

US EPA ARCHIVE DOCUMENT

MEMORANDUM

SUBJECT: Comments on draft report "Coal Ash Impoundment – Site Assessment Draft Report – Coyote Station – Otter Tail Power Company – Beulah, North Dakota."

DATE: July 3, 2012

Comments:

1. On page 45, section 5.2, the "Poor" rating should be attributed to the Nelson Pond only. Neither condition rating nor hazard potential rating (section 3.8) should be given to the Ash Pond or the Sluice Pond as both are incised.
2. On page 12, Section 3.4 "Hydrology and Hydraulics," it would be advantageous for the report to speak to information available for overtopping and the direct presence or absence of this information as provided to contractor. It is EPA's concern that without a formal H/H study speaking to potential of overtopping in a design storm event, there exists an unidentified risk of overtopping and subsequent impoundment breach in a design storm event.
3. On page 12, Section 3.5 "Geotechnical Considerations," it may be advantageous to provide a table with any calculated factors of safety from analyses along with respective minimum acceptable factors of safety for respective impoundments and loading conditions.
4. On page 13, section 3.5, last paragraph, the statement "No seismic loading evaluations were available and should be completed." should be amended to include "for the Nelson Pond only" as the other two ponds are both incised and do not require stability analyses, seismic or static.
5. Section 3.4, "Hydrology and Hydraulics" should not be the place for the hazard potential rating, this discussion should remain in section 3.8, "Hazard Classification."
6. Section 4.2.2, indicates that the "crest of the pond perimeter was in Fair condition," however, the bullets under this section do not indicate a rationale for the term "fair."
7. On page 18, second line of section 4.3.1, replace "Fair" with "fair."
8. The text of the report should discuss the presence or absence of monitoring equipment.

215 South Cascade Street
PO Box 496
Fergus Falls, Minnesota 56538-0496
218 739-8200
www.otpc.com

September 7, 2012

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



Dear Mr. Hoffman:

SUBJECT: OTTER TAIL POWER COMPANY
COMMENTS ON DRAFT COAL COMBUSTION WASTE IMPOUNDMENT
ASSESSMENT REPORT - COYOTE STATION

This letter is in response to the comment request I received on August 10, 2012 for the draft Site Assessment for Coal Combustion Waste (CCW) impoundments at Coyote Station. The onsite assessment was conducted by Kleinfelder on May 19, 2011. The assessment covers three impoundments including Nelsen Pond, the Sluice Pond, and Ash Pond. Otter Tail Power Company (OTPC) appreciates the opportunity to review the draft report, and submits the following comments for consideration.

ANALYSIS AND RECOMMENDATION COMMENTS

Page 44 Section 5.1 Bullet Points 1 and 2

No stability analyses for the Nelson pond embankment section have been located, and plant staff could not confirm that those analyses have been completed. While the Nelson Pond embankment appears stable and functioning properly, the absence of a stability analysis automatically justifies a POOR condition rating in accordance with EPA condition rating guidelines.

No seismic loading analyses have been located for review. Because of the very low seismic risk in that area, it is believed that such analyses were judged to be unnecessary and thus have not been completed. While the Nelson Pond embankment appears stable and functioning properly, the absence of a seismic loading analysis automatically justifies a POOR condition rating in accordance with EPA condition rating guidelines.

As discussed more fully in a below comment, OTPC disagrees with the need to conduct a seismic analysis, however in any case OTPC believes the condition rating of Nelsen Pond

should be upgraded from POOR to FAIR. The Nelsen Pond embankment has functioned well since its construction twenty years ago. Further analyses can be expected to yield acceptable results, which is descriptive of a FAIR condition rating rather than a POOR condition rating. Even Section 5.1 of the Kleinfelder report states the Nelsen Pond embankment “appears stable and functioning properly.”

Moreover, giving Nelsen Pond a POOR condition rating is inconsistent with condition ratings given to similar impoundments at nearby facilities. For example, the alternate bottom ash pond at the Milton R. Young Station near Center, North Dakota was given a FAIR condition rating even in the absence of slope stability and seismic loading analyses¹. Two impoundments at the Antelope Valley Station near Beulah, North Dakota were given FAIR condition ratings despite the absence of slope stability and seismic loading analyses².

