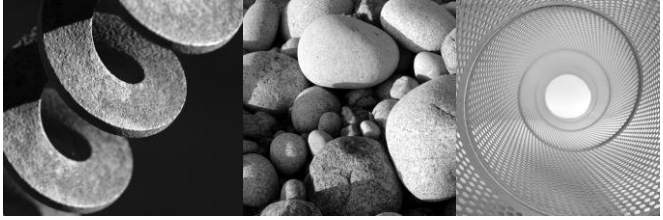

GEI Consultants

Geotechnical
Environmental and
Water Resources
Engineering

DRAFT

Specific Site Assessment for Coal Combustion Waste Impoundment at PacifiCorp Energy, Dave Johnston Power Plant

Glenrock, Wyoming

Submitted to:
U.S. Environmental Protection Agency
Office of Resource Conservation and Recovery
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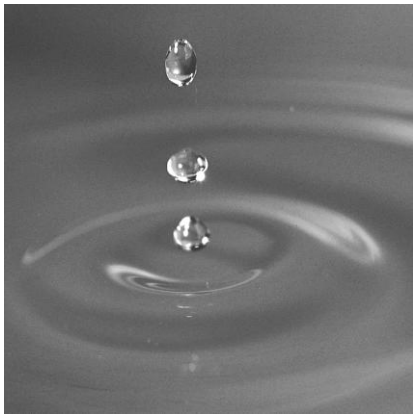

Brian S. Johnson, P.E.
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Acronym List

CCW	coal combustion waste
DJ	Dave Johnston
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GEI	GEI Consultants, Inc.
IDF	inflow design flood
MW	megawatts
PMF	probable maximum flood
PMP	probable maximum precipitation
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey

1.0 Introduction

1.1 Purpose

This report presents the results of a specific site assessment of the dam safety of coal combustion waste (CCW) impoundments at the Dave Johnston (DJ) Power Plant in Glenrock, Wyoming. The DJ Power Plant is operated and owned by PacifiCorp Energy. The impoundments are the: 1A Ash Pond, 1B Ash Pond, 1A Clear Pond, 1B Clear Pond, Blowdown Canal, 4A Ash Pond, 4B Ash Pond, and 4 Clear Pond. The 1A, 1B, 4A, and 4B Ash Ponds are lined. The specific site assessment was performed on October 27, 2010.

The specific site assessment was performed with reference to Federal Emergency Management Agency (FEMA) guidelines for dam safety, which includes other federal agency guidelines and regulations (such as U.S. Army Corps of Engineers [USACE] and U.S. Bureau of Reclamation [USBR]) for specific issues, and defaults to state requirements when not specifically addressed by federal guidance or if the state requirements are more stringent.

1.2 Scope of Work

The scope of work between GEI Consultants, Inc. (GEI) and the U.S. Environmental Protection Agency (EPA) for the specific site assessment is summarized in the following tasks:

1. Acquire and review existing reports and drawings relating to the safety of the project provided by the EPA and PacifiCorp.
2. Conduct detailed physical inspections of the project facilities. Document observed conditions on Field Assessment Checklists provided by EPA for each management unit being assessed.
3. Review and evaluate stability analyses of the project's coal combustion waste impoundment structures.
4. Review the appropriateness of the inflow design flood (IDF), and adequacy of ability to store or safely pass the IDF, provision for any spillways, including considering the hazard potential in light of conditions observed during the inspections or to the downstream channel.
5. Review existing dam safety performance monitoring programs and recommend additional monitoring, if required.
6. Review existing geologic assessments for the projects.
7. Submit draft and final reports.

1.3 Authorization

GEI performed the coal combustion waste impoundment assessment as a contractor to the EPA. This work was authorized by EPA under Contract No. EP09W001698, Order No. EP-B10S-00018 between EPA and GEI, dated September 23, 2010.

1.4 Project Personnel

The scope of work for this task order was completed by the following personnel from GEI:

Stephen G. Brown, P.E.	Project Manager
Brian S. Johnson, P.E.	Senior Project Engineer / Task Leader
Thomas A. Daigle	Project Geologist
Steven R. Townsley, P.E.	Senior Reviewer

The Program Manager for the EPA was Stephen Hoffman.

1.5 Limitation of Liability

This report summarizes the assessment of dam safety of coal combustion waste impoundments the Dave Johnston Power Plant, Glenrock, Wyoming. The purpose of this assessment is to evaluate the structural integrity of the impoundments and provide summaries and recommendations based on the available information and on engineering judgment. GEI used a professional standard of practice to review, analyze, and apply pertinent data. No warrantees express or implied, are provided by GEI. Reuse of this report for any other purpose, in part or in whole, is at the sole risk of the user.

