulting services for power generation and transmission and distribution projects. This includes energy project development, due diligence reviews, resource planning, renewable project development, rate studies and analysis, power plant decommissioning studies, and transmission planning.

EDUCATION

- BS, Civil Engineering
- MBA, Business Administration

REGISTRATIONS

- Professional Engineer (IL, IN, MO)

18 YEARS WITH BURNS & MCDONNELL

19 YEARS OF EXPERIENCE

Testimony Experience

Utility Company	Regulatory Agency	Docket No.	Client Represented	Subject
Oklahoma Gas and Electric	The Corporation Commission of the State of Oklahoma	PUD 201800140	Oklahoma Gas and Electric	Rate Case – Decommissioning Costs
Golden Valley Electric Association	The Regulatory Commission of Alaska	U-18-010	Golden Valley Electric Association	Retirement Report for Healy Unit 1 – Decommissioning Costs
Progress Energy Florida	Florida Public Service Commission	090079-EI	Progress Energy Florida	Rate Case – Decommissioning Costs
Otter Tail Power Company	Minnesota Public Utilities Commission	E017/M-10-1082	Otter Tail Power Company	Advanced Determination of Prudence – AQCS Upgrades
Otter Tail Power Company	Public Service Commission of the State of North Dakota	PU-11-165	Otter Tail Power Company	Advanced Determination of Prudence – AQCS Upgrades
Xcel Energy	Public Utilities Commission of the State of Colorado	14AL-0660E	Public Service Company of Colorado	Rate Case – Decommissioning Costs
Xcel Energy	Public Utilities Commission of the State of Colorado	16A-0231E	Public Service Company of Colorado	2016 Revised Depreciation Rates
Florida Power & Light Company	Florida Public Service Commission	160021-EI; 160062-EI	Florida Power & Light Company	Rate Case – Decommissioning Costs

Duke Energy Kentucky	Kentucky Public Service Commission	2017-00321	Duke Energy Kentucky	Rate Case – Decommissioning Costs
Duke Energy Progress	North Carolina Utilities Commission	Docket No. E-2, Sub 1142	Duke Energy Progress	Rate Case – Decommissioning Costs
Duke Energy Carolinas	North Carolina Utilities Commission	Docket No. E-7, Sub 1146	Duke Energy Carolinas	Rate Case – Decommissioning Costs
Oklahoma Gas and Electric	Corporation Commission of Oklahoma	Cause No. PUD 201700496	Oklahoma Gas and Electric	Rate Case – Decommissioning Costs

Decommissioning Study | Southwestern Public Service

Texas, New Mexico | 2018

Jeff is currently serving as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Southwestern Public Service. The evaluation is being performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation includes coal-fired plants, natural gas-fired simple cycle units, and gas fired boiler projects. The report and results are being used in support of depreciation rates as part of the rate case filing. Jeff is currently providing support through the regulatory process with written and oral testimony in Southwestern Public Service's rate hearing in regards to the study findings.

Decommissioning Study | Duke Energy

Indiana | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Duke Energy Indiana. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included coal-fired plants, natural gas-fired simple and combined cycle units, solar projects, and a hydro-electric plant. Subsequent to the study, Jeff will be available to provide written and oral testimony in Duke Energy Indiana's rate hearing in regards to the study findings.

Decommissioning Study | Golden Valley Electric Association

Alaska | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Golden Valley Electric Association. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included a coal-fired plant, diesel and naphtha fired combustion turbine units, a battery energy storage facility, and a wind farm. Jeff provided written testimony in Golden Valley's Compliance Hearing regarding the retirement of their Healy Unit 1 project. Jeff will also be available to provide written and oral testimony in Golden Valley's rate hearing in regards to the study findings.

Decommissioning Study | Owensboro Municipal Utilities

Kentucky | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for coal fired generating facility owned by Owensboro Municipal Utilities. The evaluation was performed to determine the options for retiring the plant and associated costs. Options evaluated included placing one of the units into layup with the potential to restart at a later date, retirement in place, or full demolition and site restoration.

Decommissioning Study | Duke Energy

Florida | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Duke Energy Florida. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included a coal-fired plant, natural gas-fired simple and combined cycle units, and solar projects. Subsequent to the study, Jeff will be available to provide written and oral testimony in Duke Energy Florida’s rate hearing in regards to the study findings.

Decommissioning Study | Tucson Electric Power

Arizona | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Tucson Electric Power. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included a coal-fired plant, natural gas-fired simple and combined cycle units, and solar projects. Subsequent to the study, Jeff will be available to provide written and oral testimony in Tucson Electric Powers’s rate hearing in regards to the study findings.

Decommissioning Study | Public Service of New Mexico

New Mexico | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Duke Energy Florida. The evaluation is being performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation includes a coal-fired plant, natural gas-fired simple and combined cycle units, and solar projects.

Due Diligence | Centerpoint Energy

Indiana | 2017

Jeff served as the project manager for a due diligence evaluation of Vectren’s fleet of power plants being considered as part of a potential full acquisition of Vectren by Centerpoint. The evaluation included a technical, environmental, and contractual review of the coal, simple cycle, and wind farm facilities. As part of the project, Jeff presented the results of the study to CenterPoint’s board of directors to support their decision making process for the acquisition.

Due Diligence | PKA AIP

Michigan | 2017

Jeff served as the project manager for a due diligence evaluation of a combined cycle power plant being considered for potential equity investment by PKA AIP. The evaluation included a technical, environmental, and contractual review of the plant.

Decommissioning Study | Capital Power

Illinois | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a wind farm being developed in Illinois. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life to support the county zoning application. Subsequent to the study, Jeff will be available to provide written and oral testimony in the county zoning hearings in regards to the study findings.

Decommissioning Study | Calpine

New York | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a wind farm being developed in New York. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life to support Calpine's application to construct a major electric generating facility under Article 10 of the New York Public Service Law. Subsequent to the study, Jeff will be available to provide written and oral testimony in the Article 10 public hearings in regards to the study findings.

Decommissioning Study | Tradewind Energy

Illinois | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a wind being developed in Illinois. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life to support the county zoning application. Subsequent to the study, Jeff will be available to provide written and oral testimony in the county zoning hearings in regards to the study findings.

Decommissioning Study | Hawaii Electric Company

Hawaii | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a reciprocating engine plant that was under construction for Hawaii Electric Company. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life.

Decommissioning Study | EDP Renewables

Indiana | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a wind farm being developed in Indiana. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life to support the county zoning application. Subsequent to the study, Jeff will be available to provide written and oral testimony in the county zoning hearings in regards to the study findings.

Decommissioning Study | EDP Renewables

Illinois | 2018

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a wind farm being developed in Illinois. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life to support the county zoning application. Subsequent to the study, Jeff provided oral testimony in the county zoning hearings in regards to the study findings.

Decommissioning Study | Tampa Electric Company

Florida | 2017

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Tampa Electric. The evaluation is being performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation includes a coal-fired plant, natural gas-fired simple and combined cycle units, and solar projects. Subsequent to the study, Jeff will be available to provide written and oral testimony in Tampa Electric's rate hearing in regards to the study findings.

Decommissioning Asset Retirement Obligation Study | NRG Energy

Various US Locations | 2017

Jeff served as the Burns & McDonnell project manager on a decommissioning study to evaluate the asset retirement obligation costs for numerous renewable energy facilities owned by NRG Energy throughout the United States. The evaluation was performed to determine the costs for any obligations to remove and/or demolish the facilities and equipment and perform environmental remediation and site restoration activities. The study was performed to support compliance with FAS 143 requirements.

Due Diligence | Confidential Client

Northwest | 2017

Jeff is served as the project manager for a due diligence evaluation of three natural gas fired combine cycle power plants being considered for potential acquisition. The evaluation included a technical, environmental, and contractual review of the facilities.

Decommissioning Study | Confidential Client

Illinois | 2017

Jeff served as the project manager for a site retirement evaluation to help determine the cost to retire a 600 MW coal-fired project in Illinois at the end of its useful life. Estimates for demolition and site restoration were included in the evaluation. Jeff previously prepared decommissioning study estimates for this plant with the updated study being performed to reflect current pricing and changes in regulations.

Decommissioning Study |AEP

Ohio, Indiana | 2017

Jeff served as the Burns & McDonnell project manager on a decommissioning study for two coal fired power plants owned by Ohio Valley Electric Company and Indiana Kentucky Electric Company, both of which AEP is the largest shareholder. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives for purposes of accruing the costs over the life of the plants.

Decommissioning Study |OGE Energy Corp.

Oklahoma | 2017

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by OGE Energy in Oklahoma. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support depreciation rates. The evaluation included several coal-fired plants, natural gas fired boilers, natural gas-fired simple and combined cycle units, and a wind farm. Subsequent to the study, Jeff provided written testimony, and is currently providing support in replying to discovery requests. Jeff will be available to provide oral testimony in OGE Energy's rate hearing in regards to the study findings.

Decommissioning Study |Duke Energy

North Carolina, South Carolina, Kentucky | 2017

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by three Duke Energy Utilities, including Duke Energy Carolinas, Duke Energy Progress, and Duke Energy Kentucky. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included several coal-fired plants, natural gas fired boilers, natural gas-fired simple and combined cycle units, hydroelectric plants, and solar projects. Subsequent to the study, Jeff provided written and oral testimony in Duke Energy Carolinas, Duke Energy Progress, and Duke Energy Kentucky's rate hearing in regards to the study findings.

Useful Life Assessment | Confidential Client

Southeast | 2017

Jeff served as the Burns & McDonnell project manager on a useful life assessment for a combined cycle power plant for a confidential client. The evaluation was performed to determine the anticipated life of the facility and associated costs to achieve that life. The study supported financial modeling of the facility as part of the utility's portfolio of assets.

Useful Life Assessment | Confidential Client

Southeast | 2017

Jeff served as the Burns & McDonnell project manager on a useful life assessment for a combined cycle power plant for a confidential client. The evaluation was performed to determine the anticipated life of the facility and associated costs to achieve that life. The study supported financial modeling of the facility as part of the utility's portfolio of assets.

Decommissioning Study | FPL Energy

Florida | 2015

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by FPL Energy in the State of Florida. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included several coal-fired plants, natural gas-fired simple and combined cycle units, solar generating facilities. Subsequent to the study, Jeff provided written and oral testimony in FPL Energy's rate case hearing in regards to the study findings.

Decommissioning Study | Xcel Energy

Colorado | 2014

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Xcel Energy in the State of Colorado. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives to support regulatory filings. The evaluation included several coal-fired plants, natural gas-fired simple and combined cycle units, hydroelectric plants, and a wind farm. Subsequent to the study, Jeff is provided written and oral testimony in Xcel Energy's rate hearing in regards to the study findings.

Decommissioning Cost Evaluation | Progress Energy Florida

Florida | 2008-2009

Jeff served as the Burns & McDonnell project manager on a site retirement cost evaluation for all the fossil fuel-fired power generating facilities owned by Progress Energy in the state of Florida. The evaluation was performed to determine the costs to demolish the units and restore the sites and included a natural gas-fired steam plants, fuel oil-fired steam plants, natural gas-fired combustion turbines, coal-fired facilities, and combined cycle generating facilities. Subsequent to the study, Jeff provided direct testimony in Progress Energy Florida's rate case in regards to the study findings.

Decommissioning Asset Retirement Obligation Study | NRG Energy

California | 2016

Jeff served as the Burns & McDonnell project manager on a decommissioning study to evaluate the asset retirement obligation costs for all the fossil fuel-fired power generating facilities owned by NRG Energy in the state of California. The evaluation was performed to determine the costs for any legally obligations to demolish facilities and equipment and perform environmental remediation and site restoration activities. The facilities included a natural gas and fuel oil fired plants consisting of boilers, combustion turbines, and combined cycle generating facilities.

Due Diligence | Confidential Client

Northeast | 2016

Jeff served as the project manager for a due diligence evaluation of a portfolio of power generation assets. The assets included gas and oil fired boilers, combined cycle combustion turbines, and simple cycle combustion turbines. The client was considering acquiring an equity stake in the facilities. The evaluation included a technical, environmental, and contractual review of the facilities. The review primarily focused on evaluation of recent repairs to the facilities, remaining life of the equipment, and potential large capital cost requirements to identify key risks or fatal flaws.

Due Diligence | Confidential Client

Northeast | 2016

Jeff served as the project manager for a due diligence evaluation of a coal fired power generating facility that was being offered for sale. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the facilities. The review primarily focused on evaluation of the condition of the equipment and facilities, upgrades required to comply with environmental regulations, and other major capital or O&M projects to identify key risks or fatal flaws.

Due Diligence | Confidential Client

Northeast | 2016

Jeff served as the project manager for a due diligence evaluation of a combined cycle generating facility under development. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility. The review primarily focused on evaluation of the project costs, schedule, permitting, and other development activities to determine any development risks or fatal flaws.

Decommissioning Study | PacifiCorp

Oregon, Washington, Wyoming | 2016

Jeff served as the BMcD project manager on a decommissioning study for three wind farms owned by PacifiCorp. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives in support of determining depreciation rates.

Due Diligence | Confidential Client

Northeast | 2016

Jeff served as the project manager for a due diligence evaluation of a combined cycle generating facility under development. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility. The review primarily focused on evaluation of the project costs, schedule, permitting, EPC contract, equipment contracts, and other development activities to determine any development risks or fatal flaws.

Due Diligence | Confidential Client

Southwest | 2016

Jeff served as the project manager for a due diligence evaluation of a natural gas fired combined cycle power generating facility that was being offered for sale. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the facility. The review primarily focused on evaluation of the condition of the equipment, sufficiency of contractual arrangements, and environmental compliance to identify key risks or fatal flaws.

Decommissioning Study | Big Rivers Electric Cooperative

Kentucky | 2016

Jeff served as the BMcD project manager on a decommissioning study for two coal-fired power generating facilities owned by Big Rivers Electric Cooperative. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives.

Due Diligence | Confidential Client

Northeast | 2016

Jeff served as the project manager for a due diligence evaluation of a natural gas fired combined cycle power generating facility that was being offered for sale. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the facility. The review primarily focused on evaluation of the condition of the equipment, sufficiency of contractual arrangements, design issues surrounding recent plant performance challenges, and environmental compliance to identify key risks or fatal flaws.

Useful Life Assessment | Confidential Client

Southeast | 2015

Jeff served as the Burns & McDonnell project manager on a useful life assessment for a combined cycle power plant for a confidential client. The evaluation was performed to determine the anticipated life of the facility to support financing of the project associated with acquisition of the facility.

Decommissioning Study | Nebraska Public Power District

Nebraska | 2015

Jeff served as the Burns & McDonnell project manager on a decommissioning study for five power generating facilities owned by Nebraska Public Power District. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included two coal-fired plants, a natural gas-fired boiler plant, a combined cycle plant, and a wind farm.

Decommissioning Study | Lafayette Utilities System

Louisiana | 2015

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a coal fired generating facility in the state of Louisiana. The evaluation was performed to determine the costs for options to retire the units in place or demolish the units and restore the site now that the units are no longer operating. The costs are being used for planning purposes by the client, to determine the preferred decommissioning plan for the plant.

Decommissioning Study | Colstrip Energy

Montana | 2015

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a coal fired generating facility in the state of Montana. The evaluation was performed to determine the costs to demolish the unit and restore the site at the end of its useful life. The costs were used for planning purposes by the client, to determine the decommissioning funds that need to be accrued throughout the operating life of the facility.

Due Diligence | Confidential Client

Northeast | 2015

Jeff served as the project manager for a due diligence evaluation of a combined cycle generating facility under development. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility. The review primarily focused on evaluation of the project costs, schedule, permitting, and other development activities to determine whether the project was economically attractive and determine any development risks or fatal flaws.

Decommissioning Study | Apex Clean Energy

Various Locations | 2015

Jeff served as the Burns & McDonnell project manager for a site retirement cost evaluation for three proposed wind energy facilities under development. The evaluation was performed to support permitting activities on the facilities.

Decommissioning Study | Oklahoma Gas & Electric

Oklahoma | 2014

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a power generating facility in the Midwest. The evaluation was performed to determine the costs to demolish the units and restore the site at the end of its useful life. The plant was expected to retire within a year or two of the study, and the costs were used for planning purposes by the client.

Decommissioning Study | Basin Electric Cooperative

North Dakota & Wyoming | 2014

Jeff served as the Burns & McDonnell project manager on a decommissioning study for five power generating facilities in the North Dakota and Wyoming. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful life. The costs are being used for planning purposes by the client.

Coal Plant Layup | Hoosier Energy

Indiana | 2014

Jeff served as the Burns & McDonnell project manager on the preparation of a plan to place a coal fired generating facility in long term layup reserve status. The project included preparation of three manuals for the implementation of the layup plan, maintaining the plant during the layup period, and reactivating the plant at the end of the layup period.

Decommissioning Study | Apex Clean Energy

Illinois | 2014

Jeff served as the Burns & McDonnell project manager for a site retirement cost evaluation for a proposed wind energy facility under development. The evaluation was performed to support permitting activities on the facility.