Page 45 Section 5.2

I acknowledge that the management unit(s) referenced herein as personally inspected by me and found to be in the following condition: POOR

For reasons noted above OTPC requests the condition of the Nelsen Pond impoundment at Coyote Station be upgraded from POOR to FAIR. In any case it is important to make clear, consistent with EPA’s statement in the comment request email sent to my attention by Jana Englander of the EPA Materials Recovery and Waste Management Division on August 10, 2012, that the condition rating provided in the Kleinfelder report is attributed to the Nelsen Pond only. Due to being incised, neither the sluice pond nor ash pond is to be provided a condition rating or a hazard potential rating.

Page 46 Section 6.2 Recommendation 2

Perform a seismic loading analysis on the Nelson Pond embankment by October 31, 2012. 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 or greater than 1.0 exists.

OTPC vigorously disagrees with the need to conduct a seismic analysis. As noted in the report, the plant is situated in a Seismic Zone 0 area, and the pond has a low hazard potential where no private homes, recreational facilities, businesses, paved roads or other structures

¹ 1The EPA report on Milton R. Young Station can be found at the following address:
<http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/minnkota-miltonyoung-final.pdf>

² 1The EPA report on Antelope Valley Station can be found at the following address:
<http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/basin-antelope-final.pdf>

outside of the plant could be impacted. Given the low hazard potential a seismic analysis is unwarranted.

Moreover, recommending further seismic analyses is inconsistent with recommendations concerning similar impoundments at nearby facilities given by other EPA contractors. The alternate bottom ash pond at the Milton R. Young Station near Center, North Dakota and two impoundments at the Antelope Valley Station near Beulah, North Dakota lacked seismic studies and no recommendation was made to conduct seismic studies for those impoundments³. Even in the absence of a seismic study all three of those impoundments received a FAIR condition rating. OTPC should not be singled out and required to perform this analyses solely by virtue of being assessed by a different EPA contractor.

Finally, general site seismicity was addressed in Bechtel's Soils Design and Geology Report for Coyote Station dated April 1976 revised December 1976. Part of the Bechtel report is included in Appendix C of the Kleinfelder's Draft Report, however the narrative on seismicity is not present. Attached are pages from the Bechtel report addressing seismicity. The Bechtel report confirms the low seismic activity in the area.

Page 46 Section 6.2 & 6.3

The Kleinfelder report unreasonably recommends that all of the Priority 1 and 2 action items be completed by October 31, 2012. October 31 is less than two months away, which is an inadequate timeframe to properly address the recommendations, Considering the history of safe performance of the impoundments, and given that EPA did not provide OTPC with the Site Assessment Draft Report until more than 14 months after the contractor site visit, OTPC requests EPA to be understanding of the need for additional time. OTPC is requesting an extension until July 1, 2013 to complete the engineering studies/analysis ultimately recommended by EPA and an extension until May 1, 2013 to complete the other EPA recommendations. The additional time requested for the engineering studies allows for bid acquisition and contractual work, two additional steps OTPC will need to complete.

CORRECTIONS AND CLARIFICATIONS

Page 1 (first instance); throughout draft copy in various locations

I acknowledge that the management units referenced herein:

- *Nelson Pond*

³ <http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/minnkota-miltnyoung-final.pdf>
<http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/basin-antelope-final.pdf>

- *Sluice Pond*
- *Ash Pond*

Were assessed on May 19, 2011

The spelling for Nelsen Pond is incorrect (the correct spelling ends with “en” instead of “on”).

Page 2 Paragraph 2

.....Kleinfelder was contracted to perform a site assessment at the Coyote Power Generation Station that is owned and operated by Otter Tail Power Company (OTPC).
The correct and complete name of the facility is Coyote Station.

Coyote Station is co-owned by Otter Tail Power Company, Montana-Dakota Utilities Co., Northern Municipal Power Agency, and NorthWestern Energy. Otter Tail Power Company operates the facility on behalf of all the owners. The owner information on page 11 needs to be changed likewise.

