

# 2019 Coal Combustion Residuals Annual Inspection

## Naughton Power Plant

### *North Ash Pond*



*Prepared for*  
PacifiCorp Energy  
North Temple Office  
1407 West North Temple  
Salt Lake City, Utah 84116

November 21, 2019

# **AECOM**

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# 1 Findings

This annual inspection and report are being completed for the purpose of providing due diligence by PacifiCorp to ensure the safety of its coal combustion residual facilities. The inspection was performed according to the requirements for annual inspections under Section 257.83 (CCR surface impoundments) of 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule, dated April 17, 2015 [1].

The field inspection, which was performed on September 3, 2019, found the principal features of the North Ash Pond to be in satisfactory condition. Nothing was observed suggesting an active or impending dam safety issue. None of the inspection findings indicate the need for immediate action to address a dam safety concern.

Figure 1-1 is an aerial image of the pond taken in 2018 by PacifiCorp (this is the most recent available aerial photo).



Figure 1-1. North Ash Pond

Observations from the 2019 inspection include:

1. An erosion rill related to crest runoff that was also present in previous inspections (Photo 2, Appendix A). Incision appears to be less than prior inspections.
2. Erosion near outlet works (Photos 6 and 7, Appendix A).
3. Early growth woody vegetation (Photo 9, Appendix A).
4. Unusually accumulation of tumbleweeds. (Photo 10, Appendix A).
5. Animal burrows (Photos 11, 12 and 13, Appendix A).

## 2 Description and History of North Ash Pond

### 2.1 General Overview

The Naughton Plant is operated and fully-owned by PacifiCorp.

The Black & Veatch Construction Permit Application for Combustion Waste Disposal Expansion Volume 2 [2] contains a full set of drawings for the North and South Ash systems. Although it is stamped “Not to be used for construction”, it is also stamped by a professional engineer, and it is the most complete set of drawings. It was likely stamped not for construction because it was part of the application. AECOM relied on these drawings for this report on the assumption that few changes likely occurred between application and construction. Figure 2-1 shows the signs for the North Ash Pond. The smaller sign included the Wyoming Department of Environmental Quality Permit No. 12-461.



Figure 2-1. Signs for North Ash Pond



## 2.2 Location

The Naughton Power Plant is located in western Wyoming approximately four miles southwest of the community of Kemmerer in Lincoln County. The plant is immediately west of Wyoming State Highway 189 at the Elkol turnoff [3] and immediately east of the Kemmerer Operations, LLC mine, which supplies coal to the plant.

## 2.3 North Ash Pond Description

The North Ash Pond is located approximately 0.3 miles north and east of the plant generation facility, and between FGD Pond #1 and the North Clear Pond. The pond no longer bottom ash and fly ash waste material from Unit 3 due to the unit being converted to natural gas. Beneficial use of the CCR material in the pond is on-going. It also stores waste water generated from flash tank blow down (Unit 3), domestic water and sewage, equipment spills, equipment wash down, and process water from Unit 3 [4]. The North Ash Pond has been referred to as the Unit 3 Ash Pond in previous reports [5]-[6]. The hazard classification for this facility is “Significant” [7].

A single, homogeneous fill embankment, approximately 3,500 feet in length, forms the southeast boundary of the pond. The embankment extends to the east where it wraps around toward the north to the abutment. The embankment was generally constructed of native clayey soils obtained from nearby borrow sources [8]. The specification for the embankment material required “...loose earth having a moisture content such that the required density of the compacted soil will be obtained....” [9]. Supporting documentation reported that the compaction requirement was 95% by ASTM D698, plus or minus 2% optimum moisture; however, the engineering properties were not identified in the supporting documents. Both the upstream and downstream faces are armored with 24 inches of 6-inch diameter riprap. A cross section of the embankment is shown on Figure 3-1. The North Ash Pond has a surface area of approximately 107 acres and has a storage capacity of 2,181 acre-feet [4]. The embankment ranges in height from only a few feet at the right abutment to a maximum height of approximately 56 feet along the middle portion of the embankment separating the North Ash and Clear Ponds [4]. The existing embankment was constructed to a crest elevation of approximately 6,905 feet amsl. The crest of the embankment is approximately 25-feet wide with both upstream slopes constructed at 3H:1V and downstream slopes between 3H:1V and 4H:1V [4].

The outlet for the North Ash Pond consists of a reinforced concrete drop decant tower, which flows into the North Clear Pond. The top of the tower is at elevation 6,903 feet amsl, which provides an uncontrolled overflow into the tower at this elevation. The normal operating level of the pond is controlled by a stoplog structure on the upstream face of the tower with a bottom sill elevation of 6,896 feet amsl. The conveyance pipe consists of 24-inch diameter concrete cylinder pipe with an upstream invert elevation of approximately 6,882 feet amsl [2]. According to the drawings, seepage collars were placed at the mid-span of each 20-ft pipe section. The pond does not have any emergency spillway and the pond is not lined; however, to reduce seepage, it has two feet of compacted earth lining in small unidentified areas where unsuitable material was encountered within the pond during construction (page 12 Earthwork Specification) [9].

Refer to Table 2-1 for a summary of pertinent data for the North Ash Pond.