1.6 Project Datum

No references to the project datum or a vertical datum were discovered during the document review process.

1.7 Prior Inspections

Semi-annual inspections for the CCW impoundments by a PacifiCorp engineer began in 2010. Prior to 2010, the only known third party inspection for the impoundments was performed by Cornforth Consultants, Inc. in June, 2009. A visual inspection of the CCW impoundments is performed at least once per 12-hour shift by a PacifiCorp employee. No known prior inspections have been conducted by federal or state regulators.

2.0 Description of Project Facilities

2.1 General

The DJ Power Plant is a coal-fired power plant consisting of four units with a combined nameplate capacity of 817 megawatts (MW). The power plant is located approximately 5 miles east of Glenrock, Campbell County, Wyoming along Interstate 25; see Figure 1. The DJ Power Plant is owned and operated by PacifiCorp Energy, which is a subsidiary of MidAmerican Energy Holdings Company which is owned by Berkshire Hathaway. The Power Plant went online with a single unit in 1959 and added subsequent units in 1961, 1964, and 1972. The CCW impoundments are located generally west and north of the Power Plant. The CCW impoundments consist of eight ponds: two active CCW settling ponds, one active clear pond, one conveyance canal, two former CCW settling ponds and two former clear ponds (currently used as supplemental water storage and clear ponds). There are limited design records from the original construction of the impoundments and as-built drawings were not available. See Figure 2 for the configuration and identification of the CCW impoundments.

The 1A and 1B Ash Ponds and the 1A and 1B Clear Ponds were built in 1959 as a single ash disposal area that was later subdivided with interior dikes. These four ponds served as the primary ash settling and clear ponds until the construction of the 4A and 4B Ash Ponds, 4 Clear Pond, and Blowdown Canal in 1972. The 1A and 1B Ash Ponds and Clear Ponds are located downstream of the 4A and 4B ponds and are currently being used for additional settling prior to discharge into the North Platte River.

The primary uses of the CCW impoundments are the holding and recovery of bottom ash received from the Power Plant and storage of water for later re-use at the plant. Bottom ash and other wastewater is slurried from the Power Plant to either the 4A or 4B Ash Pond through an underground pipeline. Primary settling of the bottom ash occurs in the 4A or 4B pond until it is full of solids, at which point the slurry is directed to the other pond. Bottom ash is then excavated from the filled pond and taken offsite for recycling/disposal.

The 1A Ash Pond is currently being partially abandoned. The northern 2/3 of the pond is being filled in with fly ash and imported fill to create a staging and lay-down area for future Plant operations.

Decant water from the 4A and 4B Ash Ponds flows by gravity into the 4 Clear Pond. Water can either be pumped from the 4 Clear Pond to the plant for re-use, or flow by gravity into the Blowdown Canal. Water from the Blowdown Canal flows by gravity into the 1A and 1B Ash Ponds and then by gravity into the 1A and 1B Clear Ponds. Water from the 1A and 1B

Clear Ponds is discharged by gravity into the Recirculation Canal. The Recirculation Canal is effectively an un-gated diversion from the North Platte River.

2.2 Impoundment Dams and Reservoirs

The embankment dams of the CCW impoundments have not been previously assigned a hazard potential classification by a state or federal agency. Based on the configuration of the impoundments and the facilities downstream, recommended hazard potential classifications for the impoundments have been developed in Section 4.0 of this report. The basic dimensions and geometry of the CCW impoundments are summarized in Table 2.1.

2.2.1 1A/1B Ash Ponds, 1A/1B Clear Ponds

In 1959, the original 1A/1B Ash Ponds and 1A/1B Clear Ponds were constructed as a single pond later subdivided by two perpendicular interior dikes. Limited design documentation indicates these interior dikes were to be constructed of compacted silt, sand, and gravel. All of the 1-Series ponds are entirely subsurface and were constructed as excavations into natural ground. The 1A/1B Clear Ponds share a single dam at the southern extent that separates them from the Recirculation Canal, which is hydraulically connected to the North Platte River. The 1A/1B Clear Pond south dam consists of natural, unexcavated soil where the 1A and 1B Clear Ponds to the north and the Recirculation Canal to the south were excavated into natural ground. The crest of the 1A/1B Clear Pond south dam is flush with the surrounding ground surface. The crest width of the south dam is approximately 45 feet and the height is approximately 5 to 10 feet (estimated height above the bottom of the Recirculation Canal). The upstream and downstream slopes were judged to range from approximately 0.5H:1V to 2H:1V. The crest width of the interior dikes is approximately 20 feet with side slopes ranging from approximately 0.5H:1V to 2H:1V.