Page 2 Paragraph 5

All three impoundments are regulated by the North Dakota Department of Health – Waste Management Division.

The North Dakota Department of Health – Waste Management Division regulates the “three impoundments” as one permitted site under North Dakota solid waste permit number SP-170.

Page 7 Section 2.1

- *Kalle O'Dell – Otter Tail Power Co.*
- *Gary Schatz –Otter Tail Power Co.*

Kalle’s name is spelled incorrectly. The correct spelling is Kalle Godel. Kalle is an employee of Montana-Dakota Utilities Co., not of OTPC.

Gary Schatz is also misspelled. The correct spelling is Gerry Schatz.

Page 8 Section 3.1

The facility currently sluices primarily bottom ash and boiler slag residuals, both by-products of coal fired energy generation, into the Sluice Pond impoundment.

Coyote Station does not produce bottom ash. By-products sent to the Sluice Pond include primarily boiler slag with some economizer ash. The term “bottom ash” should not be used in the report. The first paragraph in section 3.1 should be re-written as follows:

“Coyote Station is a coal-fired facility that has been in operation since 1981. The facility sluices primarily **boiler slag** residuals with small amounts of **economizer ash** which are both by-products of coal-fired energy generation, into the Sluice Pond impoundment. The Sluice Pond is a small incised pond that allows the **boiler slag** to settle out and be continually removed by a loader and trucks as it decants off to the adjacent Ash Pond. The flue gas desulphurization (FGD) and fly ash are both dry processes and thus do not use ash ponds for settling or storage. The **boiler slag** is stockpiled at the southwest end of the Sluice Pond, where it is hauled away by trucks to be sold for commercial uses such as shingle grit and abrasives. During the decanting process from the Sluice Pond to the Ash Pond, some finer **boiler slag and economizer ash** flows into the Ash Pond. According to OTPC, it typically takes about two years to deposit sufficient **boiler slag and economizer ash** in the Ash Pond such that cleaning of that facility is required. At that time, boiler slag and economizer ash is hydraulically dredged from the Ash Pond to Nelsen Pond just northwest of the Sluice Pond. Nelsen Pond is designed to accommodate the volume of dredged **slurry** from the Ash Pond to allow dewatering and disposal of the liquid back into the Sluice Pond. The remaining **boiler slag and economizer ash** in Nelsen Pond dries out and is eventually loaded onto trucks for disposal at a nearby onsite landfill (North Dakota Solid Waste Permit No. SP-182 (Coyote Station - Blue Pit)). The process of dredging the Ash Pond and filling Nelsen Pond occurs over about three months. As such, Nelsen Pond holds wet **ash/slag** slurry on average less than 15 percent of the time. An aerial image of these impoundments can be seen on Plate 2.”

In the second paragraph the term bottom ash should be replaced with boiler slag.

Page 9 Section 3.2 A

As commented previously, the proposed hazard classification of “Low” in item 9 is only applicable to the Nelsen Pond. OTPC recommends moving item 3.2.A.9 to 3.2 B.

Page 12 Section 3.4 Paragraph 1

Normal pond operations are limited to pumping of bottom ash slurry and any precipitation that falls within the impoundments themselves.

The term “bottom ash” should be replaced with “boiler slag and economizer ash”

Page 12 Section 3.4 Paragraph 2

... we believe that all three of the ponds would have a "Low" Hazard Potential Classification rating, as discussed further below.

Consistent with above comments, and with EPA's stated intent, the hazard rating should only apply to Nelsen Pond.

Page 13 Section 3.8

Consistent with above comments, and with EPA's stated intent, a hazard rating should not be assigned to the Sluice Pond and Ash Pond. Also, the term "bottom ash" should be replaced by "boiler slag".

Appendix A Coal Combustion Waste (CCW) Impoundment Inspection Forms

As noted previously, the Sluice Pond and Ash Pond should not be assigned a hazard rating. Also, Otter Tail Power Company is misidentified as "Otter Tail Energy".