**Table 2-1. North Ash Pond Pertinent Data**

| Description                     | Design Value                    |
|---------------------------------|---------------------------------|
| Pond:                           |                                 |
| Total Pond Capacity (acre-feet) | 2,181[4]                        |
| Maximum Pond Elevation (feet)   | 6,900 [4]                       |
| Surface Area (acres)            | 107[4]                          |
| Pond Perimeter (feet)           | 12,000 <sup>1</sup>             |
| Drainage Area (square miles)    | Unknown                         |
| Design Freeboard (feet)         | 5 [4]                           |
| Embankment:                     |                                 |
| Type                            | Homogeneous <sup>2</sup><br>[4] |
| Maximum Design Height (feet)    | 56 [4]                          |
| Design Crest Width (feet)       | 25 [4]                          |
| Design Crest Length (feet)      | 3,563.4 [4]                     |
| Design Crest Elevation (feet)   | 6,905 [4]                       |
| Design Upstream Slope (feet)    | 3:1 [4]                         |
| Design Downstream Slope (feet)  | 3:1 to 4:1 [4]                  |
| Pond Outlet Structure:          |                                 |
| Type                            | Drop Decant<br>Tower            |
| Crest Elevation (feet)          | 6903.0 [2]                      |
| Crest Length (feet)             | 3 ft. (stoplog)                 |
| Gates                           | Yes                             |
| Gate Invert Elevations (feet)   | 6882                            |
| Conveyance                      | 24-inch CCP                     |

1. Estimated based on aerial photographs and satellite imagery.
2. Unlike the North Clear Pond Embankment, a blanket drain was not used for the North Ash Pond embankment.

## 2.4 Performance History

A wet area beyond the toe of the east embankment near the abutment was first documented by the 2009 Crank report [10]. The source of water was historically either FGD Pond #2 or the North Ash Pond

and was monitored. Refer to Photo 14, Appendix A. Water was historically pumped to FGD Pond 2 but during closure of FGD Pond 2, the water was pumped to FGD Ponds 4 and 5. It is no longer pumped. The vegetation appears to have receded from the 2016 inspection but not significantly since closure of FGD Pond 2.

The CHA report [5] did not identify the wet area below the toe near the right abutment but the area is shown on photographs in the report. Refer to this report's Photo 1, Appendix A.

There have been no incidences of embankment failure, movement or seepage requiring remediation of the North Ash Pond embankment reported in the record files.

## **2.5 Construction History**

The North Ash Pond was originally constructed in 1974. Several modifications to its configuration were completed between 1974 and 1994, when it was constructed to its current configuration [2]. The current embankment footprints are outside previous embankment alignments, and the current North Ash Pond encompasses the spatial extent of the ponds previously used for CCR disposal. No significant subsequent modifications have been completed since 1994.

Fly ash and bottom ash slurry are delivered from Unit 3 via pipe to a point near the North Ash Pond where it is conveyed into the pond by open channel. The North Ash Pond has also been called the Unit 3 Ash Pond [4]. The inflow pipe does not penetrate any constructed embankments.

## **2.6 Review of Operating Record Files**

The list of operating records to be reviewed during the annual inspection as contained in 40 CFR §257, Disposal of Coal Combustion Residuals for Electric Utilities is "CCR unit design and construction information required by §§257.73(c) (1) and 257.74(c) (1), previous periodic structural stability assessments required under §§257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections" [1]. The following subsection describes the review of operating record files.

### **2.6.1 Design and Construction Information**

AECOM reviewed the three volumes of construction documents contained in the Black & Veatch Permit Application [2], [9], and [11]. These documents contain design drawings, specifications and reports in support of constructing the North Ash Pond.

### **2.6.2 Previous Periodic Structural Analyses**

The 2014 inspection [12] identified a stability analysis completed by CHA [3], which reported that its design met the factor of safety criteria being used. However, the original analysis was not available for AECOM to review. In 2016, MWH complete a structural stability assessment [13] and a safety factor assessment [14]. These documents report that the North Ash Pond has no structural stability deficiencies and meets factor of safety criteria.

### **2.6.3 Results of Inspection by a Qualified Person**

The North Ash Pond is subject to periodic inspections by the Naughton Power Plant staff. AECOM reviewed inspection reports, which were recorded using the new form prepared for inspections under CCR regulations and implemented in 2015. These inspections are documented and retained by PacifiCorp [15]. Review of the results of these inspections did not identify any previously unidentified issues. It is the opinion of the author of this document that the interim inspections and reporting by plant staff are appropriate and adequate for this CCR Unit.

### **2.6.4 Results of Previous Annual Inspections**

This is the fourth annual periodic inspection conducted under the CCR rule [1]. In 2015, URS (acquired by AECOM) completed the first independent inspection [16] for the Naughton Power Plant North Ash Pond under the CCR rule [1]; however, PacifiCorp has completed other independent inspections by third parties prior to the 2015 inspection.

Inspection reports since 2015 [16], [17], [18], [19] indicated several small animal burrows, some minor woody vegetation, and slight erosion of the embankment slopes. These are typical dam maintenance issues for the region and facility. None of the observations from this or previous inspections indicated imminent dam safety concerns.

This report and other pertinent reports and data are accessible at the following website:

<http://www.berkshirehathawayenergyco.com/ccr/ppw.html>

Section 5 of this report is a complete list of references for the Naughton North Ash Pond.

## **3 Field Inspection of North Ash Pond**

A field inspection was conducted on September 3, 2019, by AECOM staff, Rick J. Cox, P.E., and Matthew Zion. Mr. Cox previously participated in the CCR impoundment inspections in 2014 for Naughton Power Plant [12] and each year since 2015. He was the principal author of these inspection reports, excluding the 2017 report. Mr. Zion also participated in the CCR inspections in 2015, 2017 and 2018 and was the principle author of the 2017 report. Personnel from the Naughton Power Plant briefly met with the AECOM inspection staff prior to the field inspection to answer questions.