Due Diligence | Confidential Client

Midwest | 2014

Jeff served as the project manager for a due diligence evaluation of a combined cycle generating facility under development. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility. The review primarily focused on evaluation of the project costs, schedule, permitting, and other development activities to determine whether the project was economically attractive and determine any development risks or fatal flaws.

Due Diligence | Duke Energy

Florida | 2014

Jeff served as the project manager for a due diligence evaluation of the Osprey Energy Center combined cycle generating facility being offered for sale. Duke Energy was considering acquiring the facility from the current owner. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility. Duke successfully acquired the facility and utilized the Independent Engineer's Report prepared by Burns & McDonnell to support the regulatory process through acquisition of the facility.

Due Diligence | Confidential Client

Southeast | 2014

Jeff served as the project manager for a due diligence evaluation of a cogeneration facility being offered for sale. The client was considering acquiring the facility from the current owner. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility, including a review of potential modifications to the facility due to the loss of the steam host and associated costs.

Due Diligence | Indiana Municipal Power Agency

Indiana | 2014

Jeff served as the project manager for a due diligence evaluation of a coal-fired generating facility being offered for sale. The client was considering acquiring the assets from the current owner. The evaluation includes a technical, environmental, and contractual review of the coal fired generation facility.

Due Diligence | Kansas Municipal Power Agency

Missouri | 2014

Jeff served as the project manager for a due diligence evaluation of a combined cycle generating facility being offered for sale. The client was considering acquiring an equity stake in the facility. The evaluation included a technical, environmental, and contractual review of the natural gas fired generation facility.

Strategic Site Selection Study | Confidential Client

Midwest | 2013

Jeff served as the Burns & McDonnell lead on site selection study for a new natural gas fired combined cycle generating resource in the Midwest. The study included evaluating greenfield and brownfield sites to determine the most attractive sites and the limiting factors to development at each site.

Strategic Site Selection Study | Confidential Client

Northeast | 2013

Jeff served as the Burns & McDonnell lead on site selection study for a new gas processing facility in the northeast. The study included evaluating potential greenfield locations for a cryogenic gas processing plant to handle wet and dry gas from the Utica and Marcellus Shale areas.

Site Evaluations | Confidential Client

Southeast | 2013

Jeff served as the Burns & McDonnell lead on the evaluation of three potential sites for a new natural gas fired combined cycle generating facility in the Southeast. The study included reviewing three sites previously selected by the client and ranking those sites relative to one another to determine their suitability for the natural gas-fired generation options under consideration.

Decommissioning Study | Arizona Public Service

Arizona | 2013

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a four steam electric generating facilities in the southwest. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included two coal-fired plants, and two natural gas and fuel oil fired boilers.

Decommissioning Study | Confidential Client

Texas | 2013

Jeff served as the Burns & McDonnell lead on a decommissioning study for a coal fired generating facility in Texas. The study included evaluating options to place the plant in reserve shutdown status or completely retire the plant and perform full plant demolition.

Decommissioning Study | Confidential Client

Upper Midwest | 2013

Jeff served as the Burns & McDonnell project manager on a decommissioning study for a coal fired generating facility in the upper Midwest. The study included phasing the retirement dates of portions of the facility and performing selective demolition as appropriate with full demolition to be complete at the end of useful life of the entire facility. The study also included evaluating potential value of equipment for sale on the secondary market.

Decommissioning Study | Confidential Client

Ohio River Valley | 2013

Jeff served as the Burns & McDonnell project manager on a decommissioning study for two coal fired generating facilities in the Ohio River Valley. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful life. The costs are being used for planning purposes by the client.

Decommissioning Study | EDP Renewables

Illinois | 2013

Jeff served as the Burns & McDonnell project manager for a site retirement cost evaluation for a proposed wind energy facility under development. The evaluation was performed to support permitting activities on the facility.

Strategic Site Selection Study | Confidential Client

Western Kansas | 2012

Jeff served as the Burns & McDonnell lead on a strategic site selection study for a new natural gas fired generation resource in the state of Kansas. The study resulted in the identification of multiple viable site alternatives to support the natural gas-fired generation options under consideration.

Due Diligence | Confidential Client

Northeast | 2012

Jeff served as the project manager for a due diligence evaluation of a coal-fired generating facility being offered for sale. The client was considering acquiring the assets from the current owner. The evaluation includes a technical, environmental, and contractual review of the coal fired generation facility.

Due Diligence | Old Dominion Electric Cooperative

Pennsylvania | 2012

Jeff provided support for a due diligence evaluation of a facility under development, that included a 2-on-1 combined cycle power block, being offered for sale. The client was considering acquiring the site from the current owner. The evaluation included a technical, environmental, and contractual review of the combined cycle generation facility. The evaluation included a review of existing agreements and permits in place to facilitate development of the generation resource. The project also included a review of the project capital costs to determine whether the costs were reasonable, and to identify any gaps that may increase the overall project cost.

Due Diligence | Old Dominion Electric Cooperative

New Jersey | 2012

Jeff served as the project manager for a due diligence evaluation of a facility that was under construction at the time, and was being offered for sale. The client was considering acquiring the 2-on-1 combined cycle power generating facility, from the current owner. The evaluation included a technical, environmental, and contractual review of the including a review of existing agreements and permits in place. The project also included a review of the project capital costs to determine whether the costs were reasonable, and to identify any gaps that may increase the overall project cost.

Due Diligence | Old Dominion Electric Cooperative

Virginia | 2012

Jeff served as the project manager for a due diligence evaluation of a facility under development, that included a 2-on-1 combined cycle power block, being offered for sale. The client was considering acquiring the site from the current owner. The evaluation included a technical, environmental, and contractual review of the combined cycle generation facility. The evaluation included a review of existing agreements and permits in place to facilitate development of the generation resource. The project also included a review of the project capital costs to determine whether the costs were reasonable, and to identify any gaps that may increase the overall project cost.

Due Diligence | Confidential Client

Southeast | 2012

Jeff assisted with a due diligence evaluation of a facility that includes two, 2-on-1 combined cycle power blocks, being offered for sale. The client was considering acquiring the assets from the current owner. The evaluation included a technical, environmental, and contractual review of the combined cycle generation facility.

Development Assistance | Tenaska

Ohio | 2012

Jeff served as the Burns & McDonnell project manager assisting a client with the preparation of a Certificate of Environmental Compatibility and Public Need for conversion of an existing simple cycle facility to combined cycle. The facility includes five combustion turbines, four of which will be converted to two, 2-on-1 combined cycle power blocks. The project includes full preparation of the Certificate of Environmental Compatibility and Public Need application, as well as public meeting support.

Repower Assessment | Confidential Client

North Dakota | 2011

Jeff assisted a client with an evaluation comparing the economic viability of retrofitting an existing coal-fired power plant with air quality control system equipment in comparison to replacing the plant with new natural gas fired generation. The project includes preparing capital cost estimates; operating and maintenance cost estimates, and determining the net present value of each alternative evaluate the relative economic attractiveness of each alternative.

Decommissioning Study | Progress Energy

North Carolina & South Carolina | 2011

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by Progress Energy Carolinas. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included several coal-fired plants, as well as several natural gas-fired and fuel oil-fired units.

Decommissioning Study | Minnesota Power

Minnesota | 2011

Jeff served as the Burns & McDonnell project manager on a decommissioning study for several power generating facilities owned by Minnesota Power. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included three coal-fired plants and a biomass fired facility.

Strategic Site Selection Study | Old Dominion Electric Cooperative

Virginia, Maryland, Pennsylvania, Delaware | 2011

Jeff served as the Burns & McDonnell project manager on a strategic site selection study for a 750 MW combined cycle facility. The study resulted in the identification of multiple viable site alternatives to support the natural gas-fired generation option under consideration.

Due Diligence Evaluation | Old Dominion Electric Cooperative

Pennsylvania | 2011

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation of a 2-on-1 combined cycle facility being offered for sale by Liberty Electric in Pennsylvania. The client was considering acquiring the assets from the current owner. The evaluation included a technical, environmental, and contractual review of the combined cycle generation facility.

Due Diligence Evaluation | Tyr Energy

Florida | 2011

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation of a biomass power generating facility under development by American Renewables. The client was considering an equity investment in the facility. The evaluation included a 100 MW bubbling fluidized bed boiler and steam turbine.

Due Diligence Evaluation | Old Dominion Electric Cooperative

Maryland | 2011

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation of a combined cycle facility under development in Maryland. The client was considering acquiring the site and all the development rights for installation of a 2-on-1 combined cycle facility. The evaluation included a review of existing agreements and permits in place to facilitate development of the generation resource.

Decommissioning Study | Tampa Electric Co.

Florida | 2011

Jeff served as the Burns & McDonnell project manager on a decommissioning study for the power generating facilities owned by Tampa Electric Company. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included a coal-fired plant, an integrated gasification combined cycle plant, and several natural gas-fired units.

Decommissioning Study | Confidential Client

Illinois | 2011

Jeff served as the project manager for a site retirement evaluation to help determine the cost to retire a 600 MW coal-fired project in Illinois at the end of its useful life. Estimates for demolition and site restoration were included in the evaluation.

Repower Assessment | Confidential Client

Minnesota | 2010

Jeff assisted a client with an evaluation comparing the economic viability of retrofitting an existing coal-fired power plant with air quality control system equipment in comparison to replacing the plant with new natural gas fired generation. The project includes preparing capital cost estimates; operating and maintenance cost estimates, and determining the net present value of each alternative evaluate the relative economic attractiveness of each alternative.

Biomass Plant Site Selection Study | Confidential Client

Texas | 2010

Jeff served as the project manager for a Site Selection Study for a Biomass project to be located in Texas. The project included ranking of candidate sites to determine a preferred site for development of a 20 MW biomass power generating facility.

Due Diligence Evaluation | Tyr Energy

Multiple Locations | 2010

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for several natural gas-fired facilities being offered for sale by Tenaska. The client was considering an equity investment in the facilities. The evaluation included four combined cycle facilities and one simple cycle facility.

Power Plant Valuation Assessment | Basin Electric Power Cooperative

North Dakota | 2010

Jeff served as the Burns & McDonnell project manager to provide a valuation assessment of the Antelope Valley Station Unit 2, which is being considered for purchase by Basin Electric Power Cooperative. The project includes valuing the 25 year old 450 MW coal fired unit in current dollars and at specified dates in the future.

Wind Farm Evaluation | Minnesota Power

North Dakota | 2010

Jeff served as the Burns & McDonnell project manager to provide an evaluation of a proposed wind farm development in central North Dakota. The project includes wind resource assessments, conceptual engineering design, capital cost estimates, and estimated busbar costs for development of wind farm project in phases on the land currently under contract.

Decommissioning Cost Evaluations | Horizon Wind Energy

Midwest | 2008-2010

Jeff served as the Burns & McDonnell project manager on multiple site retirement cost evaluations for several proposed wind energy facilities under development by Horizon Wind Energy. The evaluations were performed to support permitting activities on the facilities.

Due Diligence Evaluation | Tyr Energy

Hawaii | 2010

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a biomass gasification generating facility under development in Hawaii. The client was considering the facility for investment. The evaluation included a Primenergy gasifier with a net plant output of approximately 12 MW.

Project Development Assistance | Tradewind Energy

Kansas | 2009-2010

Jeff served as the Burns & McDonnell project manager to provide development assistance on a wind farm facility in Southern Kansas. The development assistance includes support on land acquisition efforts for the project, transmission line routing and preliminary design, power collection system preliminary design, and general project development assistance.

Project Development Assistance | Tradewind Energy

Missouri | 2007-2010

Jeff served as the Burns & McDonnell project manager to provide development assistance on two wind turbine facilities in Northern Missouri. The development assistance includes support on land acquisition efforts for the project, transmission line routing and preliminary design, power collection system preliminary design, and general project development assistance.

Decommissioning Cost Evaluation | Northern Indiana Public Service Co.

Indiana | 2008

Jeff served as the Burns & McDonnell project manager on a site retirement cost evaluation for several generating facilities owned by NIPSCO. The evaluation was performed to determine the costs to demolish the units and restore the sites and included several coal-fired facilities and a combined cycle generating facility.

Due Diligence Evaluation | Grays Harbor Public Utility District

Washington | 2008

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a biomass-fired cogeneration facility being offered for sale in Washington. The facility evaluated was a paper mill that had been shutdown for several years. The facility included a wood waste fired boiler that provided steam to a steam turbine for electric power generation as well as providing plant process steam.

Due Diligence Evaluation | Tyr Energy

New Mexico | 2008

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a natural gas-fired power generating facility being offered for sale in New Mexico. The evaluation included two Mitsubishi 501F combustion turbines operating in combined cycle mode.

Decommissioning Cost Evaluation | Horizon Wind Energy

Illinois | 2008

Jeff served as the Burns & McDonnell project manager on a site retirement cost evaluation for a wind farm being proposed by Horizon Wind Energy in Illinois. The evaluation was performed to determine the costs to demolish the units and restore the sites to meet the county zoning requirements.

Due Diligence Evaluation | Tyr Energy

Western U.S. | 2008

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for several natural gas-fired power generating facilities being offered for sale throughout the western United States. The evaluation included several GE LM6000 combustion turbines operating in simple cycle mode, several GE LM6000 combustion turbines operating in combined cycle mode, one GE 7EA combustion turbine operating in combined cycle mode, and one GE 7FA combustion turbine operating in simple cycle mode.

Due Diligence Evaluation | Tyr Energy

Virginia | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Virginia. The evaluation included 7 GE LM6000 fuel oil fired combustion turbines operating in simple cycle mode.

Due Diligence Evaluation | Tyr Energy

Colorado | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for 5 GE LM6000 combustion turbines operating in combined cycle cogeneration mode with 2 steam turbines. The facility includes a greenhouse that serves as the plant's thermal host for cogeneration operations.

Project Development Assistance | Mesa Wind Power

Texas | 2007

Jeff provided development assistance on a 4,000 MW wind turbine facility located in the panhandle of Texas. The development assistance includes pro forma economic modeling of the project.

Due Diligence Evaluation | Kelson Energy

Ohio | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Ohio. The evaluation included a partially constructed 2x1 Siemens Westinghouse 7FA combined cycle generating facility.

Due Diligence Evaluation | Grand River Dam Authority

Oklahoma | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Oklahoma. The evaluation included a 4x2 GE 7FA combined cycle generating facility.

Due Diligence Evaluation | Brazos Electric Power Cooperative

Texas | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for the purchase of an equity share of a generating facility being constructed in Texas. The evaluation included an 890 MW supercritical pulverized coal fired generating facility.

Due Diligence Evaluation | Tyr Energy

Florida | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Florida. The evaluation included 3 GE 7FA combustion turbines operating in simple cycle mode.

Cost Estimate Preparation | Direct Energy

Texas | 2007

Jeff served as the Burns & McDonnell project manager for the preparation of planning level cost estimates for a new combined cycle facility to be constructed in Texas.

Due Diligence Evaluation | Tyr Energy

Various U.S. Locations | 2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for several generating facilities being offered for sale throughout the U.S. The evaluation included a coal, natural gas, and wind power facilities.

Owner’s Engineer Services | Grays Harbor PUD

Washington | 2007

Jeff served as the Burns & McDonnell project manager on an owner’s engineer project to evaluate the plans for installation of a refurbished steam turbine at a paper mill. The evaluation included the review of the design for the installation of a 7 MW steam turbine.

Decommissioning Cost Evaluation | Tyr Energy

Various U.S. Locations | 2007

Jeff served as the Burns & McDonnell project manager on a site retirement cost evaluation for several generating facilities owned by Tyr Energy. The evaluation was performed to satisfy FASB 143 accounting standards and included a simple cycle and combined cycle generating facilities.

Due Diligence Evaluation | Tyr Energy

Virginia | 2006-2007

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Virginia. The evaluation included a 240 MW subcritical pulverized coal fired facility.

Due Diligence Evaluation | Brazos Electric Power Cooperative

Texas | 2006

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Texas. The evaluation included a 1x1 GE 7FA combined cycle generating facility and 2 GE 7FA combustion turbines operating in simple cycle mode.

Generation Alternatives Study | Ottertail Power Company

North Dakota | 2006

Jeff served as the Burns & McDonnell project manager on a Generation Alternatives Study for the addition of a new 600 MW coal fired unit at an existing coal fired facility. The study includes a pro forma analysis of the technologies considered.

Technology Assessment | Minnesota Power

South Dakota | 2006

Jeff assisted with a technology assessment for the addition of a new 500 MW coal fired unit at an existing coal fired facility. The study includes a pro forma analysis of the technologies considered.

Technology Assessment & Feasibility Study | Ottertail Power Co.

Minnesota | 2006

Jeff served as the Burns & McDonnell project manager on a feasibility study and technology assessment for the addition of a new 500 MW coal fired unit at an existing coal fired facility. The study includes conceptual site layouts, cost estimates, performance estimates, and water balances.

