Comments

EPA HQ: No comments

EPA Region:

From:	Nate Nemani/R5/USEPA/US
To:	James Kohler/DC/USEPA/US@EPA
Cc:	Jose Cisneros/R5/USEPA/US@EPA
Date:	11/13/2009 03:32 PM
Subject:	Re: Fw: Comment Request on EPA's Draft Coal Ash Impoundment Assessment Reports

Jim:

I have reviewed both reports, namely Sherburne County power station in **Becker , Minn.** and Cardinal power station in Brilliant, Ohio. As stated earlier, I oversee contractor work for the **Minn. facility only** with a site visit.

The report seems to capture all the observations made during the inspection for the Becker, Minn. site. the final conclusions and recommendations seem to be accurate and consistent with my impressions following my site visit.

I have read through the report for the **Brilliant, Ohio** site without the benefit of a site visit, However , I can state that the report is well organized and its conclusions/ recommendations seem logical and reasonable.

I have no other comments on the reports.

Nate

State:

From:	"Jason Boyle" <Jason.Boyle@dnr.state.mn.us>
To:	James Kohler/DC/USEPA/US@EPA
Cc:	"Dan Zwilling" <Dan.Zwilling@dnr.state.mn.us>, "Dana Dostert" <Dana.Dostert@dnr.state.mn.us>
Date:	11/05/2009 04:50 PM
Subject:	Re: Comment Request on EPA's Draft Coal Ash Impoundment Assessment Reports

Jim,
We reviewed the report and generally find it to be accurate and well written. Some comments:

Page 2 - bottom ash pond is MN00980, Ponds 1, 2, and 3 are MN01535
Page 3 - move sentence that starts "Numerous applications..." to the next bullet dealing with MNDNR
Page 3 - Interstate 94
Figure 2D - need to show typical cross sections on Pond No. 2
Page 82 - delete "based on Minnesota Dam Safety Laws and Regulations 2007"

Thanks for allowing us to review the report.

Jason Boyle
651-259-5715

Company: See three (3) attached documents: one cover letter dated November 13, 2009 and two attachments.

Xcel Energy®
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414 Nicollet Mall
Minneapolis, Minnesota 55401-1927

November 13, 2009

Mr. Stephen Hoffman
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Xcel Energy Response to CHA Draft Report on USEPA Assessment of Dam Safety at the Sherburne County Power Station

Dear Mr. Hoffman:

Enclosed are comments from Northern States Power Company-Minnesota (NSP-M, d/b/a Xcel Energy) on the draft report prepared by CHA documenting the results of the September 16 & 17, 2009 dam safety inspection of coal combustion product surface impoundments at NSP-M's Sherburne County Power Station in Becker, MN.