A photograph log documenting features and their condition at the time of the inspection is presented in Appendix A.

The completed Annual Inspection Report form is presented in Appendix B. This Annual Report should be considered an integral part of the report and remain attached whenever the report is forwarded or otherwise reproduced.

### **3.1 General**

The field inspection was performed by the AECOM team by walking north along the downstream toe and slope of the North Ash Pond's southeast and east embankments and back along the crest southward. Features and conditions were documented on the inspection checklist and were



photographed and marked with GPS coordinates. The approximate locations of the photos are detailed in the inspection photograph log overview map located at the beginning of Appendix A, Photograph Log. In addition to documenting current features, the photograph log of existing conditions is intended to aid future inspections.

### **3.2 North Ash Pond Geometry**

The North Ash Pond is a homogeneous earthen embankment with no internal drainage system. The reservoir is unlined. Its horizontal configuration is comprised of a southeast and an east embankment as shown on Figure 1-1. Figure 3-1 below is a cross section of the current embankment showing its relationship to an earlier embankment at the upstream toe. It has a 25-foot crest width and upstream slopes of 3 vertical to 1 horizontal (3:1) and downstream slopes between 3 and 4 vertical to 1 horizontal [4]. Approximately half of the downstream face of the embankment is submerged by the North Clear Pond.

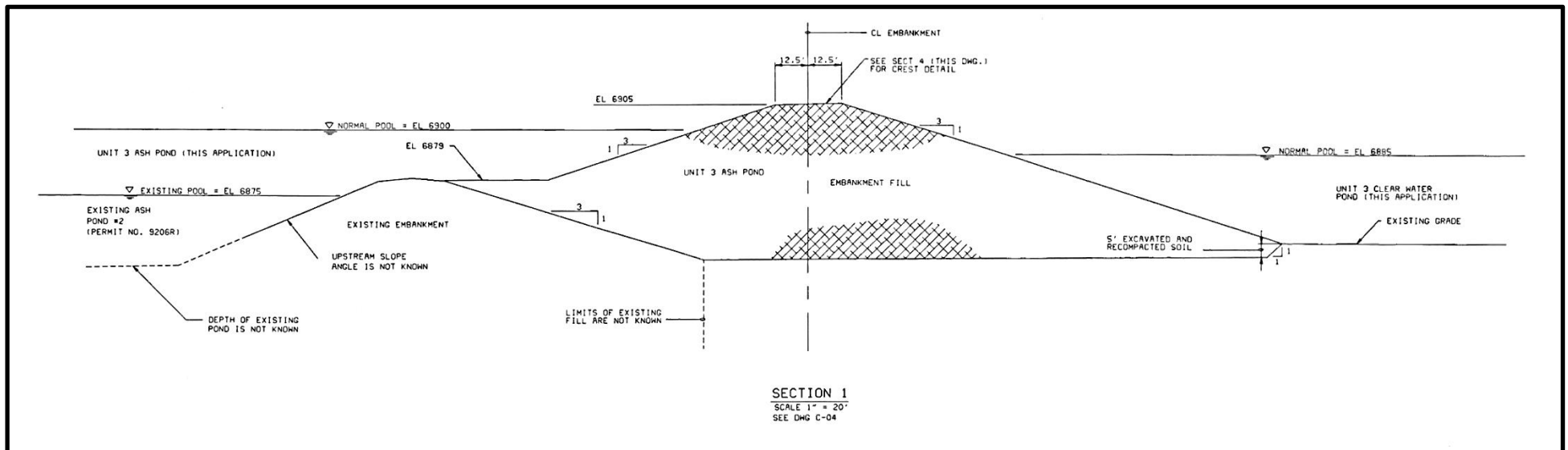


Figure 3-1. North Ash Pond Section [2]

### **3.3 Instrumentation**

There is only one piezometer in the North Ash Pond embankment. Piezometer PZ-9 is located in the crest near the left (eastern) abutment. Piezometer PZ-7 and PZ-8 are on the North Clear Pond and not associated with the embankments for the North Ash Pond. Data indicates a relatively constant piezometric surface for PZ-9, with a highest elevation of 13.9 feet below the top of casing (July 14, 2016)<sup>1</sup> Current data (September 6, 2019) shows water at 20.5 feet below casing indicating that the piezometer is essentially dry. This is likely a result of FGD Pond 2 being closed and North Ash Pond being drawn down significantly. MWH reports that PZ-9 was installed in response to the wet area below the toe between FGD Pond #2 and the North Ash Pond [6]. The data does not offer any explanation or concern about seepage at that location.

### **3.4 Impounded Water Depth and Volume**

AECOM estimated the freeboard at 27 feet (approximately the same as 2018) making the water surface at approximately 6,876.5 ft amsl. There is a stage storage table developed by WET [20] that shows the capacity of the pond at this elevation at 423 acre-feet.

### **3.5 Storage Capacity**

The pond's capacity is reported at 2,181 acre-feet [4] with 5 feet of freeboard.

### **3.6 Observed or Potential Structural Weaknesses**

There were no observations that indicated imminent weaknesses in the embankment (no tension cracks or movement) or outlet works (no increased seepage or subsidence above the pipe). Seepage at the toe near both the right and left abutments was not observed, although there was vegetation at these locations.