Decant water from the 1A/1B Clear Ponds can be discharged to the Recirculation Canal through one of two drop-inlet culverts installed through the south dam; these outlets are referred to as the 007 Outfall (1B Clear Pond) and the 008 Outfall (1A Clear Pond).

The design top/crest elevations of the perimeter natural cut slope and interior dikes are not specified on the available design drawings. The top elevation of the 1A Clear Pond drop-inlet pipe was specified at 4948.5 feet and the invert elevation of the corresponding culvert that passes through the embankment dam to the Recirculation Canal was specified at 4941 feet on a design drawing from the 1950s. The current elevations of the intake/outlet pipes have not been surveyed.

The 1A Ash Pond is currently being partially abandoned. The northern 2/3 of the pond is being filled in with fly ash and imported fill to create a staging and lay-down area for future Plant operations. When finished, the size of the 1A Ash Pond will be reduced from about 12.9 acres to about 1.6 acres.

2.2.2 4A/4B Ash Ponds, 4 Clear Pond, Blowdown Canal

The 4A and 4B Ash Ponds and the 4 Clear Pond were constructed in 1972 to accommodate CCW from three additional generating units. The 4-Series Ponds are mostly subsurface and were constructed upstream of the original 1A/1B Ash Ponds. They replaced the 1A/1B Ash Ponds as the primary settling ponds for CCW and are connected to the existing downstream ponds by a series of drop-inlet culverts.

The 4A/4B Ash Ponds were constructed as a single pond separated by an interior dike (Figure 2). The northwest and southeast margins of the ponds were excavated into the natural ground surface. Currently, the southeast embankment height ranges from 0 feet (level adjacent ground surface) in the north, to 8-10 feet in the south. The northwest margin is cut into a hillslope. At the top of the pond cut slope there is an approximately 40-foot wide level bench used as a haul/access road. The east embankment has a height of approximately 12.5 feet above the original ground surface, a crest width of approximately 25 feet, an interior slope judged to be about 4H:1V and an exterior slope judged to be about 2.5H:1V. A design drawing from 1971 (not identified as an "as-built" drawing) indicates design crest elevations of 4962.5 feet for the perimeter embankments, and 4965 feet for the Ash Pond central interior dike. The crest widths were to be 18 feet and the side slopes were to be 4H:1V upstream and 3H:1V downstream.

The 4 Clear Pond is a three-sided impoundment with a natural cut slope on the west and constructed earth embankments on the northeast and south. The northeast embankment is a divider dike that separates the 4 Clear Pond from the 4A/4B Ash Ponds. It has a crest width of approximately 20 feet, upstream slope judged to be about 2H:1V and downstream slope judged to be about 3H:1V. The south embankment dam crest is approximately 12.5 feet above the original ground surface with a crest width of approximately 20 feet, upstream and downstream slopes judged to be about 1H:1V and 3H:1V, respectively.

According to the 1971 design drawing, most of the embankments and interior/divider dikes were to be constructed with a fly ash core and upstream and downstream shells of compacted sand. The 4 Clear Pond south embankment dam was to be constructed entirely of compacted clay fill.

The Blowdown Canal is an entirely subsurface excavated channel located adjacent to the 1B Ash Pond. It conveys water discharged from the 4 Clear Pond outlet to the 1B Ash Pond.

Table 2:1: Summary Information for Impoundment Dam Parameters

Parameter	Value							
Dam	1A Ash Pond	1B Ash Pond	1A Clear Pond	1B Clear Pond	Blowdown Canal	4A Ash Pond	4B Ash Pond	4 Clear Pond
Estimated Maximum Height (ft)	NA	NA	NA	NA	NA	12.5	12.5	12.5
Estimated Perimeter Length (ft)	2,400	3,200	1,600	1,500	2,400	3,800	3,800	1,800
Design Crest Width (ft)	NS[3]	NS	NS	45	NS	40	40	30
Design Crest Elevation[2] (ft)	NS	NS	NS	NS	4,950	4,962.5	4,962.5	4,962.5
Design Side Slopes Upstream/Down stream (H: V)	NS	NS	NS	NS	2:1 / 2:1	3:1 / 4:1	3:1 / 4:1	4:1 / 3:1
Observed Side Slopes Upstream/Down stream (H:V)	Range 0.5:1 / 0.5:1 to 2:1 / 2:1	Range 0.5:1 / 0.5:1 to 2:1 / 2:1	Range 0.5:1 / 0.5:1 to 2:1 / 2:1	Range 0.5:1 / 0.5:1 to 2:1 / 2:1	Range 0.5:1 / 0.5:1 to 2:1 / 2:1	4:1 / 2.5:1	4:1 / 2.5:1	2:1 / 3:1
Estimated Freeboard (ft) at time of site visit	3	3	3	3	3	NA Pond full of bottom ash, inactive at time of visit	4	3
Storage Capacity[1] (ac-ft)	114.8	112.4	16.1	19.7	3.3	144.6	144.6	45.9
Surface Area[1] (acres)	12.9	12.5	1.6	2.0	0.5	19.5	19.5	6.4