Project Development Assistance | Tradewind Energy

Kansas | 2005-2006

Jeff served as the Burns & McDonnell project manager to provide development assistance on a 250MW wind turbine facility in Central Kansas. The development assistance includes conceptual design and technical support for the development phase of the project.

Siting Study & Technology Assessment | Arizona Public Service

Arizona/New Mexico | 2005-2006

Jeff assisted with a siting study and technology assessment for a 1,800 MW coal fired facility in Arizona and Northwestern New Mexico. Development resulted in the identification of multiple viable site alternatives to support coal-fired generation options.

Due Diligence Evaluation | Tyr Energy

California | 2005-2006

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for four generating facilities being offered for sale in California. The evaluation included simple cycle facilities consisting of Pratt & Whitney FT8 Twinpacs.
Professional Services: 2005-2006

Waste-to-Energy Feasibility Study | CPS Energy

Texas | 2005

Jeff assisted with a feasibility study for a new waste-to-energy facility in the State of Texas. The study included a pro forma analysis of the facility considered.

Due Diligence Evaluation | Tyr Energy

Oklahoma | 2006

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Oklahoma. The evaluation included a simple cycle facility consisting of four General Electric 7EA turbines.

Due Diligence Evaluation | Cinergy

Indiana | 2005

Jeff served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Indiana. The evaluation included a simple cycle facility consisting of four Siemens Westinghouse 501D5A turbines.

Due Diligence Evaluation | kRoad Power

Various Locations | 2003-2004

Jeff served as the Burns & McDonnell project manager on due diligence evaluations for several generating facilities being offered for sale throughout the United States. The evaluations included four combined cycle plants utilizing Siemens Westinghouse 501G turbines.

Due Diligence Evaluation | kRoad Power

Various Locations | 2003

Jeff served as the Burns & McDonnell project manager on due diligence evaluations for several generating facilities being offered for sale by Duke Energy. The evaluations included two combined cycle plants and one simple cycle plant utilizing General Electric 7FA turbines and General Electric 7EA turbines respectively.

Decommissioning Cost Evaluation | Old Dominion Electric Cooperative

Maryland/Virginia | 2002-2004

Jeff served as the Burns & McDonnell project manager on several site retirement evaluations to help determine the cost to retire the facilities at the end of their useful life. The evaluations included simple cycle plants utilizing General Electric 7FA turbines and Caterpillar Diesel Gensets. Estimates for demolition and site restoration were included.

Decommissioning Cost Evaluation | Western Farmers Electric Cooperative

Oklahoma | 2004

Jeff served as the Burns & McDonnell project manager on a site retirement evaluation to determine the approximate cost to retire the facilities, prepare demolition contract documents, and evaluate bids. The evaluation included a duel fuel genset site.

Decommissioning Cost Evaluation | Panda Energy

North Carolina | 2003

Jeff served as the Burns & McDonnell project manager on a site retirement evaluation to help determine the cost to retire the Panda-Rosemary Project at the end of its useful life. The evaluation included a combined cycle cogeneration facility in Roanoke Rapids, North Carolina. Estimates for demolition and site restoration were included in the evaluation.

Independent Engineer's Report | Panda Energy

North Carolina | 2003-2004

Jeff produced an Independent Engineer's Report for the Panda-Rosemary Project. The report included a due diligence evaluation of plant performance and financial assessment of a combined cycle cogeneration facility in Roanoke Rapids, North Carolina.

Decommissioning Cost Evaluation | Sempra Energy

Arizona | 2003

Jeff provided a site retirement evaluation to help determine the cost to retire the Mesquite Energy Generating Facility at the end of its useful life. The evaluation included a combined cycle plant near Phoenix, Arizona. Estimates for demolition and site restoration were included in the evaluation.

Feasibility Study | Northeast Utility Service Corp.

New Hampshire | 2004

Jeff assisted with a feasibility study to replace an existing coal-fired unit with a new coal fired unit. The study included the installation of a single 600 MW unit in New Hampshire. A pro forma analysis of the new unit was prepared and benchmarked against a pro forma analysis for the existing unit.

Technology Assessment & Feasibility Study | Ottertail Power Corp

South Dakota | 2006

Jeff assisted with a technology assessment and feasibility study for a new coal-fired generation facility in South Dakota. The study included a pro forma analysis of the alternative technologies considered.

Technology Assessment & Feasibility Study | Progress Energy

Florida | 2004

Mr. Kopp assisted with a technology assessment and feasibility study for new solid fuel fired generation in the State of Florida. The study included a pro forma analysis of the alternative technologies considered.

Resources Corporation Project Development Assistance | Peoples Energy

Oregon | 2001-2004

Mr. Kopp provided project development assistance for a 1,200 MW combined cycle power plant in Oregon. Mr. Kopp assisted in the preparation of an Energy Facility Site Certificate including preliminary engineering design, preparation and review of written exhibits, and public presentation support.

Project Development Assistance | Peoples Energy Resources Corporation

New Mexico | 2001-2004

Mr. Kopp provided project development assistance for a simple cycle power plant in New Mexico. Mr. Kopp provided preliminary engineering design and project development assistance. This included preparing preliminary site design drawings that were approved by the county zoning commission during the site design review process as well as public presentation support.

SPS Dismantling Study

Xcel Energy Inc.

SPS Dismantling Study
Project No. 110383

04/17/2019

April 17, 2019

Rick McClenagan
Xcel Energy Inc.
414 Nicollet Mall
Minneapolis, MN 55401

Re: Decommissioning Study of Xcel Energy Facilities

Dear Rick:

Burns & McDonnell is pleased to submit its Decommissioning Study ("Study") to Xcel Energy Inc. ("Xcel Energy") for the fleetwide study of all Xcel Energy assets ("Plants").

The objective of the Study was to review the Plants and to make a recommendation to Xcel Energy regarding the total cost in 2018 dollars to decommission each facility at the end of its useful life. Based on the results of this evaluation, the estimated net cost for decommissioning the fleet is $306,217,800.

Burns & McDonnell appreciates the opportunity to provide our professional consulting services to Xcel Energy. If you need any additional information, please contact Jeff Kopp at (816) 822-4239, fax (816) 333-3690, or e-mail jkopp@burnsmcd.com. We look forward to working with you again on any future projects.

Sincerely,

Jeffrey T Kopp

Jeff Kopp, PE (Registered in MO, IL)
Manager, Utility Consulting

JTK/jtk

SPS Dismantling Study

prepared for

Xcel Energy Inc.
SPS Dismantling Study
Amarillo, Texas

Project No. 110383

04/17/2019

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abbreviation	**Term/Phrase/Name**
BOP	Balance of Plant Facilities
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
C&D	Construction & Demolition
MW	Megawatt
Plant	Power Generation Asset
SPS	Southwestern Public Service Company
Study	Decommissioning and Dismantling Cost Study
Xcel Energy	Xcel Energy Inc.

STATEMENT OF LIMITATIONS

In preparation of this decommissioning study, Burns & McDonnell has relied upon information provided by Xcel Energy Inc. Burns & McDonnell acknowledges that it has requested the information from Xcel Energy Inc. that it deemed necessary to complete this study. Burns & McDonnell has not independently verified such information, with the exception of visual inspections and discussions with plant staff during site visits and cannot guarantee its accuracy or completeness.

Burns & McDonnell's estimates and projections of decommissioning costs are based on Burns & McDonnell's experience, qualifications, and judgment. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractors' procedures and methods, and other factors, Burns & McDonnell does not guarantee the accuracy of its estimates and projections. However, the estimates prepared by Burns & McDonnell should be considered reasonable and appropriate for planning purposes.

Burns & McDonnell's estimates do not include allowances for unforeseen environmental liabilities associated with unexpected environmental contamination due to events not considered part of normal operations, such as fuel tank ruptures, oil spills, etc. Estimates also do not include allowances for environmental remediation associated with changes in classification of hazardous materials.

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell") of Kansas City, Missouri, was retained by Southwestern Public Service Company ("SPS"), dba Xcel Energy Inc. ("Xcel Energy") to conduct a Decommissioning and Dismantling Cost Study ("Study") for power generation assets ("Plants") in Texas and New Mexico. The assets include wind turbines, natural gas-fired and coal-fired generating facilities. The purpose of the Study was to review the facilities and to make a recommendation to Xcel Energy regarding the total cost to decommission the facilities at the end of their useful lives. The decommissioning costs were developed by Burns & McDonnell using information provided by Xcel Energy and in-house data available to Burns & McDonnell.

1.2 Results

Burns & McDonnell has prepared cost estimates in 2018 dollars for the decommissioning of the Plants. These cost estimates are summarized in Table 1-1. When Xcel Energy determines that the Plants should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a scrap contractor to offset a portion of the decommissioning costs. Xcel Energy will incur costs in the demolition and restoration of the sites less the scrap value of equipment and bulk recycled metals.

Table 1-1: Decommissioning Cost Summary (2018$)

Plant	Total Cost	Total Credits	Total Net Cost
Cunningham Generating Station	$23,014,000	($4,857,000)	$18,157,000
Hale Wind Farm	$31,350,800	($14,710,000)	$16,640,800
Harrington Generating Station	$68,203,000	($12,939,000)	$55,264,000
Jones Generating Station	$36,554,000	($7,417,000)	$29,137,000
Maddox Generating Station	$11,639,000	($1,770,000)	$9,869,000
Nichols Generating Station	$37,077,000	($7,020,000)	$30,057,000
Plant X	$33,034,000	($6,870,000)	$26,164,000
Quay County	$724,000	($165,000)	$559,000
Tolk Generating Station	$131,194,000	($10,824,000)	$120,370,000
Fleet Total	**$372,789,800**	**($66,572,000)**	**$306,217,800**

The total net project costs presented above include the costs to return the sites to an industrial condition suitable for reuse for development of an industrial facility. Included are the costs to dismantle the power generating equipment owned by Xcel Energy, costs to dismantle the Xcel Energy owned Balance of Plant facilities ("BOP"), and environmental site restoration activities.

2.0 INTRODUCTION

2.1 Background

Burns & McDonnell was retained by Xcel Energy to conduct a Study for Plants in Texas and New Mexico to estimate the decommissioning and dismantling costs. The assets include wind turbines, natural gas-fired and coal-fired generating facilities. Individuals from Burns & McDonnell visited the Plants evaluated within the Study in October of 2018. The purpose of the Study was to review the facilities and to make a recommendation to Xcel Energy regarding the total cost to decommission and dismantle the facilities at the end of their useful lives.

Burns & McDonnell has prepared over one hundred decommissioning and dismantling studies on various types of fossil fuel and renewable power plants. In addition to preparing decommissioning and dismantling estimates, Burns & McDonnell has supported demolition projects as the owner's engineer. In this capacity, Burns & McDonnell has evaluated demolition bids and overseen demolition activities. This has provided Burns & McDonnell with insight into a broad range of competitive demolition bids, which also assists in confirming the validity of the decommissioning and dismantling estimates developed by Burns & McDonnell.

2.2 Methodology

The site decommissioning and dismantling costs were developed using information provided by Xcel Energy and in-house data Burns & McDonnell has collected from previous project experience. Burns & McDonnell estimated quantities for equipment based on a visual inspection of the facilities, reviews of engineering drawings, an in-house database of plant equipment quantities, and professional judgment. For each Plant, quantities were estimated for each required task. Current market pricing for labor rates and equipment was then developed for each task. The unit pricing was developed for each site based on the labor rates, equipment costs, and disposal costs specific to the area in which the work is to be performed. These rates were applied to the quantities for the Plants to determine the total cost of decommissioning and dismantling.

The decommissioning and dismantling costs include the cost to return the site to an industrial condition, suitable for reuse for development of an industrial facility. Included are the costs to decommission and dismantle all the assets owned by Xcel Energy at the sites, including power generating equipment and BOP facilities.

2.2.1 Site Visits

Representatives from Burns & McDonnell and Xcel Energy visited the sites in a one-week period. The site visits consisted of a tour of each facility with plant personnel to review the equipment. Tours were conducted by plant personnel. Srinivasan Sundaresan served as the Xcel Energy representative throughout the site visits, along with plant personnel at each of the sites.

The following Burns & McDonnell representatives comprised the site visit team:

- Mr. Kyle Haas, Lead Engineer
- Mr. Robbie Thompson, Project Consultant
- Mr. Chase Kilty, Project Consultant

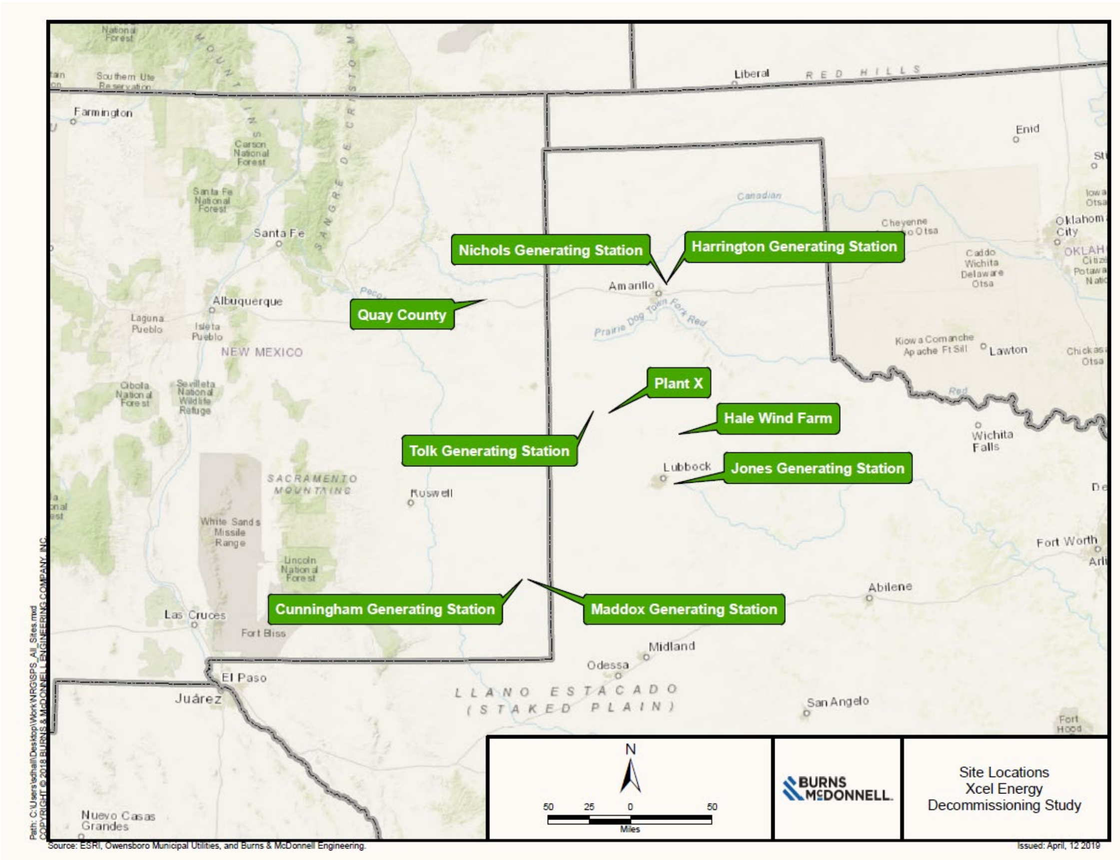
Table 2-1 outlines the dates in which the site visits were performed. Please note that a site visit was not conducted for the Hale Wind Farm since it had not begun commercial operation at the time of this Study.

Table 2-1: Site Visit Dates

Plant	Site Visit Date
Harrington Generating Station	October 9th, 2018
Nichols Generating Station	October 9th, 2018
Plant X	October 9th, 2018
Jones Generating Station	October 10th, 2018
Cunningham Generating Station	October 10th, 2018
Maddox Generating Station	October 10th, 2018
Tolk Generating Station	October 11th, 2018
Quay County	October 11th, 2018
Hale Wind Farm	No Site Visit Conducted

Figure 2-1 presents a map illustrating the location of the Xcel Energy facilities evaluated within this Study.

Figure 2-1: Xcel Energy Facilities



3.0 PLANT DESCRIPTIONS

The following sections provide the plant descriptions considered for the purposes of this Study. All Gross Nameplate Ratings are based on information provided by Xcel Energy personnel during the site visits.

3.1 Cunningham Generating Station

Cunningham Generating Station consists of two steam turbines and two combustion turbines, and is located approximately 12 miles West of Hobbs, New Mexico. The total power production capability of the Station is 487 megawatts ("MW") and a summary of the four units is located in Table 3-1.

Table 3-1: Cunningham Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Natural Gas	71 MW	1957
2	Steam Turbine	Natural Gas	196 MW	1965
3	Gas Turbine	Natural Gas	110 MW	1997
4	Gas Turbine	Natural Gas	110 MW	1997

All four units run primarily on natural gas and do not have secondary fuel options. Cunningham Station is a zero-discharge plant and cooling water from the Station is reused to irrigate nearby pecan tree orchards.