### **3.7 Observed Changes**

This is the fifth annual periodic inspection conducted under the CCR rules [1] for the Naughton North Ash Pond. URS (acquired by AECOM) completed the initial inspection under the CCR rules in 2015 [16], and subsequent annual inspections since then [17]-[18], [19]; however, PacifiCorp historically commissioned other third-party inspections that were not related to the CCR rules, the most recent being completed by URS in 2014 [12]. This report of observed changes is based on the contents of the 2018 report.

The observed changes since the 2018 inspection are:

1. There were considerably fewer animal burrows in 2019 than in 2018.
2. The early growth woody vegetation sprayed with herbicide in 2018 was re-growing.
3. An unusual accumulation of tumbleweeds on the east embankment.
4. An erosion gully is showing much less prominent in 2019 (refer to Photo 4 in Appendix A). The photo is of an erosion gully on the southeast embankment, first observed in 2015.

---

<sup>1</sup> Piezometer data provided by Naughton Plant staff.

## **4 Limitations and Consultant Qualifications**

### **4.1 Limitations**

This report presents observations, and conclusions drawn from (1) a review of pertinent documents referenced in Section 5, and (2) a field inspection of the North Ash Pond. The purpose of the review and inspection has been to assess the safety or adequacy of the facilities against catastrophic failure of the major constructed elements during normal operations or unusual or extreme events based on visual inspection and available information. A secondary purpose is to identify any potential deficiencies related to the CCR rules [1].

The conclusions and professional opinions presented herein were developed by the independent consultant and are in accordance with generally accepted engineering principles and practices at the time and location the services were provided. AECOM makes no other warranty, either expressed or implied.

### **4.2 Professional Engineer Qualifications**

The professional engineer for this inspection is Rick J. Cox. He is licensed in the State of Wyoming (13825) as a civil engineer. He has over 36 years of experience in civil/structural engineering and has performed inspections and safety evaluations on dams, canals and numerous other water-containing structures.

## 5 References

- [1] 40 CFS § 257 Disposal of Coal Combustion Residuals from Electric Utilities, April 17, 2015.
- [2] Black & Veatch, PacifiCorp Construction Permit Application: Combustion Waste Disposal Expansion, Naughton Power Plant (Vol. 2). Kemmerer, Wyoming, 1993, p. 317.
- [3] Maxim Technologies, Inc., “FGD Pond 2 Project, Naughton Plant Unit 3,” Kemmerer, Wyoming, 1998.
- [4] MWH, “Naughton North Ash Pond History of Construction”, September 1, 2016.
- [5] CHA, “Assessment of Dam Safety: Coal Combustion Surface Impoundments (Task 3), Final Report, Naughton Power Station,” Kemmerer, Wyoming, 2009.
- [6] MWH, “Naughton Power Plant: Phase II Geotechnical Investigation,” Salt Lake City, Utah, 2012.
- [7] MWH, “Naughton North Ash Pond Hazard Potential Classification Assessment”, September 1, 2016
- [8] Cornforth Consultants, Inc., “Phase I Geotechnical Assessments: Coal Combustion Waste Pond Embankments, Naughton Power Plant,” Kemmerer, Wyoming, 2009.
- [9] Black & Veatch, PacifiCorp Construction Permit Application: Combustion Waste Disposal Expansion, Naughton Power Plant (Vol. 1). Kemmerer, Wyoming, 1993, p. 459.
- [10] Crank Companies, Inc., “Inspection Review Summary: Waste Ponds - Dikes and Dams,” Kemmerer, Wyoming, 2009.
- [11] Black & Veatch, PacifiCorp Construction Permit Application: Combustion Waste Disposal Expansion, Naughton Power Plant (Vol. 3). Kemmerer, Wyoming, 1993, p. 531.
- [12] URS, “2014 Coal Combustion Residuals Impoundment Inspection and Assessment – Naughton Power Plant,” January 12, 2015.
- [13] MWH, “Naughton North Ash Pond Structural Stability Assessment”, September 1, 2016.
- [14] MWH, “Naughton North Ash Pond Safety Factor Assessment”, September 1, 2016.
- [15] A. Eldridge, “Naughton Power Plant Field Monitoring Forms, November 2012 through September, 2019,” Naughton Power Plant, Kemmerer, Wyoming, 2019.
- [16] URS, “2015 Coal Combustion Residuals Annual Inspection, Naughton Power Plant, North Ash Pond,” December 29, 2015.
- [17] URS, “2016 Coal Combustion Residuals Annual Inspection, Naughton Power Plant, North Ash Pond,” November 1, 2016.



- [18] URS, "2017 Coal Combustion Residuals Annual Inspection, Naughton Power Plant, North Ash Pond," November 29, 2017.
- [19] URS, "2018 Coal Combustion Residuals Annual Inspection, Naughton Power Plant, North Ash Pond," November 27, 2018.
- [20] Water & Environmental Technologies, "Naughton Power Plant Inflow Design Flood Control Plan – North Ash Pond CCR Unit", August, 2016.

References not cited

- [21] Federal Emergency Management Agency's (FEMA), Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams, April 2004
- [22] Maxim Technologies, Inc., "Unit 3 FGD Pond 1 Modifications Design Report, Naughton Power Plant," Kemmerer, Wyoming, 2002.
- [23] MWH, "Probable Maximum Precipitation Analysis," Steamboat Springs, Colorado, 2011.
- [25] Tetra Tech, Inc., "FGD Effluent Disposal Pond 4 Design Drawings," Kemmerer, Wyoming, 2009.
- [26] Tetra Tech, Inc., "Notice of Completion of Construction, FGD Effluent Disposal Pond 4 Reservoir (Permit No. 13536R)," Cheyenne, Wyoming, 2010.
- [27] United States Geological Survey [USGS], "2008 Interactive Deaggregations," 2014. [Online]. Available: <http://geohazards.usgs.gov/deaggint/2008/>. [Accessed: 27-Oct-2014].
- [27] Wyoming State Engineer's Office Regulations and Instructions; Part I, Surface Water, Chapter 5. Adopted in 1913, last revised in 1974.