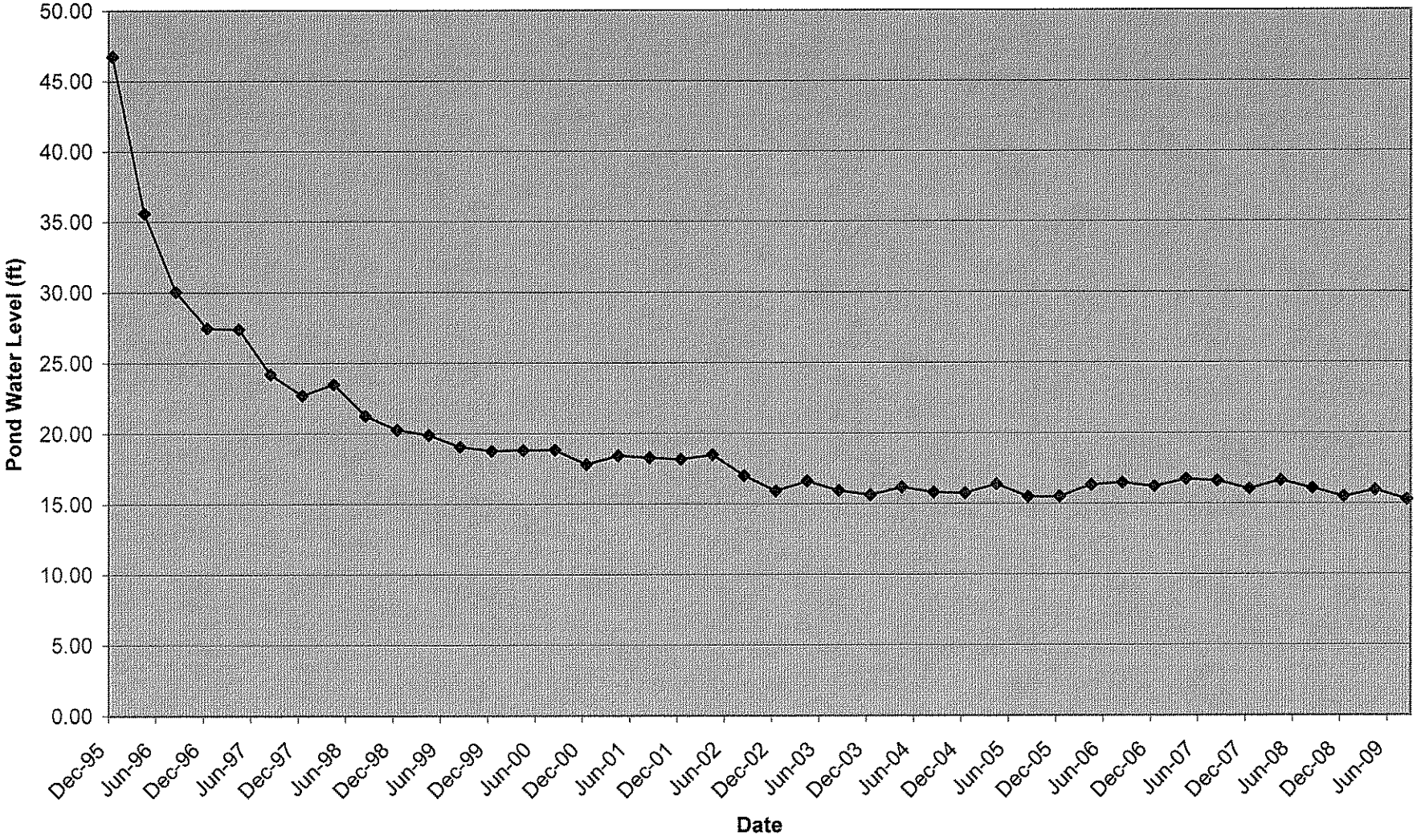
We appreciate being given the opportunity to review the content and technical conclusions of the draft report. Our comments are contained in Attachments 1 and 2 to this letter. During our review we noted several errors that should be corrected prior to publication of the final report, however, none of the items affect the overall conclusions of the report, i.e. that the impoundments are "Satisfactory". If you have questions concerning our comments, please contact me by phone (612-330-5596), email (terry.e.coss@xcelenergy.com), or at the address below.

Sincerely,

Terry Coss, P.E.
Environmental Director
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

Attachment 1: Comments on Draft Report Assessing Safety of Coal Combustion Surface Impoundments at the Sherburne County Power Station
Attachment 2: Pond #1 Dewatering Data

Attachment 2 - Pond #1 Dewatering Data



Attachment 1: Comments on Draft Report Assessing Safety of Coal Combustion Surface Impoundments at the Sherburne County Power Station

Section 1.1 Introduction:

Page I, Section 1.1, first paragraph - The official reference to the operating company should be Northern States Power Company-Minnesota, (d/b/a Xcel Energy). We respectfully request that all subsequent references should use NSPM rather than NSPC.

Page 1 – "Mary Dieltz" name is misspelled in the list of inspection participants.