3.2 Hale Wind Farm

Hale Wind Farm is located in Hale County, Texas and will include 239 total turbines. The site will consist of three types of turbines, 23 Vestas V110-2.0MW turbines with an 80 meter hub height, 166 Vestas V116-2.0MW turbines with a 94 meter hub height, and 50 Vestas V116-2.0MW turbines with an 80 meter hub height that combine to produce a nominal rating of 478 MW. On site, the Vestas V110 turbines are proposed to include a tapered, 80-meter, steel tower. The Vestas V116 turbines are proposed to include a tapered steel tower at two different hub heights, 80-meters and 94-meters. The tower supports the nacelle, hub and three blades mounted to the hub. The V110 turbines have blades that are 54 meters long; the V116 turbine blades are also 54 meters long.

Each wind turbine tower is to be supported by a cylindrical concrete pedestal that rests on a sloped, octagonal concrete spread footing, which is common throughout the wind industry. A total of two different foundation designs, which are summarized in the table below, are to be implemented as part of this site.

Table 3-2: Turbine Foundation Dimensions

Turbine	Quantity	Pedestal Diameter	Pedestal Depth	Base Diameter	Base Depth
V110/V116 80m	73	18 ft	4 ft	51 ft	9 ft 6 inches
V116 94m	166	18 ft	4 ft	54 ft	9 ft 6 inches

The Project has not yet been constructed and, therefore, is not in commercial operation.

3.3 Harrington Generating Station

Harrington Generating Station is a coal-fired, steam-electric generating station located approximately six miles Northeast of Amarillo, Texas. The station's three units were commissioned between 1976 and 1980 and have a combined power production capability of 1,066 MW. The primary fuel used at all three units is low-sulfur, subbituminous coal and the secondary fuel is natural gas. Table 3-3 provides a summary of the three units included in the Study.

Table 3-3: Harrington Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Subbituminous Coal	346 MW	1976
2	Steam Turbine	Subbituminous Coal	360 MW	1978
3	Steam Turbine	Subbituminous Coal	360 MW	1980

Baghouses are installed on Unit 2 and Unit 3 while Unit 1 uses an electrostatic precipitator for particulate control. All ash captured at the Harrington Plant is sold for reuse.

3.4 Jones Generating Station

Jones Generating Station consists of two steam turbines and two combustion turbines and is located approximately eight miles Southeast of Lubbock, Texas. Jones Station is Xcel Energy's largest natural gas plant in the Texas area and has a total production capability of 824 MW. The four units were commissioned between 1971 and 2013 and a summary of the units is listed in Table 3-4.

Table 3-4: Jones Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Natural Gas	243 MW	1971
2	Steam Turbine	Natural Gas	243 MW	1974
3	Gas Turbine	Natural Gas	168 MW	2011
4	Gas Turbine	Natural Gas	170 MW	2013

Unit 1 and 2 have secondary fuel options of distillate fuel oil.

3.5 Maddox Generating Station

Maddox Generating Station is located nine miles West of Hobbs, New Mexico and currently operates using one natural gas steam turbine and two combustion turbines. The station has a total power production capability of 173 MW, not including the capacity of Unit 3, which is only utilized in emergency situations. A summary of the units is shown in Table 3-5.

Table 3-5: Maddox Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Natural Gas	112 MW	1967
2	Gas Turbine	Natural Gas	61 MW	1975
3	Gas Turbine	Natural Gas	10 MW	1963

The three units run on natural gas only. Maddox Station is the only major plant in the southwestern region not built by Xcel Energy. The Station was acquired from New Mexico Electric Service Company in 1983. It is a zero-discharge plant and cooling water is reused for crop irrigation.

3.6 Nichols Generating Station

Nichols Generating Station is natural gas-fired generating station located six miles Northeast of Amarillo, Texas. Nichols has a total power production capability of 457 MW. The station consists of three natural gas-fired boiler units that were commissioned between 1960 and 1968. Table 3-6 provides a summary of the three operating units at the Plant.

Table 3-6: Nichols Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Natural Gas	107 MW	1960
2	Steam Turbine	Natural Gas	106 MW	1962
3	Steam Turbine	Natural Gas	244 MW	1968

Nichols Generating Station was one of the first plants to use reclaimed, treated sewage effluent for cooling and other power plant functions. Nichols shares a cooling system with Harrington Station, described above, and Nichols is currently a zero-discharge facility.

3.7 Plant X

Plant X is a natural gas-fired generating station located in Earth, Texas. Plant X consists of four units with a total power production capability of 442 MW. The four units were commissioned between 1952 and 1964 and Plant X is the oldest major operating plant in the southwest region. Table 3-7 provides a breakdown of the four operating units.

Table 3-7: Plant X Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Natural Gas	48 MW	1952
2	Steam Turbine	Natural Gas	102 MW	1953
3	Steam Turbine	Natural Gas	103 MW	1955
4	Steam Turbine	Natural Gas	189 MW	1964

The primary fuel type for all four units is natural gas and both Unit 2 and Unit 4 have the capability to run on distillate fuel oil as a secondary fuel type.

3.8 Quay County

Quay County Generating Station is a 19 MW peaking plant located in Tucumcari, New Mexico. The site consists of one gas turbine that was commissioned in 2013, details of which are included in Table 3-8.

Table 3-8: Quay County Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Gas Turbine	Distillate Fuel Oil	19 MW	2013

The primary fuel type for the combustion turbine is distillate fuel oil. The combustion turbine serves primarily as a backup power plant for the city of Tucumcari in the event of a failure of the one transmission line supplying the city.

3.9 Tolk Generating Station

Tolk Generating Station is a coal powered, steam-electric generating station located in Muleshoe, Texas. The coal plant consists of two steam turbines with a combined power production capability of 1080 MW. The units were commissioned between 1982 and 1985 and a summary of the units is located in Table 3-9.

Table 3-9: Tolk Summary

Unit	Generation Technology	Fuel Type	Gross Nameplate Rating	In-Service Date
1	Steam Turbine	Subbituminous Coal	540MW	1982
2	Steam Turbine	Subbituminous Coal	540 MW	1985

Both units use subbituminous coal as their primary fuel source but have the capability to run on natural gas as a secondary fuel source. Both units are equipped with baghouses and the ash that is collected is recycled as byproducts for construction and other uses.

4.0 DECOMMISSIONING AND DISMANTLING COSTS

Burns & McDonnell has prepared decommissioning cost estimates for the Plants. When Xcel Energy determines that each site should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a scrap contractor to offset a portion of the site decommissioning costs. However, Xcel Energy will incur costs for decommissioning and dismantling of the Plants and restoration of the site to the extent that those costs exceed the scrap value of equipment and bulk steel.

The decommissioning and dismantling costs include the cost to return the site to an industrial condition, suitable for reuse for development of an industrial facility. Included are the costs to dismantle all the assets owned by Xcel Energy at the sites, including power generating equipment and BOP facilities, as well as environmental site restoration activities.

For the purposes of this Study, Burns & McDonnell has assumed that each site will be decommissioned and dismantled as a single project allowing the most cost-efficient demolition methods to be utilized. Several of the means and methods that could be employed are summarized in the following paragraphs. However, means and methods will not be dictated to the contractor by Burns & McDonnell. It will be the contractor's responsibility to determine means and methods that result in safely decommissioning and dismantling the Plants at the lowest possible cost.

Asbestos remediation, as required, would take place prior to commencement of any other demolition activities. Abatement would need to be performed in compliance with all county, state, and federal regulations, including, but not limited to, requirements for sealing off work areas and maintaining negative pressure throughout the removal process. Final clearances and approvals would need to be achieved prior to performing further demolition activities.

High grade assets would then be removed from the site, to the extent possible. This would include items such as transformers, transformer coils, circuit breakers, electrical wire, condenser plates and tubes, and heater tubes. High grade assets include alloys such as copper, aluminum-brass tubes, stainless steel tubes, and other high value metals occurring in plant systems. High grade asset removal would occur during the beginning of the schedule to reduce the potential for theft, increase cash flow, and recover scrap through separation of recyclable materials. Methods of removal vary with the location and nature of the asset. Small transformers, small equipment, and wire would likely be removed and shipped as-is for processing at a scrap yard. Large transformers, combustion turbines, steam turbine generators, and condensers would likely require some on-site disassembly prior to being shipped to a scrap yard.

Construction and Demolition ("C&D") waste includes items such as non-asbestos insulation, roofing, wood, drywall, plastics, and other non-metallic materials. C&D waste would typically be segregated from scrap and concrete to avoid cross-contamination of waste streams or recycle streams. C&D crews could remove these materials with equipment such as excavators equipped with material handling attachments, skid steers, etc. This material would be consolidated and loaded into bulk containers for disposal.

In general, boilers could be felled and cut into manageable sized pieces on the ground. First, the structures around the boilers would need to be removed using excavators equipped with shears and grapples. Stairs, grating, elevators, and other high structures would be removed using an "ultra-high reach" excavator, equipped with shears.

After the surrounding structures and ductwork have been removed, the stacks would be imploded, using controlled blasts. Following implosion, the stack liners and concrete would be reduced in size to allow for handling and removal.

For the wind farm, the wind turbine blades would be removed from the rotor using a crane, cut into manageably-sized sections, loaded onto a trailer, and hauled to a local landfill for disposal; the wind turbine blades are constructed from a composite material that is assumed to have no salvage value at the time of decommissioning. The turbine nacelles would be removed from the towers with a crane. The towers and nacelle would then be dismantled, cut onsite to into manageably-sized pieces for transportation, and hauled off to a scrap yard.

All concrete wind turbine foundations would be removed to a depth of four feet below grade; the portions of the foundation that are greater than four feet below grade will be abandoned in place. The recovered concrete would be demolished, loaded into a dump truck, and hauled to a local landfill for disposal. Voids left from the removal of the concrete footings would be backfilled with surrounding subsoil and topsoil and fine graded to provide suitable drainage.

The Project collector substation would be removed from the site, including all above-grade equipment (e.g., transformers, breakers, busbars), buildings, crushed rock surfacing, and fencing. All below-grade equipment (e.g., foundations) will be removed to a depth of four feet below grade.

BOP structures and foundations would likely be demolished using excavators equipped with hydraulic shears, hydraulic grapples, impact breakers, and open flame cutting torches. Steel components would be separated, reduced in size, and loaded onto trailers for recycling. Concrete would be broken into manageable sized pieces and stockpiled for crushing on-site. Concrete pieces would ultimately be loaded in a hopper and fed through a crusher to be sized for on-site disposal.

4.1 General Assumptions for All Sites

The following assumptions were made as the basis of all the cost estimates.

1. All decommissioning, demolition and salvage estimates will be based on the assumption that each facility is demolished and salvaged as a single project at the time that the last unit at the site is retired. No interim demolition or salvage activities will occur while any units at the site continue to operate.
2. All equipment, foundations and facilities will be removed to a depth of four feet below grade.
3. All facilities will be decommissioned to zero generating output. Existing utilities will remain in place for use by the contractor for the duration of the demolition activities.
4. All work will take place in the most cost-efficient manner.
5. Labor costs are based on 40-hour work week, without overtime.
6. Crushed rock will be disposed of on-site by using it for clean fill or it will be recycled by the demolition contractor for beneficial use.
7. Abatement of asbestos will precede any other work. Demolition will proceed only after final air quality clearances have been attained.
8. Removal of asbestos will be done in accordance with applicable Federal, State and Local laws, rules and regulations.
9. Xcel Energy will remove all burnable coal, fuel oil and chemicals from within the Plants prior to commencement of demolition activities.
10. All PCB oil will be removed and disposed of properly.
11. Handling and disposal of hazardous material will be performed in compliance with the approved methods of Xcel Energy’s Environmental Services Department.
12. Demolition will include the removal of all above grade structures, equipment, boilers, tanks, conveying and ancillary buildings, and any other associated equipment and facilities to four feet below grade level.
13. Below grade foundations and piles will be removed to four feet below grade. All structures below four feet will be abandoned in place, unless deemed hazardous by Xcel Energy or otherwise stated in the assumptions as being demolished.
14. Existing basements will be used to bury non-hazardous debris.
15. Costs for off-site disposal for materials in excess of the on-site inert debris disposal capacity will be included in the estimate.

16. To the extent possible, concrete will be crushed and disposed of on-site. The concrete will be perforated to create drainage. All other material that is not sold as scrap will be disposed of at an off-site landfill.
17. Sewers, catch basins, and ducts shall be collapsed to four feet below final grade and will be certified closed by the authority having jurisdiction. Horizontal runs will be abandoned in place after closure.
18. Intake and discharge canals that will no longer serve a purpose after station operation will be filled and closed unless otherwise noted within the assumptions. Equipment and structures above the intake structure will be removed. Finished canals will be retained and secured with perimeter cyclone fencing.
19. The ponds will be closed by the following closure plan:
    a. Dewater, remove 2 feet of sludge and 5 feet of soil from pond bottom, transport offsite for landfill disposal, remove concrete liner, crush concrete liner and place as backfill, rough grade berms within foot print, rough grade pond to promote drainage, and seed.
20. Sites will be graded to achieve suitable site drainage to natural drainage patterns, but grading will be minimized to the extent possible. Disturbed site area will also be seeded after being graded to provide a suitable ground cover to prevent soil erosion.
21. As determined by Xcel Energy, underground piping 24 inches and larger will be filled with flowable concrete fill or grout and capped.
22. The switchyards are not included in the estimate because they are considered a transmission asset. However, all plant electrical equipment up to and including the high side of the GSU transformer and any associated lines to the switchyard are included at each site.
23. Market conditions may result in cost variations at the time of contract execution.
24. Estimates are provided in 2018 dollars.
25. A 20 percent contingency will be applied to all cost estimates to cover expenses that are unknown at the time the estimate is prepared but are expected to be expended on the project.
26. Owner's indirect costs are also included as 10 percent of the direct costs for all estimates. Indirect costs include internal administrative costs (e.g., permitting, fees, SPS employee allocated expenses) or costs associated with third party project managers or engineers providing oversight during demolition activities, inspections, and testing to confirm that remediation has been completed.
27. For purposes of the Study, it will be assumed that none of the equipment will have a salvage value in excess of the scrap value of the materials in the equipment at the time of the Study. The

cost estimates are based on the end of useful life of each facility. All equipment steel and copper will be sold as scrap.

28. Scrap values were determined using the American Metal Market reports from October 2017 through September 2018. Prices were optimized by minimizing transportation cost and maximizing scrap value for the nearest hubs. The prices presented in Table 4-1 below are the scrap values for the Chicago hub less the cost of transportation. Chicago was selected over Houston based on more favorable scrap value less transportation.

Table 4-1: Scrap Value Summary (2018$)

Plant Name	Steel (Per Net Ton)	Copper (Per Pound)	Aluminum (Per Pound)	Stainless (Per Net Ton)	Brass (Per Pound)
Cunningham Generating Station	($168.67)	($2.15)	($0.41)	($739.24)	($1.34)
Hale Wind Farm	($208.21)	($2.17)	($0.41)	($778.78)	($1.36)
Harrington Generating Station	($218.53)	($2.19)	($0.42)	($807.47)	($1.38)
Jones Generating Station	($221.51)	($2.18)	($0.41)	($792.08)	($1.37)
Maddox Generating Station	($169.72)	($2.15)	($0.39)	($740.29)	($1.34)
Nichols Generating Station	($221.51)	($2.18)	($0.41)	($792.08)	($1.37)
Plant X	($220.46)	($2.17)	($0.41)	($791.03)	($1.37)
Quay County	($209.99)	($2.17)	($0.41)	($780.57)	($1.36)
Tolk Generating Station	($218.71)	($2.17)	($0.41)	($789.28)	($1.37)

4.2 Site Specific Decommissioning Assumptions

4.2.1 Cunningham Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy’s team. At Cunningham, it is assumed that 95 percent of asbestos remains in the Unit 1 natural gas fired boiler and 50 percent of asbestos remains in the Unit 2 natural gas fired boiler.
2. Based on conversation with plant personnel it is assumed that there are 28 wells at the site, all eight inches in diameter.
3. The condenser tubes are 90-10 copper alloy.
4. It is assumed there are no underground storage tanks on site.

5. There are only a few gallons of mercury on site, found in mercury switches. Costs associated with mercury removal are included in the environmental section of the estimate.
6. Lead based paint is expected with testing during demolition. During site visits Xcel Energy indicated that the majority of paint at Cunningham is lead based.
7. The common 480-volt transformer on site has a higher concentration of PCBs.
8. It is assumed that there is no contaminated soil or concrete on site. Plant personnel indicated that everything has been remediated.
9. Based on the amount of concrete on site and the size of the basement, no imported backfill is necessary to fill the basement.