## **Appendix A**

### **Photograph Log**



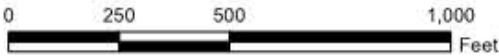


Q:\Projects\PacifiCorp\2019 CCR Inspection\Naughton\Naughton\_Report\_Photos\_2019\_NorthAsh.mxd

Aerial Photo Source: PacifiCorp ( flown in 2018)

**Legend**

● Approximate Photo Point



**Photo Locations**

PacifiCorp Energy  
Naughton Power Plant North Ash Pond  
Kemmerer, Wyoming  
September, 2019

**AECOM**





**Photograph No. 1 View of vegetation on downstream toe of southeast embankment.**



**Photograph No. 2 Erosion gully on southeast embankment of North Ash Pond. Right photo is 2019. Compared to 2017 photo (left). It shows that this is nearly filled in with vegetation in 2019.**

### **Inspection Photographs**

PacifiCorp Energy  
North Ash Pond – Naughton Power Plant

September 3, 2019

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**Photograph No. 3 South-east embankment toe, view south-west.**



**Photograph No. 4 South-east embankment, view north-east.**





**Photograph No. 5 South-east Embankment, view north-east.**



**Photograph No. 6 Erosion around outlet.**

### **Inspection Photographs**

PacifiCorp Energy  
 North Ash Pond – Naughton Power Plant  
 September 3, 2019  
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**Photograph No. 7 Erosion from prior pump discharge. No on-going pumping.**





**Photograph No. 8 Crest of south embankment.**



**Photograph No. 9 Early growth woody vegetation from sprayed out area.**

### **Inspection Photographs**

PacifiCorp Energy

North Ash Pond – Naughton Power Plant

September 3, 2019

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**Photograph No. 10** Unusual, large amount of tumbleweed collecting at toe of east embankment, view to north.



**Photograph No. 11** Rodent hole on east embankment.

## **Inspection Photographs**

PacifiCorp Energy

North Ash Pond – Naughton Power Plant

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**Photograph No. 12 Second rodent hole on east embankment.**



**Photograph No. 13 Third rodent hole on east embankment.**

### **Inspection Photographs**

PacifiCorp Energy

North Ash Pond – Naughton Power Plant

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**Photograph No.14** View of downstream slope of east embankment looking southeast.  
The vegetation appears to be approximately the same as 2017.

**Appendix B**  
**Annual Inspection Report Form**

# Annual CCR Impoundment Inspection Report

**Feature Name:**  
**Naughton North Ash Pond**

**Feature ID:**  
**WY01547**

**Date:**  
**September 3, 2019**

|   |  |                           |  |                         |  |
|---|--|---------------------------|--|-------------------------|--|
| <b>Station/Owner</b><br>PacifiCorp  |  | <b>County,</b><br>Lincoln |  | <b>State</b><br>Wyoming |  |
| <b>Inspected By</b><br>Rick J. Cox, P.E. and Matt Zion  |  |                           | <b>Date</b><br>September 3, 2019   |                         | <b>Phone No.</b><br>801-904-4096   |
| <b>Type of Dam</b> <input type="checkbox"/> Concrete Gravity <input checked="" type="checkbox"/> Embankment <input type="checkbox"/> Concrete Arch <input type="checkbox"/> Stone Masonry <input type="checkbox"/> Concrete Buttress <input type="checkbox"/> Other |  |                           | <b>Weather</b> <input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry <input type="checkbox"/> Snow Cover <input type="checkbox"/> Other – Overcast  |                         |  |
| <b>Type of Inspection</b> <input type="checkbox"/> Initial <input checked="" type="checkbox"/> Periodic <input type="checkbox"/> Follow up <input type="checkbox"/> Other   |  |                           |  |                         |  |
| <b>Hazard Description</b><br>Significant. MWH, Hazard Potential Classification Assessment, 2016.  |  |                           | <b>Condition Assessment</b><br><input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory<br><input type="checkbox"/> Poor <input type="checkbox"/> Not rated<br><input type="checkbox"/> Fair |                         | <b>Hazard Class</b><br><input checked="" type="checkbox"/> Low (A)<br><input type="checkbox"/> Intermediate (B)<br><input type="checkbox"/> High (C)   |
| <b>Remarks</b>  |  |                           | <b>Actions</b><br><input type="checkbox"/> None<br><input checked="" type="checkbox"/> Maintenance<br><input type="checkbox"/> Monitoring<br><input type="checkbox"/> Minor Repair<br><input type="checkbox"/> Engineering   |                         | <b>Recommendations</b><br><input type="checkbox"/> Inspection letter <input type="checkbox"/> Inspection by DSE<br><input type="checkbox"/> Deficiency letter <input type="checkbox"/> Dam safety order<br><input type="checkbox"/> EOR notice <input type="checkbox"/> Enforcement<br><input type="checkbox"/> Engineering study <input checked="" type="checkbox"/> Periodic reinspection<br><input type="checkbox"/> Inspection by EOR<br><br><input type="checkbox"/> Other reinspection |
| <b>Pool Level (ft)</b><br>Estimated to be approximately 27 ft below crest.  |  |                           | <b>Total Precipitation since last inspection</b><br>none   |                         |  |