Otter Tail Power Company appreciates EPA's considerations of these comments. If you have any questions please contact me at (218) 739-8526 or at mthoma@otpco.com.

Sincerely,



Mark Thoma
Manager, Environmental Services

Enclosure: Seismicity excerpt from Bechtel Soils Design and Geology Report

is being performed by personnel of Knife River Coal Mining Company on a monthly basis to determine seasonal fluctuation of the water table. The three observation wells in the power block area which did not intersect the main water table will also be monitored to determine if a seasonal perched water table exists.

3.5 Seismicity

No earthquakes of intensity V (Modified Mercalli) or above are listed for North Dakota in Earthquake History of the U. S. (Coffman and von Hake, 1973). This publication does not list smaller intensities so apparently the maximum historical intensity in the State has been IV or less. Canadian shocks have been felt and the 1959 Montana shock was lightly felt. The first instrumentally located earthquake in the history of this state occurred on July 8, 1968; however, its intensity did not exceed IV. Only one significant (intensity V or greater) shock has centered within about 150 miles of the site. It occurred on July 24, 1943 in S. Sheridan Co., Montana. It was of intensity VI but was locally felt. Descriptions (from Coffman and von Hake, 1973) of more distant shocks which have been felt in North Dakota follow:

1872, October 9. 10:00 Sioux City, Iowa 42.7N 97.0W, felt over 3000 sq. mi., maximum intensity V. Severe at Sioux City, at Yankton and White Swan, S. Dakota, and elsewhere in the Dakotas. Distinctly felt on low ground, but not so much on the bluffs. There was a sound like distant thunder.

1877, November 15. 11:45 & 12:30, Eastern Nebraska, 41.0N, 97.0W, felt over 140,000 sq. mi., maximum intensity VII. Also felt in Iowa, Kansas, the Dakotas, & northwestern Missouri. There were two shocks 45 minutes apart, the second being the stronger. At North Platte, Nebraska, walls cracked; the shock was reported to have lasted 40 seconds. Buildings rocked at Lincoln, walls were damaged at Columbus, and the shock was strong at Omaha. Walls cracked at Sioux City, Iowa. It was felt with intensity III at St. Joseph, Mo. The felt area was elliptical in form, 600 by 300 miles.

1909, May 15. a.m., Canada, felt to south, 50.0N, 105.0W, felt over 500,000 sq. mi., VI-VII in the U. S. Strong shock in Saskatchewan, felt in North Dakota, South Dakota, and Montana.

1959, August 17. 23:37, Hebgen Lake, Montana, 44.8N, 111.1W, felt over 600,000 sq.mi. maximum intensity X, magnitude 7.1. Felt as far as Seattle, Washington, to the west; Banff, Canada, to the north; Dickinson, North Dakota, to the east; and Provo, Utah, to the south.

1975, July 9. 9:54 CDT, Morris, Minnesota, 45.7N, 96.0W, maximum intensity VI, magnitude 5.0. Felt in parts of Minnesota, South Dakota and North Dakota.

A map showing areas of earthquake susceptibility (based on a map which is now obsolete) was presented in the 1967 National Building Code. According to this map, the site is in Zone 0.

The site area is well within Zone 1 on the seismic risk map, prepared by S. T. Algermissen (1969) of NOAA's Environmental Research Laboratories. According to this map, which is used in the Uniform Building Code, areas in Zone 1 can expect minor damage as a result of earthquakes; minor damage corresponds to intensities of V and VI on the Modified Mercalli Scale. Zone 1 of this map is equivalent to Zone L of the National Building Code map.

Algermissen has also prepared a map showing maximum intensities through 1965. According to this map, the maximum historical intensity experienced in North Dakota is IV.

From the historical information available the highest intensity experienced in the vicinity is apparently IV or less. The intensity-acceleration curve of Dr. F. Neumann (1954) shows that an intensity of IV corresponds to an acceleration of approximately 0.02g. On the same curve, intensity V to VI correlates with approximately 0.05g which is the recommended ground acceleration for plant structures. This is in accordance with Zone 1 of the Uniform Building Code or Zone L of the National Building Code.