4.2.2 Hale Wind Farm

1. All turbines were assumed to be fully removed as a part of this Study.
2. Fluids located within the turbine nacelle, including oils, fuels, solvents and process chemicals, are assumed to be drained and disposed of offsite as part of the decommissioning.
3. One Operation & Maintenance facility was included in the estimate. Drawings indicated that the building is 81 feet by 109 feet.
4. No met towers are included in the estimate since there are no met towers on site.
5. All public / county roads were assumed to be removed during decommissioning.
6. Each wind turbine generates three-phase electrical power that is transformed to 34.5 kV with a medium-voltage pad mount transformer. All such transformers and foundations were assumed to be removed as part of this Study.
7. Power from each transformer is delivered to an on-site collector substation via an underground power collection system. It is assumed that all cables are to be buried at a minimum depth of 48 inches below grade. At this depth, all cables (including both power and communication cabling) were assumed to remain in place after the Project is decommissioned.
8. Power from each wind turbine is delivered via underground power collection circuits to an on-site collector substation, where it is transformed from 34.5 kV to 230 kV via three main power transformers.
9. Output from the Project is delivered to the point of interconnection through an approximately 14.5-mile, 230-kV, transmission line that runs through Hale County, Texas. All above-grade equipment for this line, including structures and cabling and all below-grade equipment to a depth of four feet were assumed to be removed as part of the Study. According to issued-for-review drawings provided by Xcel Energy, this transmission line includes 87 structures.

4.2.3 Harrington Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy's team. At Harrington, it is assumed that 95 percent of asbestos has been abated.
2. It was assumed there are 15,000 gallons of lube oil on site.
3. It is assumed that there are no wells on site.
4. A mercury survey was not available for review. Standard removal and disposal costs were included in the estimate.
5. There are no nuclear devices associated with coal handling facilities on site.
6. During the site visit Xcel Energy personnel indicated that there are no PCBs on site.
7. The coal handling equipment and the coal pile are owned by a different party and therefore have been excluded from the estimate.
8. It is assumed that Xcel Energy will incur the cost of rail removal up to ten feet from the main line.
9. Based on the amount of concrete on site and the size of the basement, it is assumed that no additional backfill will have to be imported to fill the basement.

4.2.4 Jones Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy's team. At Jones, it is assumed that no asbestos has been abated.
2. A mercury survey was not available for review. Standard removal and disposal costs were included in the estimate.
3. Lead based paint is expected with testing during demolition. During site visits Xcel Energy indicated that there is lead based paint present at Jones.
4. During the site visit Xcel Energy indicated that there are no PCBs on site.
5. It is assumed there have been no major spills and therefore there is also no contaminated soil or concrete on site.
6. Based on the amount of concrete on site and the size of the basement, it is assumed that no additional backfill will have to be imported to fill the basement.
7. It is assumed there are no wells on site since the plant uses city water.

4.2.5 Maddox Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy's team. At Maddox, it is assumed that 90 percent of asbestos remains.
2. It is assumed that there are 8 wells, each with an eight-inch diameter and depth of 120 -150 feet and one potable water well with a diameter of six-inches and depth of 180 feet.
3. A mercury survey was not available for review. Based on conversations with plant personnel from the site visit, standard removal and disposal costs were included for one gallon of mercury.
4. During the site visit, Xcel Energy indicated that there are no PCBs on site.

4.2.6 Nichols Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy's team. At Nichols, fifty percent of asbestos remains.
2. Based on information provided by Xcel Energy personnel, there are 3,000 gallons of lube oil onsite. Lube oil removal cost is included in the estimate.
3. A mercury survey was not available for review. Based on a conversation with plant personnel from the site visit, standard removal and disposal costs were included.
4. During the site visit, Xcel Energy personnel indicated that transformers contain some PCB residuals. The added environmental costs associated with the removal of PCBs are included in the universal and regulated waste category in the estimate.
5. Two cooling tower blowdown ponds to the west of the plant site are included in the scope of the estimate.

4.2.7 Plant X

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with Xcel Energy's team. At Plant X, it is assumed that approximately 50 percent of the total asbestos has been abated. For the boilers, approximately 60 percent of the asbestos has been abated.
2. It was assumed there are 3,000 gallons of lube oil per unit on site.
3. Based on conversations with plant personnel from the site visit, it is assumed that there are nine wells, each with a width of eight inches and depth of 400 feet.
4. A mercury survey was not available for review. Based on conversations with plant personnel, it is assumed that there is no mercury on site.

5. During the site visit Xcel Energy indicated that there are no PCBs on site.
6. Lead-based paint is expected with testing during demolition. It is assumed that approximately 50 to 60 percent of the lead-based paint has been abated.

4.2.8 Quay County

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The two fuel oil tanks will be removed during decommissioning.
4. Demolition activities for the area below the fuel tanks include removing and disposing of 12 inches of soil, backfilling, grading, adding topsoil, fine grading, and seeding.

4.2.9 Tolk Generating Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with the Xcel Energy team. At Tolk, minimal asbestos remains as it only exists in mastics and a few gaskets.
2. All rail associated with the coal handling facilities will be removed up to ten feet from the main line.
3. Based on information provided by Xcel Energy personnel, there are 12,000 gallons of lube oil onsite. Lube oil removal costs are included in the estimate.
4. There are approximately 80 wells associated with the plant that are included in the estimate.
5. Condensers associated with the two units have stainless steel tubing.
6. A mercury survey was not available for review. Based on conversations with plant personnel from the site visit, standard removal and disposal costs were included for one gallon of mercury.
7. During the site visit, Xcel Energy personnel indicated that all PCB containing oils have been removed from the transformers.
8. There are no nuclear devices associated with coal handling facilities on site.
9. Coal handling conveyors and equipment are included in the estimate. Coal pile remediation is also included in the estimate.
10. Fifteen lined evaporative ponds and two lined cooling tower blowdown ponds are included in the estimate.
11. Lead-based paint is expected with testing during demolition. During site visits, Xcel Energy indicated that there is lead based paint present at Tolk.

5.0 RESULTS

Burns & McDonnell has prepared cost estimates in 2018 dollars for the decommissioning of the Plants. These cost estimates are summarized in Table 5-1. When Xcel Energy determines that the Plants should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a scrap contractor to offset a portion of the decommissioning costs. Xcel Energy will incur costs in the demolition and restoration of the sites less the scrap value of equipment and bulk recycled metals.

Table 5-1: Decommissioning Cost Summary (2018$)

Plant	Total Cost	Total Credits	Total Net Cost
Cunningham Generating Station	$23,014,000	($4,857,000)	$18,157,000
Hale Wind Farm	$31,350,800	($14,710,000)	$16,640,800
Harrington Generating Station	$68,203,000	($12,939,000)	$55,264,000
Jones Generating Station	$36,554,000	($7,417,000)	$29,137,000
Maddox Generating Station	$11,639,000	($1,770,000)	$9,869,000
Nichols Generating Station	$37,077,000	($7,020,000)	$30,057,000
Plant X	$33,034,000	($6,870,000)	$26,164,000
Quay County	$724,000	($165,000)	$559,000
Tolk Generating Station	$131,194,000	($10,824,000)	$120,370,000
Fleet Total	**$372,789,800**	**($66,572,000)**	**$306,217,800**

The total net project costs presented above include the costs to return the sites to an industrial condition suitable for reuse for development of an industrial facility. Included are the costs to dismantle the power generating equipment owned by Xcel Energy, costs to dismantle the Xcel Energy owned Balance of Plant facilities and environmental site restoration activities. A detailed breakdown of costs can be found in Appendix A.

APPENDIX A - COST ESTIMATE SUMMARIES

Table A-1
Cunningham
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Cunningham						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 921,000	$ 921,000	$ -
Boiler	$ 619,000	$ 623,000	$ -	$ -	$ 1,242,000	$ -
Steam Turbine & Building	$ 560,000	$ 563,000	$ -	$ -	$ 1,123,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 81,000	$ 81,000	$ -	$ -	$ 162,000	$ -
Stacks	$ 7,000	$ 7,000	$ -	$ -	$ 14,000	$ -
Cooling Towers & Basin	$ 404,000	$ 406,000	$ -	$ -	$ 810,000	$ -
GSU & Foundation	$ 33,000	$ 34,000	$ -	$ -	$ 67,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 87,000	$ -	$ 87,000	$ -
Debris	$ -	$ -	$ 15,000	$ -	$ 15,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,262,000)
Subtotal	**$ 1,704,000**	**$ 1,714,000**	**$ 102,000**	**$ 921,000**	**$ 4,441,000**	**$ (1,262,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 1,338,000	$ 1,338,000	$ -
Boiler	$ 1,246,000	$ 1,253,000	$ -	$ -	$ 2,499,000	$ -
Steam Turbine & Building	$ 697,000	$ 701,000	$ -	$ -	$ 1,398,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 110,000	$ 110,000	$ -	$ -	$ 220,000	$ -
Stacks	$ 12,000	$ 12,000	$ -	$ -	$ 24,000	$ -
Cooling Towers & Basin	$ 580,000	$ 583,000	$ -	$ -	$ 1,163,000	$ -
GSU & Foundation	$ 26,000	$ 26,000	$ -	$ -	$ 52,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 110,000	$ -	$ 110,000	$ -
Debris	$ -	$ -	$ 28,000	$ -	$ 28,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,561,000)
Subtotal	**$ 2,671,000**	**$ 2,685,000**	**$ 138,000**	**$ 1,338,000**	**$ 6,832,000**	**$ (2,561,000)**
CTs 1-2						
CTs and HRSGs	$ 723,000	$ 727,000	$ -	$ -	$ 1,450,000	$ -
Stacks	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
GSU & Foundation	$ 70,000	$ 71,000	$ -	$ -	$ 141,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 41,000	$ -	$ 41,000	$ -
Debris	$ -	$ -	$ 36,000	$ -	$ 36,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (960,000)
Subtotal	**$ 799,000**	**$ 804,000**	**$ 77,000**	**$ -**	**$ 1,680,000**	**$ (960,000)**
Common						
BOP Misc.	$ 3,000	$ 3,000	$ -	$ -	$ 6,000	$ -
Roads	$ 80,000	$ 80,000	$ -	$ -	$ 160,000	$ -
All BOP Buildings	$ 307,000	$ 308,000	$ -	$ -	$ 615,000	$ -
Transformers & Foundation	$ 10,000	$ 10,000	$ -	$ 352,000	$ 372,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 655,000	$ 655,000	$ -
Closure of Deep Wells	$ -	$ -	$ -	$ 93,000	$ 93,000	$ -
Pond Closure	$ -	$ -	$ -	$ 2,104,000	$ 2,104,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 33,000	$ -	$ 33,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 710,000	$ 710,000	$ -
Debris	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (74,000)
Subtotal	**$ 400,000**	**$ 401,000**	**$ 35,000**	**$ 3,914,000**	**$ 4,750,000**	**$ (74,000)**
Cunningham Subtotal	**$ 5,574,000**	**$ 5,604,000**	**$ 352,000**	**$ 6,173,000**	**$ 17,703,000**	**$ (4,857,000)**
TOTAL DECOM COST (CREDIT)					**$ 17,703,000**	**$ (4,857,000)**
PROJECT INDIRECTS (10%)					**$ 1,770,000**	
CONTINGENGY (20%)					**$ 3,541,000**	
TOTAL PROJECT COST (CREDIT)					**$ 23,014,000**	**$ (4,857,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 18,157,000**	

Table A-2
Hale Wind Farm
Decommissioning Cost Summary

	Total Cost	Scrap Value
Hale Wind Farm		
Wind Turbine Removal Cost		
Removal	$ 14,151,000	$ -
Hauling & Disposal	$ 1,296,000	$ -
Subtotal	**$ 15,447,000**	**$ (14,110,000)**
Wind Turbine Foundation Removal Cost		
Removal	$ 865,000	$ -
Hauling & Disposal	$ 992,000	$ -
Subtotal	**$ 1,857,000**	**$ -**
Collection System Removal Cost		
Removal	$ 61,000	$ -
Subtotal	**$ 61,000**	**$ -**
Substation Removal Cost		
Removal	$ 539,000	$ -
Hauling & Disposal	$ 17,000	$ -
Subtotal	**$ 556,000**	**$ (460,000)**
Transmission Line Removal Cost		
Equipment Removal	$ 3,673,000	$ -
Hauling & Disposal	$ 49,000	$ -
Subtotal	**$ 3,722,000**	**$ (119,000)**
Civil Works Removal Cost		
Removal	$ 1,390,000	$ -
Hauling & Disposal	$ 472,000	$ -
Grading & Seeding Costs	$ 493,000	$ -
Subtotal	**$ 2,355,000**	**$ -**
O&M Facility Removal		
Removal	$ 33,000	$ -
Hauling & Disposal	$ 30,000	$ -
Subtotal	**$ 63,000**	**$ (21,000)**
Other Costs		
Oils & Chemicals Removal & Disposal	$ 55,000	$ -
Subtotal	**$ 55,000**	**$ -**
Hale Wind Farm	**$ 24,116,000**	**$ (14,710,000)**
TOTAL DECOM COST (CREDIT)	**$ 24,116,000**	**$ (14,710,000)**
PROJECT INDIRECTS (10%)	**$ 2,411,600**	
CONTINGENGY (20%)	**$ 4,823,200**	
TOTAL PROJECT COST (CREDIT)	**$ 31,350,800**	**$ (14,710,000)**
TOTAL NET PROJECT COST (CREDIT)	**$ 16,640,800**	

Table A-3
Harrington Coal
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Harrington Coal						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 227,000	$ 227,000	$ -
Boiler	$ 2,048,000	$ 2,059,000	$ -	$ -	$ 4,107,000	$ -
Steam Turbine & Building	$ 646,000	$ 649,000	$ -	$ -	$ 1,295,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 33,000	$ 33,000	$ 352,000	$ -	$ 418,000	$ -
Precipitator	$ 850,000	$ 855,000	$ -	$ -	$ 1,705,000	$ -
Switchgear & Electrical	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
Stacks	$ 65,000	$ 65,000	$ -	$ -	$ 130,000	$ -
Cooling Towers & Basin	$ 1,000,000	$ 1,006,000	$ -	$ -	$ 2,006,000	$ -
Tanks	$ 36,000	$ 36,000	$ -	$ -	$ 72,000	$ -
GSU & Foundation	$ 154,000	$ 155,000	$ -	$ -	$ 309,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 235,000	$ -	$ 235,000	$ -
Debris	$ -	$ -	$ 54,000	$ -	$ 54,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (4,527,000)
Subtotal	**$ 4,837,000**	**$ 4,863,000**	**$ 641,000**	**$ 227,000**	**$ 10,568,000**	**$ (4,527,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 227,000	$ 227,000	$ -
Boiler	$ 2,048,000	$ 2,059,000	$ -	$ -	$ 4,107,000	$ -
Steam Turbine & Building	$ 646,000	$ 649,000	$ -	$ -	$ 1,295,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 33,000	$ 33,000	$ -	$ 117,000	$ 183,000	$ -
Switchgear & Electrical	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
Baghouse	$ 501,000	$ 504,000	$ -	$ -	$ 1,005,000	$ -
Stacks	$ 55,000	$ 55,000	$ -	$ -	$ 110,000	$ -
Cooling Towers & Basin	$ 1,171,000	$ 1,178,000	$ -	$ -	$ 2,349,000	$ -
Tanks	$ 23,000	$ 24,000	$ -	$ -	$ 47,000	$ -
GSU & Foundation	$ 81,000	$ 82,000	$ -	$ -	$ 163,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 236,000	$ -	$ 236,000	$ -
Debris	$ -	$ -	$ 54,000	$ -	$ 54,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,895,000)
Subtotal	**$ 4,563,000**	**$ 4,589,000**	**$ 290,000**	**$ 344,000**	**$ 9,786,000**	**$ (3,895,000)**
Unit 3						
Asbestos Removal	$ -	$ -	$ -	$ 227,000	$ 227,000	$ -
Boiler	$ 2,048,000	$ 2,059,000	$ -	$ -	$ 4,107,000	$ -
Steam Turbine & Building	$ 646,000	$ 649,000	$ -	$ -	$ 1,295,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 33,000	$ 33,000	$ -	$ 117,000	$ 183,000	$ -
Switchgear & Electrical	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
Baghouse	$ 435,000	$ 438,000	$ -	$ -	$ 873,000	$ -
Stacks	$ 55,000	$ 55,000	$ -	$ -	$ 110,000	$ -
Cooling Towers & Basin	$ 972,000	$ 978,000	$ -	$ -	$ 1,950,000	$ -
Tanks	$ 43,000	$ 43,000	$ -	$ -	$ 86,000	$ -
GSU & Foundation	$ 81,000	$ 81,000	$ -	$ -	$ 162,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 215,000	$ -	$ 215,000	$ -
Debris	$ -	$ -	$ 54,000	$ -	$ 54,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,875,000)
Subtotal	**$ 4,318,000**	**$ 4,341,000**	**$ 269,000**	**$ 344,000**	**$ 9,272,000**	**$ (3,875,000)**
Handling						
Rail Removal	$ 1,198,000	$ 1,205,000	$ -	$ -	$ 2,403,000	$ -
Coal Pile Remediation	$ -	$ -	$ -	$ -	$ -	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 75,000	$ -	$ 75,000	$ -
Debris	$ -	$ -	$ 36,000	$ -	$ 36,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (407,000)
Subtotal	**$ 1,198,000**	**$ 1,205,000**	**$ 111,000**	**$ -**	**$ 2,514,000**	**$ (407,000)**
Common						
BOP Misc.	$ 12,000	$ 12,000	$ -	$ -	$ 24,000	$ -
Roads	$ 199,000	$ 200,000	$ -	$ -	$ 399,000	$ -
All BOP Buildings	$ 549,000	$ 552,000	$ -	$ -	$ 1,101,000	$ -
Fuel Equipment	$ 12,000	$ 12,000	$ -	$ -	$ 24,000	$ -
All Other Tanks	$ 159,000	$ 160,000	$ -	$ -	$ 319,000	$ -
Pond Closures	$ -	$ -	$ -	$ 12,517,000	$ 12,517,000	$ -
Universal & Regulated Waste	$ -	$ -	$ -	$ 3,458,000	$ 3,458,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 50,000	$ -	$ 50,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 2,410,000	$ 2,410,000	$ -
Debris	$ -	$ -	$ 22,000	$ -	$ 22,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (235,000)
Subtotal	**$ 931,000**	**$ 936,000**	**$ 72,000**	**$ 18,385,000**	**$ 20,324,000**	**$ (235,000)**
Harrington Coal Subtotal	**$ 15,847,000**	**$ 15,934,000**	**$ 1,383,000**	**$ 19,300,000**	**$ 52,464,000**	**$ (12,939,000)**
TOTAL DECOM COST (CREDIT)					**$ 52,464,000**	**$ (12,939,000)**
PROJECT INDIRECTS (10%)					**$ 5,246,000**	
CONTINGENCY (20%)					**$ 10,493,000**	
TOTAL PROJECT COST (CREDIT)					**$ 68,203,000**	**$ (12,939,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 55,264,000**	