|                            |  | Problems   |  |   |   | COVER: |
|----------------------------|--|--|--|---|---|--------|
| <b>UPSTREAM SLOPE/FACE</b> | <input checked="" type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Vegetation >2" dia.<br><input type="checkbox"/> 3. Veg. height >6"<br><input type="checkbox"/> 4. High bushes<br><input type="checkbox"/> 5. Animal Burrows<br><input type="checkbox"/> 6. Livestock damage | <input type="checkbox"/> 7. Wave Erosion<br><input type="checkbox"/> 8. Slides<br><input type="checkbox"/> 9. Depressions<br><input type="checkbox"/> 10. Bulges<br><input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 12. Spalling | <input type="checkbox"/> 13. Scarps<br><input type="checkbox"/> 14. Sloughing<br><input type="checkbox"/> 15. Holes<br><input type="checkbox"/> 16. Undermining<br><input type="checkbox"/> 17. Displaced joints<br><input type="checkbox"/> 18. Deteriorated joints | <input type="checkbox"/> 19. Exposed reinforcement<br><input type="checkbox"/> 20. Veg. or sediment in rip rap<br><input type="checkbox"/> 21. Displaced rip rap<br><input type="checkbox"/> 22. Sparse rip rap<br><input type="checkbox"/> 23. Other Erosion<br><input type="checkbox"/> 24. Other | <input type="checkbox"/> Vegetation<br><input checked="" type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other |        |
|                            | Comments /Action Items :   |  |  |   |   |        |
|                            | <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering  |  |  |   |   |        |
| <b>TOP OF DAM/CREST</b>    | <input checked="" type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Vegetation >2" dia.<br><input type="checkbox"/> 3. Veg. height >6"<br><input type="checkbox"/> 4. High bushes<br><input type="checkbox"/> 5. Animal Burrows<br><input type="checkbox"/> 6. Livestock damage | <input type="checkbox"/> 7. Ruts<br><input type="checkbox"/> 8. Depressions<br><input type="checkbox"/> 9. Unlevel<br><input type="checkbox"/> 10. Misalignment<br><input type="checkbox"/> 11. Signs of overtopping                             | <input type="checkbox"/> 12. Cracks<br><input type="checkbox"/> 13. Deteriorated joints<br><input type="checkbox"/> 14. Displaced joints<br><input type="checkbox"/> 15. Exposed reinforcement<br><input type="checkbox"/> 16. Settlement                            | <input type="checkbox"/> 17. Scarps<br><input type="checkbox"/> 18. Spalling<br><input type="checkbox"/> 19. Sinkholes<br><input type="checkbox"/> 20. Puddles<br><input type="checkbox"/> 21. Other  | <input type="checkbox"/> Vegetation<br><input type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other gravel     |        |

# Annual CCR Impoundment Inspection Report

**Feature Name:**  
**Naughton North Ash Pond**

**Feature ID:**  
**WY01547**

**Date:**  
**September 3, 2019**

|                              |  |  |  |  |  |
|------------------------------|--|--|--|--|--|
|                              | Comments /Action Items :   |  |  |  |  |
|                              | <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering  |  |  |  |  |
| <b>DOWNSTREAM SLOPE/FACE</b> | <b>PROBLEMS</b>  |  |  |  | <b>COVER:</b>  |
|                              | <input type="checkbox"/> 1. None<br><input checked="" type="checkbox"/> 2. Vegetation >2" dia.\<br><input type="checkbox"/> 3. Veg. height >6"<br><input type="checkbox"/> 4. High bushes<br><input type="checkbox"/> 5. Poor grass cover<br><input checked="" type="checkbox"/> 6. Animal Burrows<br><input type="checkbox"/> 7. Livestock damage | <input type="checkbox"/> 8. Wetness<br><input type="checkbox"/> 9. Seepage<br><input type="checkbox"/> 10. Boils<br><input type="checkbox"/> 11. Puddles<br><input checked="" type="checkbox"/> 12. Erosion<br><input type="checkbox"/> 13. Slope instability<br><input type="checkbox"/> 14. Scarps                       | <input type="checkbox"/> 15. Sloughs/bulges<br><input type="checkbox"/> 16. Depressions<br><input type="checkbox"/> 17. Undercutting<br><input type="checkbox"/> 18. Rutting/rills<br><input type="checkbox"/> 19. Cracks<br><input type="checkbox"/> 20. Scour<br><input type="checkbox"/> 21. Spalling | <input type="checkbox"/> 22. Displaced joints<br><input type="checkbox"/> 23. Deteriorated joints<br><input type="checkbox"/> 24. Exposed reinforcement<br><input type="checkbox"/> 25. Riprap needs attention<br><input type="checkbox"/> 26. Veg. or sediment in rip rap<br><input type="checkbox"/> 27. Other | <input checked="" type="checkbox"/> Vegetation<br><input checked="" type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other |
|                              | 28. Does standing water or seepage contain sediment?   |  |  |  | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA  |
|                              | 29. Is there natural hillside seepage in embankment area?  |  |  |  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA  |
|                              | Describe seepage with regard to quantity and clarity (turbidity). Note changes :   NA  |  |  |  |  |
|                              | Comments /Action Items : erosion caused by pumping from North Ash Pond to North Clear Pond still exists.   |  |  |  |  |
|                              | <b>Actions</b> <input type="checkbox"/> None <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering  |  |  |  |  |
| <b>TOE CONTACT</b>           | <b>PROBLEMS</b>  |  |  |  | <b>COVER:</b>  |
|                              | <input type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Vegetation >2" dia.<br><input type="checkbox"/> 3. Veg. height >6"<br><input type="checkbox"/> 4. High bushes<br><input type="checkbox"/> 5. Poor grass cover<br><input type="checkbox"/> 6. Animal Burrows<br><input type="checkbox"/> 7. Livestock damage                        | <input checked="" type="checkbox"/> 8. Wetness<br><input checked="" type="checkbox"/> 9. Seepage<br><input type="checkbox"/> 10. Boils<br><input checked="" type="checkbox"/> 11. Puddles<br><input type="checkbox"/> 12. Erosion<br><input type="checkbox"/> 13. Slope instability<br><input type="checkbox"/> 14. Scarps | <input type="checkbox"/> 15. Sloughs/bulges<br><input type="checkbox"/> 16. Depressions<br><input type="checkbox"/> 17. Undercutting<br><input type="checkbox"/> 18. Rutting/rills<br><input type="checkbox"/> 19. Cracks<br><input type="checkbox"/> 20. Scour<br><input type="checkbox"/> 21. Spalling | <input type="checkbox"/> 22. Displaced joints<br><input type="checkbox"/> 23. Deteriorated joints<br><input type="checkbox"/> 24. Exposed reinforcement<br><input type="checkbox"/> 25. Riprap needs attention<br><input type="checkbox"/> 26. Veg. or sediment in rip rap<br><input type="checkbox"/> 27. Other | <input checked="" type="checkbox"/> Vegetation<br><input checked="" type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other |
|                              | 28. Does standing water or seepage contain sediment?   |  |  |  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA  |
|                              | Describe seepage with regard to quantity and clarity (turbidity). Note changes : Large wet areas below toe near abutments (left and right). Vegetation is too thick to adequately monitor seepage conditions, but appears in 2019 to be getting dryer. May be attributed to lower pond elevation and FGD Pond 2 closure.                           |  |  |  |  |
|                              | Comments /Action Items : Monitor vegetation for changes.   |  |  |  |  |
|                              |  |  |  |  |  |

