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January 4, 2016

Xcel Energy, Inc.
Sherburne County Generating Station
13999 Industrial Blvd.
Becker, MN, 55308

Re: Initial Annual Inspection of Bottom Ash Pond

The Bottom Ash Pond (BAP) inspection was conducted on October 19th, 2015 by Daniel J. Riggs, a professional engineer licensed in the State of Minnesota. This was the first inspection done in accordance with the EPA's published Coal Combustion Residual (CCR) Rules under section 257.83. Prior inspections were conducted in 1996, 2008, 2009, 2013 by the Minnesota Department of Natural Resources (DNR); in August 2009 by the EPA; and annually from 2010 to 2014 by Qualified Professional Engineers in accordance with the DNR and Minnesota Pollution Control Agency (MPCA) inspection requirements.

The following items were evaluated as a part of the section 257.83 inspection:

i) Any changes in geometry of the impounding structure since the previous inspection

Periodic topographic surveys, most recently in August 2015, have been conducted on the BAP since the final phase of construction was completed in 1982. During that time, no changes in pond geometry or embankment alignment have been observed.

ii) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection

There is no instrumentation for water level or dike stability, however water level elevation in the BAP is controlled by stop-logs as described in section iii.

iii) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection

The BAP discharges to the Recycle Basin over concrete stop-logs located in the discharge structure. These stop-logs are added or removed to raise or lower the impounded water level in the BAP. In 2015, the maximum water level was maintained at an elevation of 974 (MSL) until late May to promote bottom ash material deposition, then lowered to a minimum elevation of 964 (MSL) allowing access to deposited material by excavation equipment. Stop-logs were added following excavation to a present elevation of 972 (MSL).

Deposited CCR in the BAP was at an approximate elevation of 974 (MSL) prior to excavation, and 954 (MSL) in the lowest point after excavation. The liner at the bottom of the BAP is at elevation 946

(MSL), therefore the minimum and maximum impounded water depths are 18 and 28 feet, respectively, and the minimum and maximum CCR depths are 7 and 28 feet, respectively.

iv) The storage capacity of the impounding structure at the time of the inspection

The remaining capacity of the BAP to elevation 998 (top of clay liner) at the time of the inspection was 671,200 Cubic Yards.

v) The approximate volume of the impounded water and CCR at the time of the inspection

There was approximately 139,300 Cubic Yards of impounded water and 352,800 Cubic Yards of CCR in the BAP at the time of the inspection.

vi) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures

The exterior of the BAP was inspected for structural weakness in the form of seepage by walking a traverse at the base, mid-slope, and top of the embankment. Signs of seepage would include moss or marshy vegetation at the toe-drain along the base, soft or saturated areas, patches of grass more lush than the surrounding area, or flowing "springs". There were no signs that seepage had previously or is presently occurring on the BAP.

The discharge pipe corridor was inspected for signs of a leakage, such as saturated areas or sinkholes. No signs of leakage were observed along the pipe corridor between the BAP and the Recycle Basin.

The water level in the BAP is controlled by concrete stop-logs in the discharge. All decreases in water level are attributed to the removal of stop logs.

vii) Any other changes(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection

There have not been any changes that have affected the stability of the pond.

The BAP was designed for long-term stability and there are no observed deviations from the design. I have reviewed the weekly/monthly inspections performed by qualified personnel and concur with their conclusions.

Sincerely,
Daniel J. Riggs, PE
License No. 49559
Senior Engineer
Carlson McCain, Inc.

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FIGURE 1
BOTTOM ASH POND ANNUAL INSPECTION
POND LAYOUT

1/6/2016

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1/6/2016

RECYCLE BASIN (INCISED AND RECEIVES NO DIRECT CCR DISCHARGE)

BOTTOM ASH POND OUTLET (UNDERGROUND PIPE)

DISCHARGE STRUCTURE

BOTTOM ASH POND

POND SCRUBBER SOLID PIPES (WHITE)

BOTTOM ASH DISCHARGE PIPES (ORANGE)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

N

0 100 200

SCALE IN FEET

NOTE: AERIAL PHOTO FROM NOVEMBER, 2014 LIDAR SURVEY

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FIGURE 2
BOTTOM ASH POND ANNUAL INSPECTION PHOTO LOCATIONS

P:\Projects\XCEL\3404-13 Sherco Dam Safety Inspection\Oct 2015 inspection\figures\Figure 2 - BAP photos.dgn

Bottom Ash Pond Annual Inspection – October 2015

Photo 1 10/19	Bottom Ash and Scrubber pipes, looking west

Photo 2	Left: Two 6 inch stainless steel scrubber solid pipes (to Pond 3). Middle/Right, Four 12 inch bottom ash pipes.

Photo 3	Northern slope, looking west. Hard hat used to shown length of grass (approximately 6 inches).

Photo 4	Left: Rirap outlet of embankment toe drain. Right, perimeter ditch, looking west.

Photo 5	North embankment of pond at perimeter ditch, looking east

Photo 6	West embankment, looking south.

Photo 7	Bottom Ash Pond secondary outlet to Recycle Basin (Primary outlet is below the water level of the Recycle Basin).

Photo 8	Perimeter ditch and toe-drain along west embankment, looking north

Photo 9	West embankment at mid-slope, looking northeast.

Photo 10	Discharge structure on interior slope of pond, looking northeast

Photo 11	Interior of pond from top of discharge structure, looking east

Photo 12	Photo from inside of discharge structure. Bottom of photo depicts stop log metal channels and water flowing over concrete stop-log at the bottom of the channel.

Photo 13	Mid/Upper slope of north embankment, looking east

Photo 14	Interior of north embankment, looking west

Photo 15	Interior of east embankment and discharge pipes, looking south.

Photo 16	Interior of south embankment, looking west.

Photo 17	Inlet of discharge structure, looking west

Photo 18	Outer slope of east embankment, looking north.