Table A-4
Jones
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Jones						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 3,347,000	$ 3,347,000	$ -
Boiler	$ 1,585,000	$ 1,594,000	$ -	$ -	$ 3,179,000	$ -
Steam Turbine & Building	$ 876,000	$ 881,000	$ -	$ -	$ 1,757,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 10,000	$ 10,000	$ 38,000	$ -	$ 58,000	$ -
Stacks	$ 14,000	$ 15,000	$ -	$ -	$ 29,000	$ -
Cooling Towers & Basin	$ 490,000	$ 493,000	$ -	$ -	$ 983,000	$ -
GSU & Foundation	$ 93,000	$ 94,000	$ -	$ -	$ 187,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 119,000	$ -	$ 119,000	$ -
Debris	$ -	$ -	$ 24,000	$ -	$ 24,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,786,000)
Subtotal	**$ 3,068,000**	**$ 3,087,000**	**$ 181,000**	**$ 3,347,000**	**$ 9,683,000**	**$ (2,786,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 3,347,000	$ 3,347,000	$ -
Boiler	$ 1,591,000	$ 1,600,000	$ -	$ -	$ 3,191,000	$ -
Steam Turbine & Building	$ 876,000	$ 881,000	$ -	$ -	$ 1,757,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 10,000	$ 10,000	$ 38,000	$ -	$ 58,000	$ -
Stacks	$ 14,000	$ 15,000	$ -	$ -	$ 29,000	$ -
Cooling Towers & Basin	$ 593,000	$ 596,000	$ -	$ -	$ 1,189,000	$ -
GSU & Foundation	$ 99,000	$ 99,000	$ -	$ -	$ 198,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 129,000	$ -	$ 129,000	$ -
Debris	$ -	$ -	$ 24,000	$ -	$ 24,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,793,000)
Subtotal	**$ 3,183,000**	**$ 3,201,000**	**$ 191,000**	**$ 3,347,000**	**$ 9,922,000**	**$ (2,793,000)**
Unit 3 and Unit 4						
CTs & HRSGs	$ 695,000	$ 699,000	$ -	$ -	$ 1,394,000	$ -
Stacks	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
GSU & Foundation	$ 131,000	$ 132,000	$ -	$ -	$ 263,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 39,000	$ -	$ 39,000	$ -
Debris	$ -	$ -	$ 401,000	$ -	$ 401,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,416,000)
Subtotal	**$ 832,000**	**$ 837,000**	**$ 440,000**	**$ -**	**$ 2,109,000**	**$ (1,416,000)**
Common						
BOP Misc.	$ 195,000	$ 197,000	$ -	$ -	$ 392,000	$ -
Roads	$ 118,000	$ 119,000	$ -	$ -	$ 237,000	$ -
All BOP Buildings	$ 124,000	$ 124,000	$ -	$ -	$ 248,000	$ -
Fuel Equipment	$ 275,000	$ 276,000	$ -	$ -	$ 551,000	$ -
All Other Tanks	$ 292,000	$ 293,000	$ -	$ -	$ 585,000	$ -
Pond Closure	$ -	$ -	$ -	$ 302,000	$ 302,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 3,033,000	$ 3,033,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 48,000	$ -	$ 48,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 1,004,000	$ 1,004,000	$ -
Debris	$ -	$ -	$ 4,000	$ -	$ 4,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (422,000)
Subtotal	**$ 1,004,000**	**$ 1,009,000**	**$ 52,000**	**$ 4,339,000**	**$ 6,404,000**	**$ (422,000)**
Jones Subtotal	**$ 8,087,000**	**$ 8,134,000**	**$ 864,000**	**$ 11,033,000**	**$ 28,118,000**	**$ (7,417,000)**
TOTAL DECOM COST (CREDIT)					**$ 28,118,000**	**$ (7,417,000)**
PROJECT INDIRECTS (10%)					**$ 2,812,000**	
CONTINGENGY (20%)					**$ 5,624,000**	
TOTAL PROJECT COST (CREDIT)					**$ 36,554,000**	**$ (7,417,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 29,137,000**	

Table A-5
Maddox
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Maddox						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 1,396,000	$ 1,396,000	$ -
Boiler	$ 1,273,000	$ 902,000	$ -	$ -	$ 2,175,000	$ -
Steam Turbine & Building	$ 605,000	$ 428,000	$ -	$ -	$ 1,033,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 13,000	$ 9,000	$ 19,000	$ -	$ 41,000	$ -
Stacks	$ 11,000	$ 7,000	$ -	$ -	$ 18,000	$ -
Cooling Towers & Basin	$ 397,000	$ 281,000	$ -	$ -	$ 678,000	$ -
GSU & Foundation	$ 63,000	$ 45,000	$ -	$ -	$ 108,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 96,000	$ -	$ 96,000	$ -
Debris	$ -	$ -	$ 17,000	$ -	$ 17,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,234,000)
Subtotal	**$ 2,362,000**	**$ 1,672,000**	**$ 132,000**	**$ 1,396,000**	**$ 5,562,000**	**$ (1,234,000)**
Unit 2						
CT	$ 612,000	$ 433,000	$ -	$ -	$ 1,045,000	$ -
Stacks	$ 4,000	$ 3,000	$ -	$ -	$ 7,000	$ -
GSU & Foundation	$ 37,000	$ 26,000	$ -	$ -	$ 63,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 35,000	$ -	$ 35,000	$ -
Debris	$ -	$ -	$ 9,000	$ -	$ 9,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (366,000)
Subtotal	**$ 653,000**	**$ 462,000**	**$ 44,000**	**$ -**	**$ 1,159,000**	**$ (366,000)**
Unit 3						
CT	$ 48,000	$ 34,000	$ -	$ -	$ 82,000	$ -
Stacks	$ 4,000	$ 3,000	$ -	$ -	$ 7,000	$ -
GSU & Foundation	$ 29,000	$ 21,000	$ -	$ -	$ 50,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (99,000)
Subtotal	**$ 81,000**	**$ 58,000**	**$ 3,000**	**$ -**	**$ 142,000**	**$ (99,000)**
Common						
Switchyard and Substation	$ 36,000	$ 26,000	$ -	$ -	$ 62,000	$ -
Roads	$ 62,000	$ 44,000	$ -	$ -	$ 106,000	$ -
All BOP Buildings	$ 91,000	$ 64,000	$ -	$ -	$ 155,000	$ -
Fuel Equipment	$ 3,000	$ 2,000	$ -	$ -	$ 5,000	$ -
All Other Tanks	$ 109,000	$ 77,000	$ -	$ -	$ 186,000	$ -
Wells	$ -	$ -	$ -	$ 37,000	$ 37,000	$ -
Pond Closures	$ -	$ -	$ -	$ 590,000	$ 590,000	$ -
Universal & Regulated Waste	$ -	$ -	$ -	$ 523,000	$ 523,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 10,000	$ -	$ 10,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 403,000	$ 403,000	$ -
Debris	$ -	$ -	$ 13,000	$ -	$ 13,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (71,000)
Subtotal	**$ 301,000**	**$ 213,000**	**$ 23,000**	**$ 1,553,000**	**$ 2,090,000**	**$ (71,000)**
Maddox Subtotal	**$ 3,397,000**	**$ 2,405,000**	**$ 202,000**	**$ 2,949,000**	**$ 8,953,000**	**$ (1,770,000)**
TOTAL DECOM COST (CREDIT)					**$ 8,953,000**	**$ (1,770,000)**
PROJECT INDIRECTS (10%)					**$ 895,000**	
CONTINGENGY (20%)					**$ 1,791,000**	
TOTAL PROJECT COST (CREDIT)					**$ 11,639,000**	**$ (1,770,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 9,869,000**	

Table A-6
Nichols
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Nichols						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 712,000	$ 712,000	$ -
Boiler	$ 797,000	$ 802,000	$ -	$ -	$ 1,599,000	$ -
Steam Turbine & Building	$ 493,000	$ 496,000	$ -	$ -	$ 989,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 39,000	$ 39,000	$ -	$ -	$ 78,000	$ -
Stacks	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
Cooling Towers & Basin	$ 535,000	$ 538,000	$ -	$ -	$ 1,073,000	$ -
GSU & Foundation	$ 59,000	$ 59,000	$ -	$ -	$ 118,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 84,000	$ -	$ 84,000	$ -
Debris	$ -	$ -	$ 12,000	$ -	$ 12,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,813,000)
Subtotal	**$ 1,931,000**	**$ 1,942,000**	**$ 96,000**	**$ 712,000**	**$ 4,681,000**	**$ (1,813,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 706,000	$ 706,000	$ -
Boiler	$ 797,000	$ 802,000	$ -	$ -	$ 1,599,000	$ -
Steam Turbine & Building	$ 492,000	$ 495,000	$ -	$ -	$ 987,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 36,000	$ 36,000	$ -	$ -	$ 72,000	$ -
Stacks	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
Cooling Towers & Basin	$ 535,000	$ 538,000	$ -	$ -	$ 1,073,000	$ -
GSU & Foundation	$ 42,000	$ 42,000	$ -	$ -	$ 84,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 83,000	$ -	$ 83,000	$ -
Debris	$ -	$ -	$ 12,000	$ -	$ 12,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,811,000)
Subtotal	**$ 1,910,000**	**$ 1,921,000**	**$ 95,000**	**$ 706,000**	**$ 4,632,000**	**$ (1,811,000)**
Unit 3						
Asbestos Removal	$ -	$ -	$ -	$ 1,624,000	$ 1,624,000	$ -
Boiler	$ 1,345,000	$ 1,352,000	$ -	$ -	$ 2,697,000	$ -
Steam Turbine & Building	$ 626,000	$ 629,000	$ -	$ -	$ 1,255,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 54,000	$ 55,000	$ -	$ -	$ 109,000	$ -
Stacks	$ 13,000	$ 14,000	$ -	$ -	$ 27,000	$ -
Cooling Towers & Basin	$ 670,000	$ 673,000	$ -	$ -	$ 1,343,000	$ -
GSU & Foundation	$ 57,000	$ 57,000	$ -	$ -	$ 114,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 105,000	$ -	$ 105,000	$ -
Debris	$ -	$ -	$ 22,000	$ -	$ 22,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,060,000)
Subtotal	**$ 2,765,000**	**$ 2,780,000**	**$ 127,000**	**$ 1,624,000**	**$ 7,296,000**	**$ (3,060,000)**
Common						
BOP Misc.	$ 869,000	$ 874,000	$ -	$ -	$ 1,743,000	$ -
Roads	$ 156,000	$ 157,000	$ -	$ -	$ 313,000	$ -
All BOP Buildings	$ 1,160,000	$ 1,167,000	$ -	$ -	$ 2,327,000	$ -
All Other Tanks	$ 73,000	$ 74,000	$ -	$ -	$ 147,000	$ -
Transformers & Foundation	$ 1,000	$ 1,000	$ -	$ 602,000	$ 604,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 1,014,000	$ 1,014,000	$ -
Pond Closures	$ -	$ -	$ -	$ 4,595,000	$ 4,595,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 161,000	$ -	$ 161,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 1,005,000	$ 1,005,000	$ -
Debris	$ -	$ -	$ 3,000	$ -	$ 3,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (336,000)
Subtotal	**$ 2,259,000**	**$ 2,273,000**	**$ 164,000**	**$ 7,216,000**	**$ 11,912,000**	**$ (336,000)**
Nichols Subtotal	**$ 8,865,000**	**$ 8,916,000**	**$ 482,000**	**$ 10,258,000**	**$ 28,521,000**	**$ (7,020,000)**
TOTAL DECOM COST (CREDIT)					**$ 28,521,000**	**$ (7,020,000)**
PROJECT INDIRECTS (10%)					**$ 2,852,000**	
CONTINGENGY (20%)					**$ 5,704,000**	
TOTAL PROJECT COST (CREDIT)					**$ 37,077,000**	**$ (7,020,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 30,057,000**	

Table A-7
Plant X
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Plant X						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 410,000	$ 410,000	$ -
Boiler	$ 474,000	$ 477,000	$ -	$ -	$ 951,000	$ -
Steam Turbine & Building	$ 342,000	$ 344,000	$ -	$ -	$ 686,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 4,000	$ 4,000	$ -	$ -	$ 8,000	$ -
Stacks	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
GSU & Foundation	$ 22,000	$ 22,000	$ -	$ -	$ 44,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 37,000	$ -	$ 37,000	$ -
Debris	$ -	$ -	$ 44,000	$ -	$ 44,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (898,000)
Subtotal	**$ 847,000**	**$ 852,000**	**$ 81,000**	**$ 410,000**	**$ 2,190,000**	**$ (898,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 837,000	$ 837,000	$ -
Boiler	$ 978,000	$ 983,000	$ -	$ -	$ 1,961,000	$ -
Steam Turbine & Building	$ 411,000	$ 413,000	$ -	$ -	$ 824,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
Stacks	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
GSU & Foundation	$ 25,000	$ 25,000	$ -	$ -	$ 50,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 44,000	$ -	$ 44,000	$ -
Debris	$ -	$ -	$ 105,000	$ -	$ 105,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,639,000)
Subtotal	**$ 1,428,000**	**$ 1,435,000**	**$ 149,000**	**$ 837,000**	**$ 3,849,000**	**$ (1,639,000)**
Unit 3						
Asbestos Removal	$ -	$ -	$ -	$ 837,000	$ 837,000	$ -
Boiler	$ 968,000	$ 974,000	$ -	$ -	$ 1,942,000	$ -
Steam Turbine & Building	$ 410,000	$ 413,000	$ -	$ -	$ 823,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
Stacks	$ 16,000	$ 16,000	$ -	$ -	$ 32,000	$ -
GSU & Foundation	$ 22,000	$ 22,000	$ -	$ -	$ 44,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 45,000	$ -	$ 45,000	$ -
Debris	$ -	$ -	$ 83,000	$ -	$ 83,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,626,000)
Subtotal	**$ 1,422,000**	**$ 1,431,000**	**$ 128,000**	**$ 837,000**	**$ 3,818,000**	**$ (1,626,000)**
Unit 4						
Asbestos Removal	$ -	$ -	$ -	$ 1,537,000	$ 1,537,000	$ -
Boiler	$ 1,195,000	$ 1,202,000	$ -	$ -	$ 2,397,000	$ -
Steam Turbine & Building	$ 522,000	$ 525,000	$ -	$ -	$ 1,047,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 9,000	$ 9,000	$ -	$ -	$ 18,000	$ -
Stacks	$ 11,000	$ 11,000	$ -	$ -	$ 22,000	$ -
GSU & Foundation	$ 36,000	$ 37,000	$ -	$ -	$ 73,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 56,000	$ -	$ 56,000	$ -
Debris	$ -	$ -	$ 27,000	$ -	$ 27,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,495,000)
Subtotal	**$ 1,773,000**	**$ 1,784,000**	**$ 83,000**	**$ 1,537,000**	**$ 5,177,000**	**$ (2,495,000)**
Common						
Water Treatment Equipment and Piping	$ -	$ -	$ 263,000	$ -	$ 263,000	$ -
BOP Misc.	$ 775,000	$ 779,000	$ -	$ -	$ 1,554,000	$ -
Roads	$ 52,000	$ 52,000	$ -	$ -	$ 104,000	$ -
All BOP Buildings	$ 218,000	$ 219,000	$ -	$ -	$ 437,000	$ -
Fuel Equipment	$ 141,000	$ 142,000	$ -	$ -	$ 283,000	$ -
All Other Tanks	$ 97,000	$ 98,000	$ -	$ -	$ 195,000	$ -
Transformers & Foundation	$ 12,000	$ 12,000	$ -	$ -	$ 24,000	$ -
Pond Closure	$ -	$ -	$ -	$ 2,090,000	$ 2,090,000	$ -
Transformer Oil Removal	$ -	$ -	$ -	$ 597,000	$ 597,000	$ -
Fuel Oil Storage Tank Cleaning	$ -	$ -	$ -	$ 524,000	$ 524,000	$ -
Fuel Oil Line Flushing/Cleaning	$ -	$ -	$ -	$ 5,000	$ 5,000	$ -
Cooling Towers and Basin	$ 1,059,000	$ 1,065,000	$ -	$ -	$ 2,124,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 1,036,000	$ 1,036,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 189,000	$ -	$ 189,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 878,000	$ 878,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (212,000)
Subtotal	**$ 2,354,000**	**$ 2,367,000**	**$ 453,000**	**$ 5,203,000**	**$ 10,377,000**	**$ (212,000)**
Plant X Subtotal	**$ 7,824,000**	**$ 7,869,000**	**$ 894,000**	**$ 8,824,000**	**$ 25,411,000**	**$ (6,870,000)**
TOTAL DECOM COST (CREDIT)					**$ 25,411,000**	**$ (6,870,000)**
PROJECT INDIRECTS (10%)					**$ 2,541,000**	
CONTINGENGY (20%)					**$ 5,082,000**	
TOTAL PROJECT COST (CREDIT)					**$ 33,034,000**	**$ (6,870,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 26,164,000**	