# Annual CCR Impoundment Inspection Report

Issue Date: 8-2-2015  
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Feature Name:  
**Naughton North Ash Pond**

Feature ID:  
**WY01547**

Date:  
**September 3, 2019**

|   |  |   |  |
|---|--|---|--|
| <b>Actions</b> <input type="checkbox"/> None <input checked="" type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering  |  |   |  |
| <b>ABUTMENT CONTACTS</b>  | <b>PROBLEMS</b>  | <b>COVER:</b>   |  |
|   | <input checked="" type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Vegetation >2" dia.<br><input type="checkbox"/> 3. Veg. height >6"<br><input type="checkbox"/> 4. High bushes<br><input type="checkbox"/> 5. Poor grass cover<br><input type="checkbox"/> 6. Animal Burrows<br><input type="checkbox"/> 7. Livestock damage         | <input type="checkbox"/> 8. Wetness<br><input type="checkbox"/> 9. Seepage<br><input type="checkbox"/> 10. Boils<br><input type="checkbox"/> 11. Puddles<br><input type="checkbox"/> 12. Erosion<br><input type="checkbox"/> 13. Slope instability<br><input type="checkbox"/> 14. Scarps       | <input type="checkbox"/> 15. Sloughs/bulges<br><input type="checkbox"/> 16. Depressions<br><input type="checkbox"/> 17. Undercutting<br><input type="checkbox"/> 18. Rutting/rills<br><input type="checkbox"/> 19. Cracks<br><input type="checkbox"/> 20. Scour<br><input type="checkbox"/> 21. Spalling |
|   | <input type="checkbox"/> 22. Displaced joints<br><input type="checkbox"/> 23. Deteriorated joints<br><input type="checkbox"/> 24. Exposed reinforcement<br><input type="checkbox"/> 25. Riprap needs attention<br><input type="checkbox"/> 26. Veg. or sediment in rip rap<br><input type="checkbox"/> 27. Other                               | <input type="checkbox"/> Vegetation<br><input type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other  |  |
|   | Comments /Action Items : <b>Abutements taper out to natural ground.</b>  |   |  |
| <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering   |  |   |  |
| <b>PRINCIPAL SPILLWAY</b>   | <b>OBSERVATIONS</b>  |   |  |
|   | <input checked="" type="checkbox"/> No Spillway  |   |  |
|   | <b>Is spillway control system operating properly?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No   |   |  |
|   | <b>PROBLEMS</b>  | <b>CHANNEL LINING</b>   |  |
| <input type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Trashguard<br><input type="checkbox"/> 3. Debris<br><input type="checkbox"/> 4. Obstructed<br><input type="checkbox"/> 5. Plugged/Clogged<br><input type="checkbox"/> 6. Gates Damaged<br><input type="checkbox"/> 7. Gates leaking<br><input type="checkbox"/> 8. Gates Rusted               | <input type="checkbox"/> 9. Misalignment<br><input type="checkbox"/> 10. Joints leaking<br><input type="checkbox"/> 11. Joint deterioration<br><input type="checkbox"/> 12. Joint displacement<br><input type="checkbox"/> 13. Conduit collapsed<br><input type="checkbox"/> 14. Exposed reinforcement<br><input type="checkbox"/> 15. Erosion | <input type="checkbox"/> 16. Undermining<br><input type="checkbox"/> 17. Voids<br><input type="checkbox"/> 18. Cracks<br><input type="checkbox"/> 19. Holes<br><input type="checkbox"/> 20. Spalling<br><input type="checkbox"/> 21. Slides<br><input type="checkbox"/> 22. Outlet undercutting |  |
| <input type="checkbox"/> 23. Sloughing<br><input type="checkbox"/> 24. Scarps<br><input type="checkbox"/> 25. Deteriorated lining<br><input type="checkbox"/> 26. Boils<br><input type="checkbox"/> 27. Outlet erosion<br><input type="checkbox"/> 28. Displaced rip rap<br><input type="checkbox"/> 29. Sparse rip rap<br><input type="checkbox"/> 30. Other | <input type="checkbox"/> Vegetation<br><input type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other   |   |  |
| Comments /Action Items  |  |   |  |
| <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering   |  |   |  |
| <b>EMERGENCY SPILLWAY</b>   | <b>OBSERVATIONS</b>  |   |  |
|   | <input checked="" type="checkbox"/> No emergency spillway <input type="checkbox"/> Same as primary spillway  |   |  |
|   | <b>PROBLEMS</b>  | <b>CHANNEL LINING</b>   |  |
|   | <input type="checkbox"/> 1. None<br><input type="checkbox"/> 2. Debris in channel<br><input type="checkbox"/> 3. Gates<br><input type="checkbox"/> 4. Misalignment   | <input type="checkbox"/> 5. Joint deterioration<br><input type="checkbox"/> 6. Joint displacement<br><input type="checkbox"/> 7. Exposed reinforcement<br><input type="checkbox"/> 8. Erosion   | <input type="checkbox"/> 9. Undermining<br><input type="checkbox"/> 10. Voids<br><input type="checkbox"/> 11. Cracks<br><input type="checkbox"/> 12. Holes<br><input type="checkbox"/> 13. Outlet erosion  |
| <input type="checkbox"/> 14. Displaced rip rap<br><input type="checkbox"/> 15. Sparse rip rap<br><input type="checkbox"/> 16. Outlet undercutting<br><input type="checkbox"/> 17. Inadequate capacity<br><input type="checkbox"/> 18. Other   | <input type="checkbox"/> Vegetation<br><input type="checkbox"/> Rip rap<br><input type="checkbox"/> Concrete<br><input type="checkbox"/> Asphalt<br><input type="checkbox"/> Other   |   |  |
| Comments /Action Items  |  |   |  |



