

US EPA ARCHIVE DOCUMENT

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Sent electronically to hoffman.stephen@epa.gov and via hardcopy to:

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



Subject: Response to U.S. EPA Request for Action Plan regarding Coal Ash Impoundment Site Assessment – Coyote Station Final Report

This letter is in response to the notification received on March 14, 2013, for the final report of the Coyote Station Coal Ash Impoundment Site Assessment conducted by Kleinfelder on May 19, 2011. As requested, this response letter informs you how we intend to address each of the recommendations contained in the final report¹.

Before getting into specific responses, we would like to note our concern that the Coyote Station site assessment was performed and signed by a professional engineer without licensure in North Dakota. Instead, a contractor located in Golden, Colorado, nearly 700 miles away from Coyote Station, signed the final report. It is our strong opinion that the inspection, report, and recommendations should have been reviewed and sealed by a North Dakota licensed Professional Engineer familiar with local conditions and standards. This is consistent with North Dakota rules that specifically require that during construction of dams, inspections must be performed by an engineer who has been duly registered and licensed by the North Dakota state board of registration for professional engineers and land surveyors.

6.1 PRIORITY 1 RECOMMENDATIONS

1. Perform a stability analysis on the Nelsen Pond embankment by August 31, 2013. The stability analysis should evaluate a conservative loading condition such as the pond full to the crest with wet CCW dredge material, and demonstrate that a factor of safety equal to or greater than 1.5 exists. The analysis should include an instrumentation plan recommendation, or lack thereof, based on the results of the analysis.

Response: We are currently evaluating consultants to conduct the stability analysis and will complete it by August 31, 2013. Implementation of recommendations, if any, that

¹ Please note that although this response is being submitted by Otter Tail Power Company as the operator of Coyote Station, the plant is co-owned by Otter Tail Power Company, Montana-Dakota Utilities Co., Northern Municipal Power Agency, and NorthWestern Energy.

are an outcome of the analysis will be evaluated to determine if they can be implemented during 2013, or if they need to occur during the 2014 construction season.

2. Perform a Hydraulics and Hydrology study for Nelsen Pond by August 31, 2013. *An analysis should be performed that compares the impoundment freeboard with the Probable Maximum Precipitation (PMP) to determine potential for overtopping.*

Response: An in-house hydraulics and hydrology study has been performed for Nelsen Pond and is attached as Enclosure 1. The study demonstrates Nelsen Pond has almost nine times the volume needed to contain a 100-year 24-hour storm event even when the pond is at the maximum operating pool elevation.

3. Perform a seismic loading analysis on the Nelsen Pond embankment by August 31, 2013. *The seismic analysis should evaluate a loading condition in accordance with the EPA 1995 RCRA Subtitle D seismic design guidelines, and demonstrate that a factor of safety equal to or greater than 1.0 exists.*

Response: We vigorously disagreed with this recommendation in our comments on the draft report submitted to EPA on September 7, 2012. Neither the final assessment report nor the March 14, 2013 notification addressed our points of disagreement and therefore we continue to disagree with the need to conduct this analysis. Although we begrudgingly agree to go forward and conduct the analysis by August 31, 2013, we feel compelled to point out the following reasons as to why a seismic analysis is unwarranted.

- a) The low seismic activity in the area of Coyote Station does not justify a seismic analysis. This is supported by the EPA 1995 RCRA Subtitle D Seismic Design Guidelines.

The Kleinfelder report recommendation to perform a seismic loading analysis states that it should be conducted “in accordance with the EPA 1995 RCRA Subtitle D seismic design guidelines...”

Upon our review of the 1995 RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities, we believe the guidance document supports our argument against conducting a seismic analysis of Nelsen Pond. Figure 1.1 on page 6 of that guidance document clearly indicates that no seismic impact zones (areas with a 10% or greater probability the maximum horizontal acceleration will exceed 0.10 g in 250 years) are remotely close to Coyote Station’s Nelsen Pond. The closest seismic impact zones are located approximately 450 miles away, both in southwestern Montana and southeastern Nebraska.