Page 1 – Roger Clarke's title should be "Manager, Waste and Remediation"

Section 1.2.1 State Issued Permits:

Page 3, Section 1.2.1, first bullet - The NPDES/SDS permits are regulated by the Minnesota Pollution Control Agency (MPCA), not the Minnesota Department of Natural Resources (MNDNR). The applications that were submitted to the MNDNR were for Dam Safety Permits. Note: typically, the Dam Safety Permit applications consist of the same documents that were submitted for the NPDES permit application.

Page 3, Section 1.2.1, 2nd bullet - Permit 83-3152 is for the Scrubber Solids Ponds (2 and 3). There is another permit, 83-3022 for the Bottom Ash Pond.

Section 1.3 Site Description and Location:

Page 3, Section 1.3, 1st paragraph, first sentence – Station is located 2 miles north of Interstate 94 (not interstate 95).

Page 3, Section 1.3, 1st paragraph, last sentence – Figure 7 is an aerial photograph of the SHERCO pond system. It **does not** show schools, hospitals or other critical infrastructure located within 5 miles as referenced in the text.

Section 1.3.1 Bottom Ash Pond:

Page 5, Section 1.3.1, 1st paragraph – The Bottom Ash Pond dike construction completed in 1982, brought the NE corner up to the same elevation and same cross sectional design as the rest of the pond. A 10 foot thick **minimum** central clay core was constructed to match the design of the N, S, E & W dikes.

Section 1.3.3 Pond No. 2:

Page 6, Section 1.3.3, 2nd paragraph, last sentence - "Figure 5A shows a typical cross section of the North, East and South Dams **as originally constructed to elevation 992.5. Figures 5B and 5C show the cross sections for the vertical development of the Pond from 992 .5 to 1012. Figure 5D shows both N-S and E-W cross sections of the Pond for the original and vertical development phases."**

Page 6, Section 1.3.3, 3rd paragraph - There were three construction events for the pond No. 2 vertical expansion. The first was to prepare the dam for expansion and there were two subsequent vertical expansions to raise the crest of the dam.

Page 7, Section 1.3.3, 1st paragraph, last sentence –The dewatering wells along the West dike of Pond 2 have been pumping since 2006.

Section 1.3.4 Pond No. 3:
Page 7, Section 1.3.4, 1st paragraph, last sentence - The Pond No. 3N **and 3S** embankments will **eventually** be raised to elevation 1012.

Page 7, Section 1.3.4, 2nd paragraph – The **base** of the pond is lined with a composite liner consisting of a geosynthetic clay liner (GCL) overlain by 60 mil HDPE geomembrane. The composite liner extends to elevation 960 feet on the north and east sides, to elevation 995 feet on the south and to elevation 1010 feet on the west side. On the north and east side, waste containment above elevation 960 feet is provided by a clay barrier which slopes inward over the composite liner to elevation 995. On future construction phases, this clay barrier will extend to 1010 feet.

Page 7, Section 1.3.4, last paragraph, first sentence – At the time of the inspection there was 1.5 million cubic yards of ash-contact water in Pond 3 (**not "ash"**).

Section 1.5 Site Geology:
Page 9, Section 1.5, 2nd paragraph - the bedrock valley runs west to east and crosses beneath the all of the Ponds, not just Pond 3.

Section 1.6 Bibliography:
Page 11, Section 1.6, bullets 3 & 4 – The December 1995 and January 1997 reports are both for the Vertical Development of Pond 2, not Pond 3.

Figure 2A-2E:
Pages 14 through 18 - The photo reference date on Figs 2A-2E should be August 2008 rather than September 2004.

Figure 2B:
Page 15, Figure 2B – The arrow marker pointing to the ground north of the cooling towers is an error since it does not point to the Center Dike (Center Dike Typical Cross Section Figure 3C) as suggested. This arrow marker should be removed.

Figure 2C:
Page 16, Figure 2C – East dam should actually be referenced as Figure 4B, and the south should be referenced as 4C.