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Feature Name:  
**Naughton North Ash Pond**

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|   |   |  |
|---|---|--|
| <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering |   |  |
| <b>DRAINS/OUTLET STRUCTURE</b>  | <b>Observations</b>   |  |
|   | 1. Is discharge system operating properly? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 2. Valves and operators in good condition? <b>Did not operate, appears to function.</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 3. Walkway in good condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 4. Is there any turbidity observed at the outlet? No discharge. <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 5. Seepage at pipe outlet. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 6. No Bottom Drain <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 7. Bottom Drain Operable <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A   |  |
|   | 8. Subsurface Drain Dry <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 9. Subsurface drain muddy flow <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A   |  |
|   | 10. Subsurface drain obstructed <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 11. Animal guard <b>Fence in good condition.</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 12. other <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | Comments /Action Items :  |  |
| <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering |   |  |
| <b>RESERVIOR/POOL</b>   | <b>OBSERVATION</b>  |  |
|   | Has there been a sudden drop in the content level of the Impoundment <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |  |
|   | <b>PROBLEMS</b>   |  |
|   | <input checked="" type="checkbox"/> 1. None <input type="checkbox"/> 2. Inadequate freeboard <input type="checkbox"/> 3. Skimmer <input type="checkbox"/> 4. Depressions <input type="checkbox"/> 5. Whirlpools <input type="checkbox"/> 6. Sinkholes <input type="checkbox"/> 7. Unwanted growth in pond water |  |
|   | Comments /Action Items :  |  |
|   | <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering   |  |
| <b>OTHER</b>  | <b>OBSERVATIONS</b>   |  |
|   | 1. leachate/stormwater (RCP; CMP) drain pipes that pass through or under an ash basin intact? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 2. Drainage/ diversion ditches/riprap-lined channels in good condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 3. Other steel structures/steel reinforcement in concrete structures in good condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 4. Other concrete structures in good condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 5. Overflow pipes and flap gates on filter dam/ drain pipe filter zone in good condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 6. Howell Bunger Valves in good condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A   |  |
|   | 7. Weirs in good condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A  |  |
|   | 8. Fences and Gates in good condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 9. Security devices in good condition <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 10. Signs in good condition <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 11. Instrumentation in good condition <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A  |  |
|   | 12. Reference monuments/Survey Monuments in good condition <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
|   | 13. other <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A   |  |
| Comments /Action Items :  |   |  |
| <b>Actions</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Maintenance <input type="checkbox"/> Monitoring <input type="checkbox"/> Minor Repair <input type="checkbox"/> Engineering |   |  |

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**Feature Name:**  
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Routine instrumentation monitoring (piezometers, inclinometers, etc.) are recorded separately. Have these measurements been collected, and properly recorded. ☒ Yes ☐ No ☐ N/A

Are additional sheets included, if applicable to address regulatory, or third party inspection issues? ☐ Yes ☐ No ☒ N/A

**Are there any other abnormal conditions at the Impoundment that could pose a risk to public health, safety or welfare; the environment or natural resources** ☐ Yes ☒ No

Inspector Signature \_\_\_\_\_ 

Date 9-3-2019