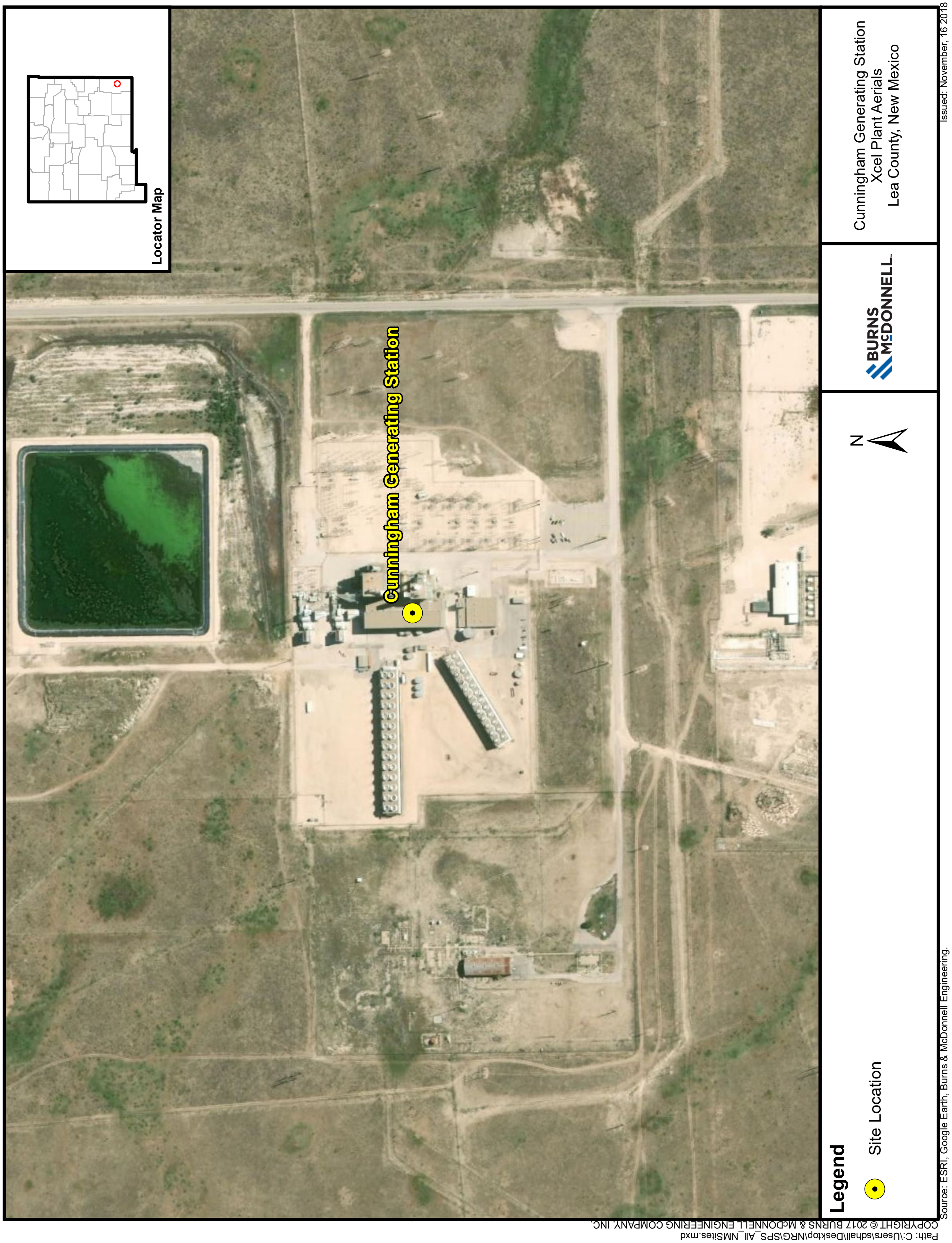
Table A-8
Quay County
Decommissioning Cost Summary

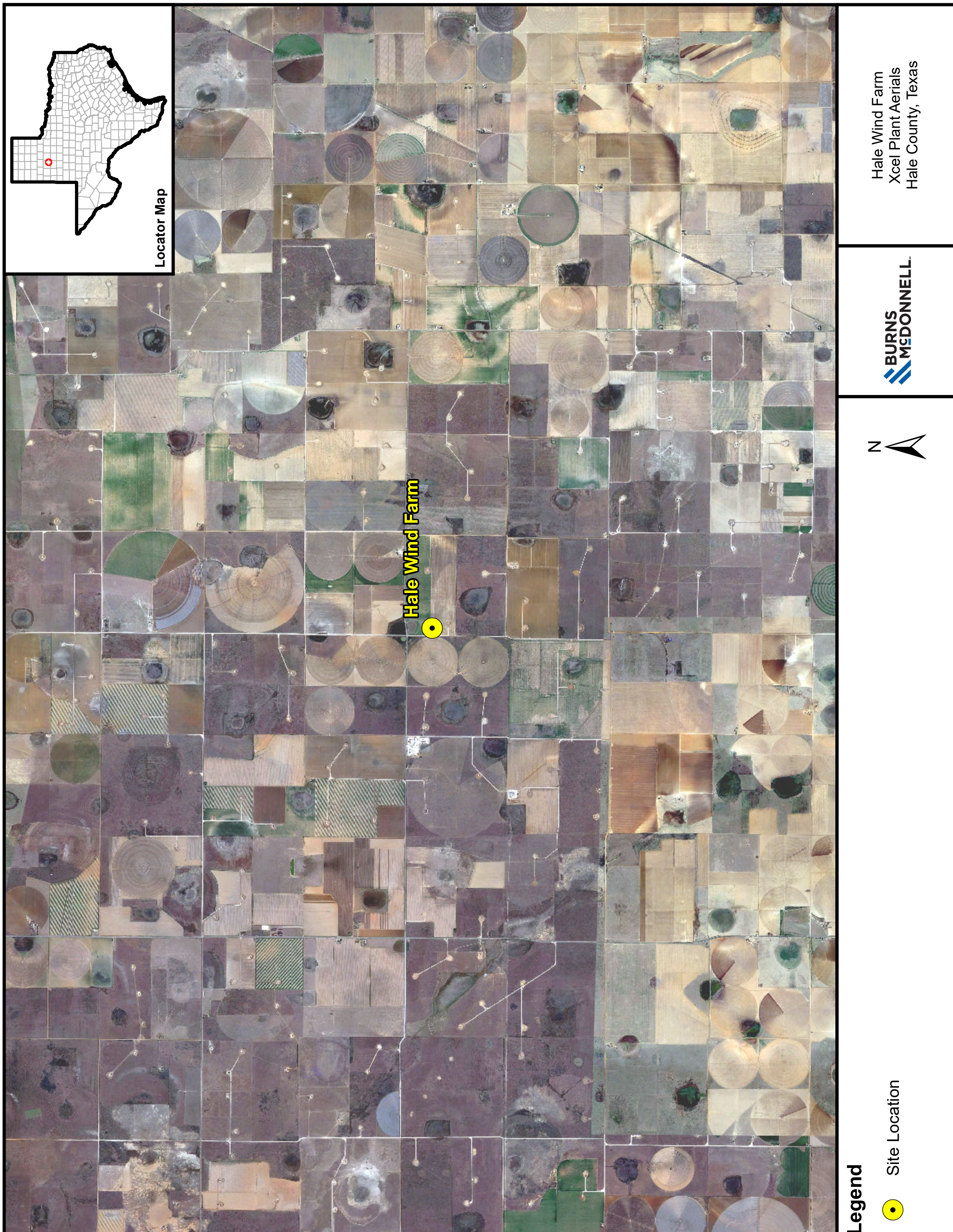
	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Quay County						
Unit 1						
CT	$ 48,000	$ 48,000	$ -	$ -	$ 96,000	$ -
Stacks	$ 4,000	$ 4,000	$ -	$ -	$ 8,000	$ -
GSU & Foundation	$ 16,000	$ 16,000	$ -	$ -	$ 32,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (134,000)
Subtotal	**$ 68,000**	**$ 68,000**	**$ 3,000**	**$ -**	**$ 139,000**	**$ (134,000)**
Common						
BOP Misc.	$ 37,000	$ 37,000	$ -	$ -	$ 74,000	$ -
All BOP Buildings	$ 32,000	$ 32,000	$ -	$ -	$ 64,000	$ -
Fuel Equipment	$ 47,000	$ 48,000	$ -	$ 53,000	$ 148,000	$ -
All Other Tanks	$ -	$ -	$ -	$ 16,000	$ 16,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 81,000	$ 81,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 25,000	$ 25,000	$ -
Debris	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (31,000)
Subtotal	**$ 116,000**	**$ 117,000**	**$ 10,000**	**$ 175,000**	**$ 418,000**	**$ (31,000)**
Quay County Subtotal	**$ 184,000**	**$ 185,000**	**$ 13,000**	**$ 175,000**	**$ 557,000**	**$ (165,000)**
TOTAL DECOM COST (CREDIT)					**$ 557,000**	**$ (165,000)**
PROJECT INDIRECTS (10%)					**$ 56,000**	
CONTINGENGY (20%)					**$ 111,000**	
TOTAL PROJECT COST (CREDIT)					**$ 724,000**	**$ (165,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 559,000**	

Table A-9
Tolk
Decommissioning Cost Summary

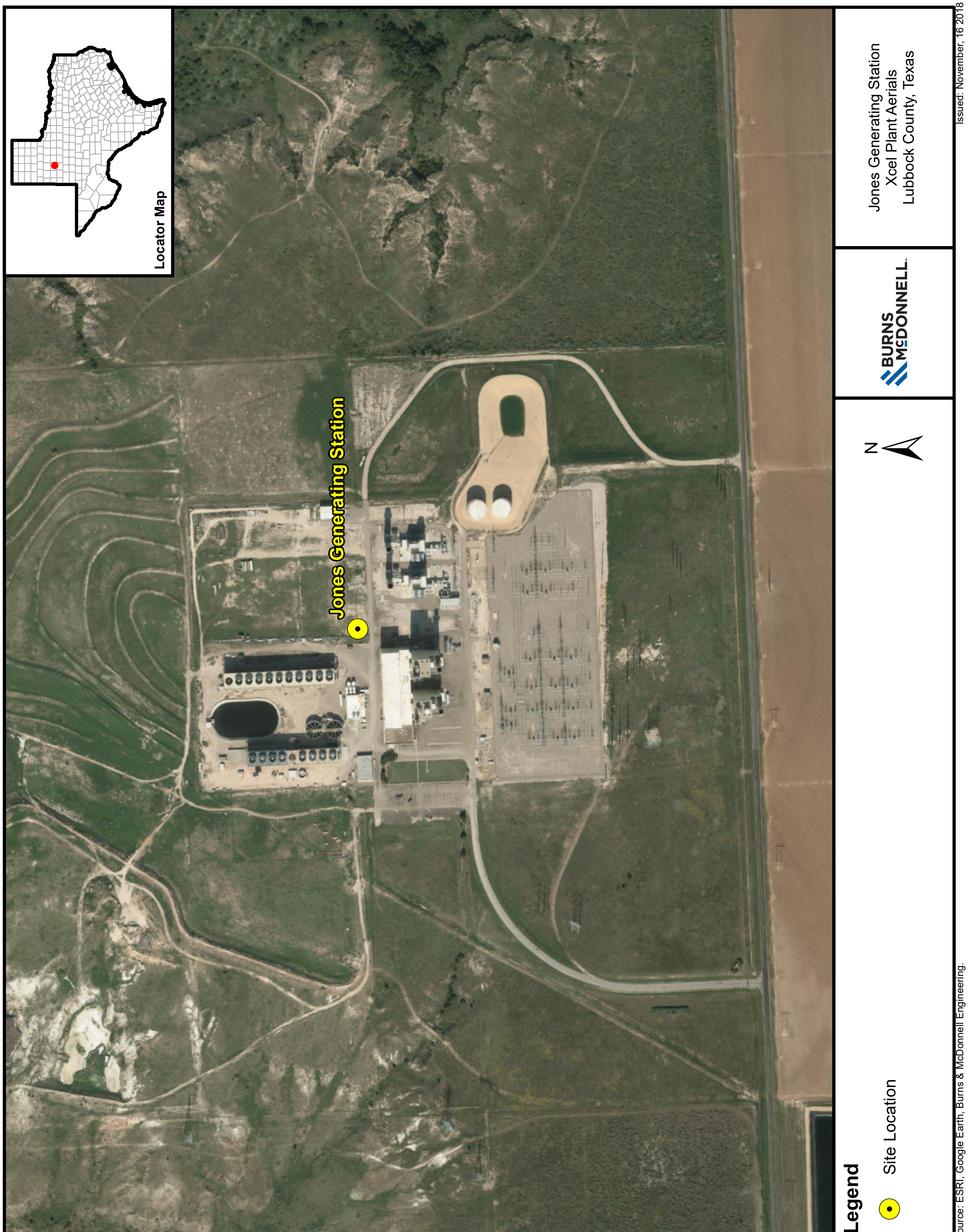
	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Tolk						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 376,000	$ 376,000	$ -
Boiler	$ 2,936,000	$ 2,952,000	$ -	$ -	$ 5,888,000	$ -
Steam Turbine & Building	$ 1,892,000	$ 1,903,000	$ -	$ -	$ 3,795,000	$ -
Cooling Water Intakes and Circulating Water Equipment	$ 198,000	$ 198,000	$ -	$ -	$ 396,000	$ -
Baghouse	$ 936,000	$ 941,000	$ -	$ -	$ 1,877,000	$ -
Stacks	$ 82,000	$ 83,000	$ -	$ -	$ 165,000	$ -
Cooling Towers & Basin	$ 1,706,000	$ 1,716,000	$ -	$ -	$ 3,422,000	$ -
GSU & Foundation	$ 170,000	$ 171,000	$ -	$ -	$ 341,000	$ -
Hazardous Materials Disposal	$ -	$ -	$ -	$ -	$ -	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 457,000	$ -	$ 457,000	$ -
Debris	$ -	$ -	$ 41,000	$ -	$ 41,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (5,034,000)
Subtotal	**$ 7,920,000**	**$ 7,964,000**	**$ 498,000**	**$ 376,000**	**$ 16,758,000**	**$ (5,034,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 376,000	$ 376,000	$ -
Boiler	$ 2,936,000	$ 2,952,000	$ -	$ -	$ 5,888,000	$ -
Steam Turbine & Building	$ 1,892,000	$ 1,903,000	$ -	$ -	$ 3,795,000	$ -
Cooling Water Intakes and Circulating Water Equipment	$ 198,000	$ 198,000	$ -	$ -	$ 396,000	$ -
Baghouse	$ 935,000	$ 941,000	$ -	$ -	$ 1,876,000	$ -
Stacks	$ 82,000	$ 83,000	$ -	$ -	$ 165,000	$ -
Cooling Towers & Basin	$ 1,706,000	$ 1,716,000	$ -	$ -	$ 3,422,000	$ -
GSU & Foundation	$ 184,000	$ 185,000	$ -	$ -	$ 369,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 458,000	$ -	$ 458,000	$ -
Debris	$ -	$ -	$ 41,000	$ -	$ 41,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (5,034,000)
Subtotal	**$ 7,933,000**	**$ 7,978,000**	**$ 499,000**	**$ 376,000**	**$ 16,786,000**	**$ (5,034,000)**
Handling						
Coal Handling Facilites	$ 700,000	$ 704,000	$ -	$ -	$ 1,404,000	$ -
Coal Storage Area Restoration	$ -	$ -	$ -	$ 8,421,000	$ 8,421,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 33,000	$ -	$ 33,000	$ -
Debris	$ -	$ -	$ 33,000	$ -	$ 33,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (358,000)
Subtotal	**$ 700,000**	**$ 704,000**	**$ 66,000**	**$ 8,421,000**	**$ 9,891,000**	**$ (358,000)**
Common						
Water Treatment Equipment and Piping	$ 1,965,000	$ 1,977,000	$ -	$ -	$ 3,942,000	$ -
BOP Misc.	$ 28,000	$ 28,000	$ -	$ -	$ 56,000	$ -
Roads	$ 285,000	$ 287,000	$ -	$ -	$ 572,000	$ -
All BOP Buildings	$ 598,000	$ 601,000	$ -	$ -	$ 1,199,000	$ -
Fuel Equipment	$ 9,000	$ 9,000	$ -	$ -	$ 18,000	$ -
All Other Tanks	$ 218,000	$ 220,000	$ -	$ -	$ 438,000	$ -
Transformers & Foundation	$ 68,000	$ 69,000	$ -	$ 1,486,000	$ 1,623,000	$ -
Closure of Deep Wells	$ -	$ -	$ -	$ 437,000	$ 437,000	$ -
Pond Closures	$ -	$ -	$ -	$ 43,999,000	$ 43,999,000	$ -
Fuel Oil Storage Tank Cleaning	$ -	$ -	$ -	$ 18,000	$ 18,000	$ -
Fuel Oil Line Flushing/Cleaning	$ -	$ -	$ -	$ 4,000	$ 4,000	$ -
Universal and Regulated Waste	$ -	$ -	$ -	$ 2,465,000	$ 2,465,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 230,000	$ -	$ 230,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 2,467,000	$ 2,467,000	$ -
Debris	$ -	$ -	$ 15,000	$ -	$ 15,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (398,000)
Subtotal	**$ 3,171,000**	**$ 3,191,000**	**$ 245,000**	**$ 50,876,000**	**$ 57,483,000**	**$ (398,000)**
Tolk Subtotal	**$ 19,724,000**	**$ 19,837,000**	**$ 1,308,000**	**$ 60,049,000**	**$ 100,918,000**	**$ (10,824,000)**
TOTAL DECOM COST (CREDIT)					**$ 100,918,000**	**$ (10,824,000)**
PROJECT INDIRECTS (10%)					**$ 10,092,000**	
CONTINGENGY (20%)					**$ 20,184,000**	
TOTAL PROJECT COST (CREDIT)					**$ 131,194,000**	**$ (10,824,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 120,370,000**	