Additionally, United States Geological Survey (USGS) seismic hazard maps from 2008 were reviewed. Peak horizontal acceleration probabilities, displayed on sheets 1 and 2 of *Scientific Investigations Map 319*, show that within the next 50 years there is a 90% probability of not exceeding 0.00 – 0.01 g (Sheet 1), and a 98% probability of not exceeding 0.02 – 0.04 g (Sheet 2). These USGS values confirm the low probability of significant seismic events occurring near Coyote Station.

- b) Assuming the highly unlikely situation in which a seismic event occurs, the EPA assessment report itself acknowledges the minor threat posed by the Nelsen Pond.

The assessment report starts off by stating on Page ii of the Executive Summary that:

“Following the December 22, 2008 dike failure at the TVA/Kingston, Tennessee coal combustion waste (CCW) ash pond dredging cell that resulted in a spill of over 1 billion gallons of coal ash slurry, covered more than 300 acres and impacted residences and infrastructure, the EPA is embarking on an initiative to prevent the catastrophic failure from occurring at other such facilities located at electric utilities in an effort to protect lives and property from the consequences of a impoundment or impoundment failure of the improper release of impounded slurry.”

There are no realistic similarities between the threats posed by Nelsen Pond versus the Kingston Plant. The Kingston Plant spill was from a massive ash cell located near the Emory River and a nearby residential area. Moreover, the Kingston dredge cell release of over 3,000 acre-feet is in stark comparison to the management and capacity of Nelsen Pond, which is a dewatering pond that infrequently in service, and once dewatered the Nelsen Pond CCRs are disposed of in an on-site permitted dry-disposal area. Even assuming an unforeseen situation of maximum storage capacity within Nelsen Pond, the very low threat posed is acknowledged on Page 12 of the assessment report:

“...Nelsen Pond is only in service for about three months during a typical 24 month period, and also contains a relatively small volume at its maximum storage (about 15 acre-feet), and is continuously dewatering as the pond is being filled with dredged boiler slag from the Ash Pond. Ongoing dewatering would make the ash material much less fluid and thus less likely to flow significant distances in the event of a loss of containment. Furthermore, any release of the small volume would be completely contained on OTPC property or on the adjacent lignite mine property, and there is no probable potential for loss of human life... No private homes, recreational facilities, businesses,

paved roads or other structures outside of the plant area would be impacted.”

- c) Requiring a seismic analysis is inconsistent with recommendations concerning impoundments at other regional facilities.

To help determine whether it is reasonable to disagree with the recommendation to conduct a seismic analysis, we reviewed the EPA website for other CCR impoundment site assessment reports within North Dakota and Minnesota².

Of the eight facility inspections (conducted by 6 different EPA contractors) that we were able to identify,³ Coyote Station was the only facility inspection conducted by Kleinfelder and the only facility recommended to conduct a new seismic analysis. Two facilities had previously conducted a seismic analysis during original impoundment design and one facility was recommended to conduct a new liquefaction analysis, but these ponds are adjacent to the Mississippi or Missouri Rivers where an unintended release could pose a significant public health concern. The Coyote Station Nelsen Pond should not have been singled out unfairly by virtue of being assessed by a different contractor, or due to a change of philosophy by EPA after nine previous rounds of assessments have already been conducted.

4. Prepare an Emergency Action Plan (EAP) for the facility by August 31, 2013. *An EAP should be prepared for Nelsen Pond. The EAP could be a very short and straightforward document basically confirming that a full pond release would be adequately contained on OTPC or the adjacent mine property, and outlines procedures to undertake in the event of an unplanned release, including phone calls to interested and potentially impacted parties.*

Response: As recommended, a concise Emergency Action Plan will be developed for the unlikely event of a release from Nelsen Pond. The plan will contain a brief description of the area that would be affected and phone numbers of parties that should be notified.

5. Control animal burrowing on the downstream slopes of Nelsen Pond. Develop and implement an animal control program by August 31, 2013. *Refer to FEMA publication 473, Technical Manual for Dam Owners, Impacts of Animals on Earthen Dams. That manual is available on the FEMA website.*

Response: The animal burrows noted during the May 19, 2011 site assessment have been repaired. We have reviewed FEMA publication 473, and an animal control program will be implemented by August 31, 2013.