Figure 2D:
Page 17, figure 2D – Each of the cross sectional references point to the Pond.1 dams, they should all be pointing to Pond 2 dams. The arrows to the north, east and south dams

should each be changed to reference both figures 5A and 5B. (figure 5A is the original construction to elevation 992.5 and figure 5B is the vertical development to elevation 1012). The arrow to the west dam should be changed to reference both figures 4B and 5C. (figure 4B is the original construction to elevation 1000 and figure 5C is the vertical development to elevation 1012).

Figure 2E:
Page 18, figure 2E – It should be noted that figures 6A and 6B are cross sections to the currently constructed elevation of 999 feet.

Figure 5D:
Page 29, figure 5D – It should be noted that this is not currently constructed cross sections, but the final cross section plans after future capping.

Figure 8A-8D:
Pages 41 through 44 - The photo reference date on 8A-8D should be August 2008 rather than September 2004.

Table 1:
Page 34, table 1 – The total precipitation does not sum up the daily precipitation identified above.

Section 2.3.1 Pond No. 1 Embankment and Crests:
Page 37, Section 2.3.1, paragraph 3 – States "A partially vegetated toe drain was observed at the bottom of the East dam". The toe drain for the East dam of Pond 1 is buried beneath the capped area on Pond 2. Should this observation be for the East dam of the Bottom Ash Pond?

Page 37, Section 2.3.1, paragraph 4 – for clarification change to: "The pond dewatering system outfalls **into the Bottom Ash Pond** were observed to be active during the site visit."

Section 2.3.2 Pond No. 1 Outlet Control Structure:
Page 37, Section 2.3.2, paragraph 1 – The outfalls around the perimeter of the capped pond are not for the pond dewatering system, they are for capped area surface water runoff.

Section 2.4.1 Pond No. 2 Embankments and Crests:
Page 38, Section 2.4.1, last paragraph continuing to page 39 – The reference to the seepage noted by the MNDNR in a previous inspection needs clarification, so that it's understood that all seepage was contained within the Pond. The seepage that the MNDNR referred to is from an interior dike. All of the water that seeped through the interior dike was collected in a ditch within the clay lined pond.

Section 2.6 Monitoring Instrumentation:
Page 40, Section 2.6, second paragraph– Please change to: "Pond No.1 has vertical dewatering wells and monitoring wells installed through the cap of the closed pond and are screened above the clay liner. The monitoring wells measure the water level within the pond and the effectiveness of the dewatering wells that have been pumping since the pond was closed and capped in 1995."

Page 40, Section 2.6, third paragraph- Please change to: "Pond No.2 has both vertical and inclined dewatering wells. The vertical wells, located along the West dike, have been in operation since 2006. The inclined wells will be activated when the entire pond is capped and closed."

Page 40, Section 2.6, last paragraph – Please insert "Pond No.3 has drainage sand and drain pipe in-place over the pond liner that will also be activated when the pond is capped and closed."

Photographs 8A to 8D:
Pages 41 to 44, Figures 8A to 8D – Please note that some of the photos are in the wrong location or direction.

Photographs 13 and 15:
Pages 51 & 52 – Photos 13 and 15 appear to be duplicates.

Section 3.3.1 Bottom Ash Pond:
Page 86, Section 3.3.1, 2nd paragraph, first sentence- The report indicates that an updated stability analysis was not performed when the northeast corner of the pond was raised 25 feet. After the NE dike was raised, it was at the same elevation and design as the other dikes, which was already analyzed as part of the original construction.

Section 3.3.2 Pond No. 1:
Page 87, Section 3.3.2, paragraph 2, first sentence – These documents were not provided because they could not be located.

Page 87, Section 3.3.2, paragraphs 2, 3 and 3 on page 87, paragraphs 1 through 3 on page 88 – We respectfully suggest paragraph 1 is retained and add the sentence from the last paragraph stating "Pond No. 1 has been capped with 60-mil HPDE geomembrane and dewatering wells have been installed and are actively dewatering the pond." And we recommend that you add the following sentences; "Dewatering efforts have resulted in a 67% reduction in the water levels present at the time of the pond operation."

