



January 4, 2019

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

Re: 2018 Annual Inspection of Scrubber Solids Pond No. 3

The Scrubber Solids Pond No. 3 (Pond 3) inspection was conducted on October 22nd, 2018 by Daniel J. Riggs, a professional engineer licensed in the State of Minnesota. This was the fourth inspection done in accordance with the EPA's published Coal Combustion Residual (CCR) Rules under section 257.83. Prior inspections were conducted in 2008, 2009, 2013 by the Minnesota Department of Natural Resources (DNR); in August 2009 by the EPA; annually from 2010 to 2014 by Qualified Professional Engineers in accordance with the DNR and Minnesota Pollution Control Agency (MPCA) inspection requirements; and annually since 2015 by a Qualified Professional Engineer in accordance with EPA CCR Rules.

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

Annual topographic surveys have been conducted on the Pond since initial construction in 2004. 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

The only instrumentation on Pond 3 is a staff gauge used to determine water surface elevation, located on the west side of the discharge structure. The Pond water level was 997.1 feet mean sea level (MSL) during the 2017 CCR inspection. In 2018 the water level rose to a maximum of 998.2 feet MSL at the end of May, dropped to 996.4 feet MSL during the inspection, and continued to drop to a minimum elevation of 995.6 feet MSL at the end of 2018 (present). The top of clay liner elevation is 1010 MSL. No instrumentation is needed for dike stability.

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

The lowest elevation of the Pond 3 Liner is 938 MSL, therefore the minimum and present depth of water impounded since the previous annual inspection was 57.6 feet. The maximum depth of impounded water is 60.2 feet.

Two forms of CCR are deposited or placed in Pond 3. Solid bottom ash is excavated and hauled from the Bottom Ash Pond (see figure 1) and used above the water level in Pond 3 and compacted as a structural fill, or deposited in the pond, and not compacted. The highest elevation of bottom ash diked inside of the clay liner is elevation 1010 MSL. This equates to a depth of 72 feet. The scrubber solids are sluiced to the Pond and create a delta at an elevation of approximately 1003 MSL, therefore the maximum depth of scrubber solids is 65 feet. The lowest elevation of deposited CCR recorded in Pond 3 from a bathymetric survey conducted in June 2017 is 949 MSL. This equates to a depth of 11 feet.

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

The remaining capacity of Pond 3 to elevation 1010 MSL (top of currently-constructed clay liner) is:

- 3.9 Million Cubic Yards (from the surface of CCR)
- 1.8 Million Cubic Yards (from top of water, elevation 996.5 MSL)

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

There was approximately 2.2 Million Cubic Yards of impounded water and 4.3 Million Cubic Yards of CCR in the Pond at the time of 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 Pond 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 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 Pond 3.

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 or in the vault located north of Pond 3.

The water level in Pond 3 has remained static or increased throughout the past year. Increases can be attributed to scrubber solid deposition and water accumulation from storm events.

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.

I have reviewed the CCR Unit Design and Construction information and have observed no deviations from those documents.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Riggs". The signature is stylized with a large, bold "D" and "R".

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



FIGURE 1
POND 3
2018 ANNUAL INSPECTION
POND LAYOUT





Pond 3 Annual Inspection - October 2018



Photo 1	Outer east slope of east embankment, looking north.
10/22/2018	



Photo 2	Northeast corner top of embankment, looking south.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 3	East embankment, looking southwest.
10/22/2018	



Photo 4	Outer slope of north embankment, looking west.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 5	North embankment ramp, looking east.
10/22/2018	



Photo 6	North embankment, looking east.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 7	Top of north embankment, looking east.
10/22/2018	



Photo 8	Underground discharge pipe corridor, looking northwest.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 9	Pond north embankment mid-slope, looking west.
10/22/2018	



Photo 10	Pond north embankment and infiltration pond, looking east.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 11	CCR Unit identification marker placed in accordance with Section 257.73
10/22/2018	



Photo 12	North end of pond east embankment, looking northwest.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 13	Pond east embankment, looking southwest.
10/22/2018	



Photo 14	Pond east embankment, looking south.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 15	Pond east embankment, looking north.
10/22/2018	



Photo 16	Southeast corner of outer embankment, looking north.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 17	Pond south embankment, looking west.
10/22/2018	



Photo 18	Pond south embankment, looking east. Middle right: Pond 3 CCR monitoring well (between yellow bollards).
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 19	Pond interior west embankment, looking northwest.
10/22/2018	



Photo 20	Top of pond south embankment, looking east
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 21	Mid-slope of south embankment, looking east.
10/22/2018	



Photo 22	Pond east embankment mid-slope, looking south.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 23	Top of south embankment, looking east.
10/22/2018	



Photo 24	Top-center of east embankment, looking south.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 25	Top-center of east embankment, looking north.
10/22/2018	



Photo 26	Top of west embankment, looking south. Right: pipes from a hydraulic dredging project.
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 27	Top of north embankment, looking east at the northeast corner.
10/22/2018	



Photo 28	Interior embankment of northwest corner, looking northeast. Pond water level staff gauge (shown at approx. 996.5 feet of elevation mean sea)
10/22/2018	

Pond 3 Annual Inspection - October 2018



Photo 29	Top of west embankment, looking east at pond interior diking and
10/22/2018	hydraulic dredging pipes.



Photo 30	Pond west embankment interior, looking northeast. Left: Pond stainless
10/22/2018	steel scrubber solid pipes. Bottom: dewatering pipe clean-out.

Pond 3 Annual Inspection - October 2018



Photo 31	Pond interior from west embankment, looking east. Foreground: scrubber pipe discharge.
10/22/2018	



Photo 32	Top of east embankment and interior diking, looking northwest.
10/22/2018	