² <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/surveys2/>

³ The eight facilities were: Antelope Valley, Black Dog, Boswell, Coyote, Laskin, Leland Olds, Milton R Young, and Sherco

6.2 PRIORITY 2 RECOMMENDATIONS

1. Perform video assessments of Nelsen Pond outlet piping by August 31, 2013. This would include only the outlet piping from Nelsen Pond. The video survey should determine the condition of both the 12-inch diameter ductile iron dewatering pipe (including the perforated PVC portion) and the 12-inch ductile iron spillway pipe.

Response: The video assessments will be completed by August 31, 2013.

2. Maintain a log of maintenance and other activities at the impoundments and supporting facilities by August 31, 2013. This would include weekly or monthly walk around inspection of the ponds, with an emphasis on Nelsen Pond when it is in active service. Other documentation may exist that catalogs routine maintenance and repair activities, and if so, those should be collected and bound in a notebook in a secure location if that practice is not being followed currently. We believe that this log will provide continuity during periods of staff change.

Response: Although these routine inspections are already occurring, a more formalized program that includes better documentation will be implemented by August 31, 2013.

3. Update the Operation and Maintenance (O&M) Manual for the impoundments and the facility by August 31, 2013. The O&M manual should either be located and updated, or a new one prepared that includes O&M procedures, the EAP (discussed above), and a section on animal control.

Response: We feel this is a good recommendation, and we are taking this opportunity to develop a new manual. This manual will be specific to the operation and maintenance of the impoundments and disposal areas at Coyote Station, and will include the items recommended by the Kleinfelder assessment report.

Please contact me at (218) 739 - 8526 or at mthoma@otpc.com if you have any questions or would like further information regarding this action plan for the Coyote Station Nelsen Pond.

Sincerely,



Mark Thoma
Manager, Environmental Services

Enclosure: Hydraulic and Hydrologic Analysis for Coyote Station's Nelsen Pond

Enclosure 1: Hydraulic and Hydrologic Analysis For Coyote Station's Nelsen Pond

Background

Coyote Station is located near Beulah, ND in Mercer County. Nelsen Pond functions as a dewatering pond for coal combustion residuals (CCRs) dredged from the Slag Pond. Once the dredged CCRs are sufficiently dewatered they are loaded into trucks and taken to an onsite landfill for dry disposal. Nelsen Pond contains dredged CCRs for approximately 3 months out of every two years.

Hydraulic Considerations

Nelsen Pond is connected to the Sluice Pond by two gravity-flow pipes that allow for dewatering of Nelsen Pond into the Sluice Pond. A vertical overflow pipe connects to one of the dewatering pipes to draw off excess water in the event the pond reaches the maximum storage elevation. Normal pond inflows are limited to pumping of CCRs and any precipitation that falls within the pond footprint. Temporary piping is installed to accommodate CCR transfer from the Slag Pond to Nelsen Pond. The maximum operating limit of the pond allows for 3.5 feet of freeboard measured from the inlet of the vertical overflow pipe to the top of the Nelsen Pond dike.

Hydrologic Considerations

According to Technical Release 55 (TR-55)⁴ the area experiences a Type II rainfall distribution. The average annual precipitation is approximately 17 inches. Nelsen Pond's watershed is limited to the footprint of the pond. Therefore, pool elevation increases resulting from rainfall are equivalent to the design storm's precipitation amount. Design storm data for 24-hour rainfall events was gathered from TR-55 Appendix B. A comparison of design storm events to Nelsen Pond freeboard is presented in Table 1.

⁴ United States Department of Agriculture Technical Release 55: *Urban Hydrology for Small Watersheds*, June 1986.

Table 1 – Comparison of Design Storm Events to Nelsen Pond Freeboard

Design Storm	Design Rainfall (inches)	Pond Freeboard (inches)	Number of Consecutive Events Needed to Overtop Pond
2-yr 24-hr	1.9	42	22.1
5-yr 24-hr	2.6	42	16.2
10-yr 24-hr	3.2	42	13.1
25-yr 24-hr	3.7	42	11.4
50-yr 24-hr	4.2	42	10.0
100-yr 24-hr	4.7	42	8.9

As noted in Table 1, overtopping of Nelsen Pond would not occur unless approximately nine successive 100-year storm events ensued over the area. To express this capacity factor in another way, Nelsen Pond has almost nine times the volume needed to contain a 100-year 24-hour storm event even when the pond is at maximum operating pool elevation. Therefore, Nelsen Pond contains sufficient capacity to handle inflows from rainfall events.