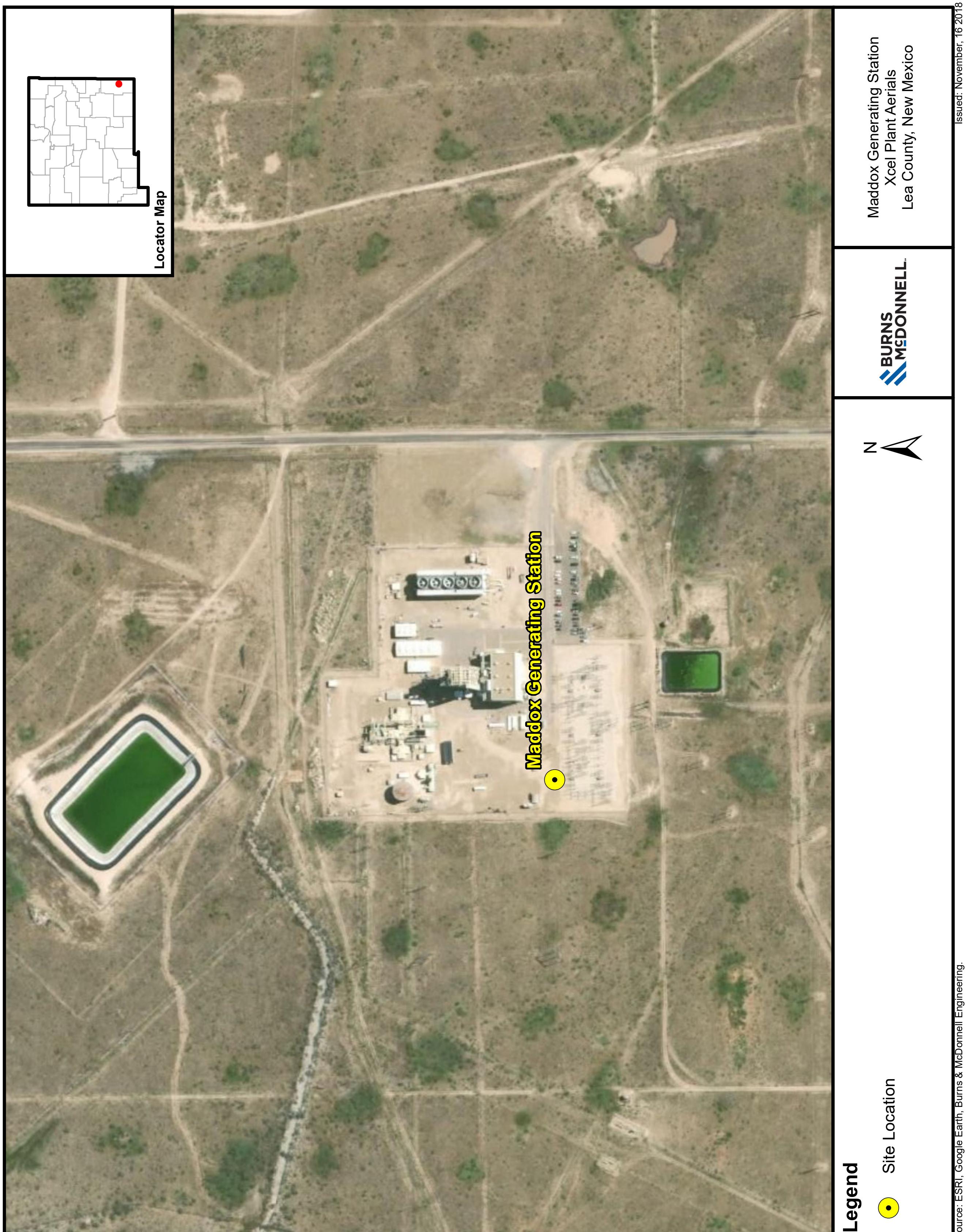
APPENDIX B – PLANT AERIALS


Cunningham Generating Station
Cunningham Generating Station
Xcel Plant Aerials
Lea County, New Mexico
Issued: November, 16 2018
N
Locator Map
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.
Path: C:\Users\sdhall\Desktop\NRG\SPS_All_NMSites.mxd
COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.


Locator Map
Hale Wind Farm
Xcel Plant Aerials
Hale County, Texas
Issued: April, 12 2019
BURNS McDONNELL
N
Hale Wind Farm
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.

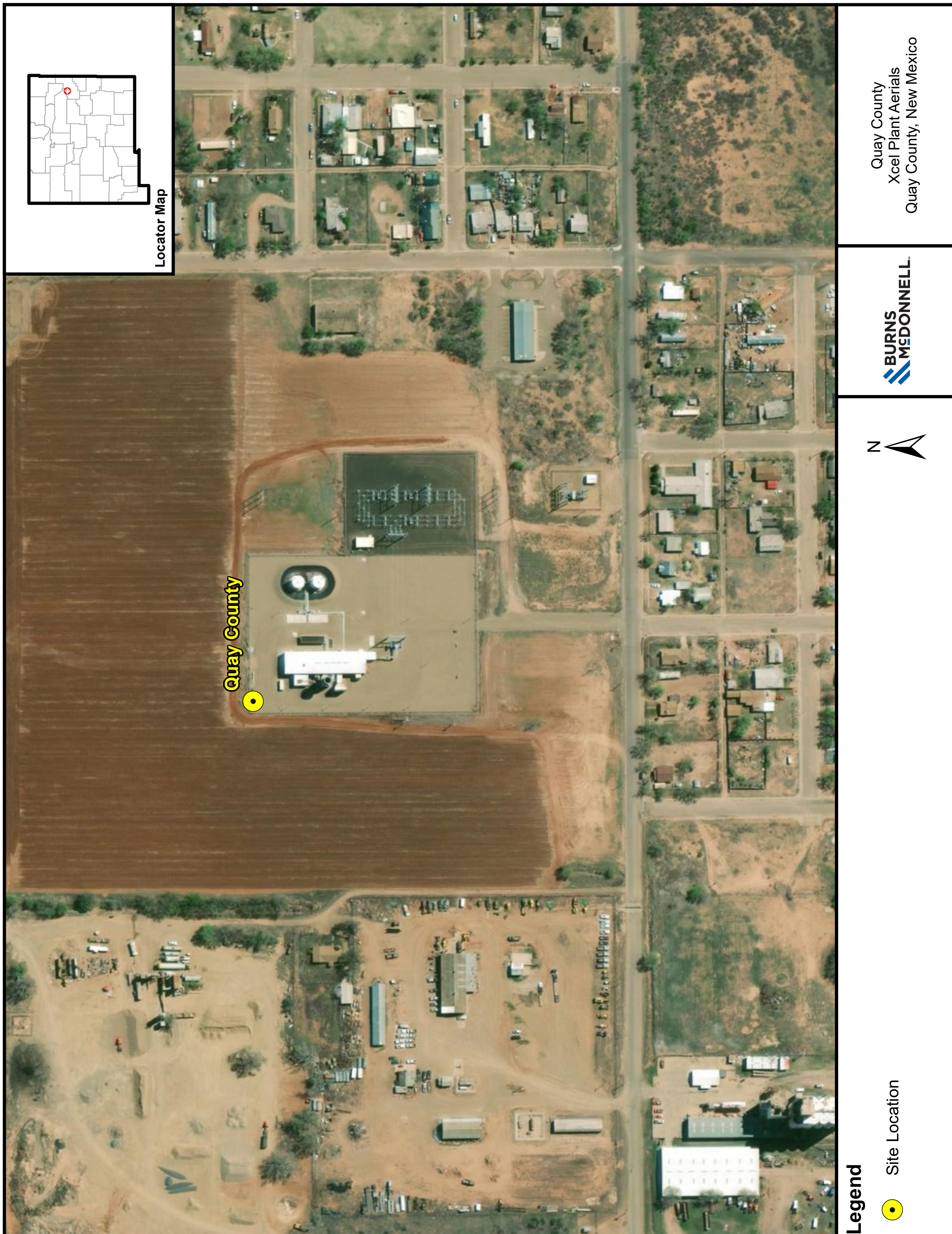

Locator Map
Harrington Generating Station
Legend
Site Location
N
BURNS McDONNELL
Harrington Generating Station
Xcel Plant Aerials
Potter County, Texas
Issued: November, 16 2018
Source: ESRI, Google Earth, Burns & McDonnell Engineering.
Path: C:\Users\sdhall\Desktop\NRG\SPS_All_TexasSites.mxd
COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.


Locator Map
Jones Generating Station
Jones Generating Station
Xcel Plant Aerials
Lubbock County, Texas
Issued: November, 16 2018
N
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.

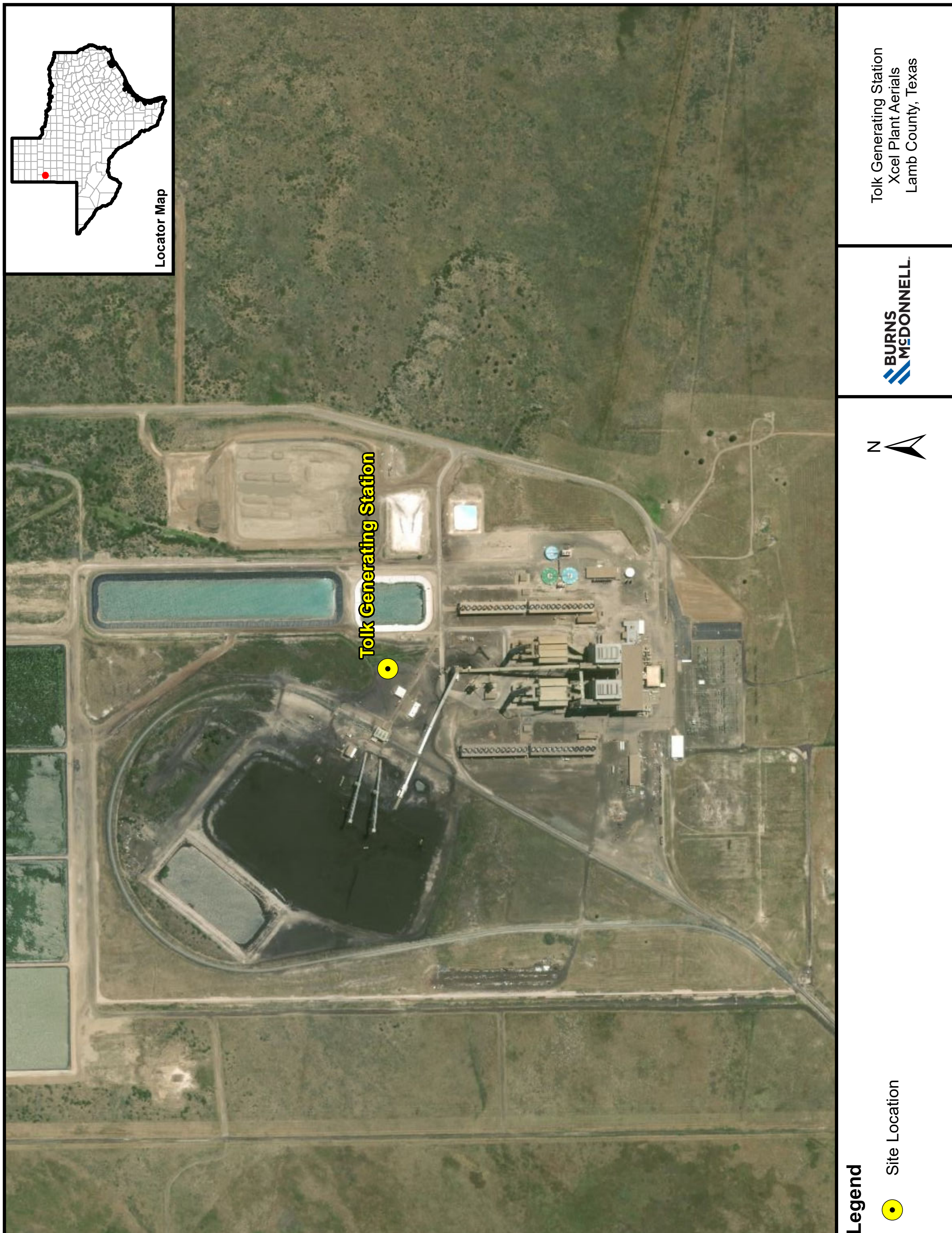

Locator Map
Maddox Generating Station
Maddox Generating Station
Xcel Plant Aerials
Lea County, New Mexico
Issued: November, 16 2018
N
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.


Nichols Generating Station
Xcel Plant Aerials
Potter County, Texas
Issued: November, 16 2018
Locator Map
BURNS McDONNELL
N
Nichols Generating Station
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.
Path: C:\Users\sdhall\Desktop\NRG\SPS_All_TexasSites.mxd
COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.


Locator Map
Plant X
Plant X
Xcel Plant Aerials
Lamb County, Texas
Issued: November, 16 2018
N
Legend
Site Location
Source: ESRI, Google Earth, Burns & McDonnell Engineering.
Path: C:\Users\sdhall\Desktop\NRG\SPS_All_TexasSites.mxd
COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.



Path: C:\Users\sdhall\Desktop\NRG\SPS_All_NMSites.mxd



Path: C:\Users\sdhall\Desktop\NRG\SPS_All_TexasSites.mxd

BURNS & McDONNELL

CREATE AMAZING.

Southwestern Public Service Company

Workpapers of Jeffrey T. Kopp

2019 TX Rate Case

**APPLICATION OF
SOUTHWESTERN PUBLIC SERVICE COMPANY
FOR AUTHORITY TO CHANGE RATES**

JTK-RR-3(CD)

Attachment JTK-RR-4(CONF)(CD)

Pages 1 through 1
of
Attachment JTK-RR-4(CONF)(CD)
Confidential Workpapers of Jeffrey T. Kopp

Are
Confidential Protected Information

CONFIDENTIAL PROTECTED MATERIALS
PROVIDED PURSUANT TO PROTECTIVE ORDER