The rest of the information in this section discusses reports and studies of the ash properties for the possible vertical expansion of Pond 1 above elevation 1000. However, these plans were eventually cancelled and have no bearing on what was actually constructed. Consequently we respectfully recommend that the remaining paragraphs and associated tables be deleted.

Table 6:
Page 88, Table 6 – If this table is not deleted as per our recommendation above, the citation for the cohesion of 150 psi for the embankment sand should be checked as we believe it should be zero.

Section 3.5 Operations & Maintenance:
Page 94, Section 3.5, paragraph 3 – Facility engineering or operations staff observes the condition of the ponds daily. As noted in the draft report, no formal documentation of these inspections was maintained.

Page 94, Section 3.5, paragraph 4 – Pond water elevation data is available since dewatering started in Pond 1 in 1995. The information for Pond #1 has been enclosed in Attachment 2 to this comment letter. It is noteworthy that the water level is several feet below the surrounding grade and is now within the basin portion of the pond. Pond #2 does not have piezometer data since the pond is still active.

Section 3.5.1 State of Minnesota Inspections:
Page 94, Section 3.5.1 paragraph 1 continuing to page 95- Minnesota State Rules (6115.0360) requires that the MNDNR inspect Class II dams at least one time every four years.

Figure 11:
Page 101, Figure 11 – This figure should be deleted since this analysis was a conceptual study of the upstream construction of Pond No. 1 but was never constructed.

Section 4.2 Animal Control and Filling of Existing Animal Burrows:
It is clearly understood that animal burrows can adversely impact the safety of an earthen dam by setting up preferential flow patterns through the earth fill. However, due to the embankment geometry used for the construction of each of the Sherco impoundments, NSPM respectively disagrees with CHA that the presence of the burrows on the downstream slope has a material impact on the safety of these structures.

The Sherco dams are constructed with a center clay core (Pond No. 1 and Bottom Ash Pond), an upstream clay liner (Pond No. 2) or an upstream composite liner consisting of 60 mil HDPE geomembrane and a geosynthetic clay liner (Pond No. 3). Pond Nos. 1 and the Bottom Ash Pond have a toe drain that extends to the clay core. Pond No. 2 was constructed with a partial intercept drain, at the centerline of the embankment, to capture leakage through the clay liner. The downstream portion of the embankment fill for all of the impoundments is native sandy soils whose sole purpose is to provide a structural mass to resist the hydraulic forces imposed by the slurried waste on the liner. The phreatic surface within the embankment would quickly drop on the downstream side of the clay core/liner and collect in the drain installed in the dam. During the inspections, burrows were not noted in the drain outlet due to the rip rap cover placed at the surface of the embankment.

Since the downstream slope is not part of the flow path for the impoundments, animal burrows on the downstream slope do not create preferential flow paths that would result in seepage concerns. Filling these burrows will require equipment traffic on the embankments and damage to the vegetation that has been established. The vegetation is important to minimize surface erosion and it is a concern of NSPM that filling the burrows will actually create a more serious erosion issue on the embankments.

Section 4.6: Tree and Root Removal:

Due to the location of the clay core and liner, trees do not pose a material issue to the safety of the dam. When trees are cut down, the roots are not removed. NSPM believes that leaving the root ball in place maintains the integrity of the vegetation and soil. Soil disturbances may cause the potential for surface erosion.

Section 4.7: Monitoring:

NSPM has used the process of building low head (typically less than 5' high) interior dikes in Pond No. 2 to allow for filling the interior portion of the impoundment with slurried solids instead of having to truck bottom ash or native soils to create the final closure grades. These interior dikes are generally constructed with bottom ash which does allow for seepage. There is a channel maintained between the interior dike and the impoundment's embankment to route this seepage to the main retention pool. Should one of these dikes breach, the water would be directed to the retention pool by the channel. Consequently NSPM believes that the use of these interior dikes does not represent a significant risk to the integrity of the pond system.