[1] Surface area and capacity based on CERCLA 104(e) Request for Information prepared by PacifiCorp at the request of the EPA, dated March 30, 2009.
[2] Based on design drawings provided by PacifiCorp, as-built drawings not provided and vertical datum not specified.
[3] NS = Not Specified.

2.3 Spillways

Emergency spillways were not specified on the available design drawings and GEI did not observe any structures or depressions that would suggest the current existence of a spillway.

2.4 Intakes and Outlet Works

The CCW impoundments at the DJ Power Plant receive inflow from five different sources:

1. Bottom ash slurry from Units 1, 2, and 3 (into 4A or 4B Ash Pond)
2. Scrubber effluent from Unit 4 (into 4A or 4B Ash Pond)

3. Cooling tower blowdown water from Unit 4 (into 4 Clear Pond)

4. Plant waste water (not sewage) including storm water surface runoff collected in storm drains (into 1A Ash Pond).

5. Rainfall and surface runoff from contributing drainage area (all ponds).

Bottom ash slurry and plant wastewater is conveyed by subsurface piping to either the 4A or 4B Ash Pond (only one is active at a time) where primary settling takes place. Decant water from the 4A or 4B Ash Ponds flows through a drop-inlet culvert into the 4 Clear Pond where secondary settling occurs. The 4 Clear Pond also receives cooling tower blowdown water piped in from Unit 4. Water from the 4 Clear Pond is either pumped back to the plant for reuse, or flows through a drop-inlet culvert to the Blowdown Canal. Water from the Blowdown Canal flows through a weir to the 1B Ash Pond, which is hydraulically connected to the 1A Ash Pond by culverts installed through the interior dike. The 1A Ash Pond also receives plant wastewater and surface runoff from the plant property. Water can be moved between the 1A/1B Ash Ponds and the 1A/1B Clear Ponds through culverts installed through the interior dikes. Water from the 1A/1B Clear Ponds can be passed through two drop-inlet culverts installed through the south dam to the Recirculation Canal and ultimately the North Platte River. Current operation as reported by Plant staff is to move the water successively from the Blowdown Canal to the 1B Ash Pond, then to the 1A Ash Pond, then to the 1A Clear Pond then to the 1B Clear Pond. Water that passes from the 1A Clear Pond to the 1B Clear Pond is treated with a bubbler system to manage pH levels. Water is currently released to the Recirculation Canal from the 1B Clear Pond only.

There are two outlets from the CCW impoundment system: 1) Water is pumped from the 4 Clear Pond back to the plant for reuse, 2) Water flows by gravity through one of two outfalls that are permitted to discharge into the North Platter River under NPDES Permit No. WY30003115—the current outfall is from the 1B Clear Pond (007 outfall).

2.4.1 Flow Conditions

Water depths are measured in weirs at the 007 or 008 outfalls (depending on which one is actively discharging) once per day, and converted to discharge volumes. According to the last two years of flow data provided by PacifiCorp, the average discharge from the CCW impoundments to the North Platte River ranges from approximately 5.2 to 10.4 million gallons per day.

2.5 Vicinity Map

The DJ Power Plant is located along Interstate 25 approximately 5 miles east of Glenrock, Wyoming and 25 miles east of Casper, Wyoming as shown on Figure 1. Eight CCW impoundments are located generally west and north of the power plant facility as shown on Figure 2.

2.6 Plan and Sectional Drawings

Survey and design drawings were prepared by Pacific Power & Light Company as part of the original Ash Pond construction in 1959 and 1972. A total of five drawing plans were provided to GEI by PacifiCorp. The design drawings provided basic information about the embankments and appurtenant structures with the greatest detail available for the 4-Series ponds constructed in the late 1960s to early 1970s. No information was obtained showing the current configuration of the 1-Series Ash Ponds and Clear Pond. No as-built drawings were provided and we have assumed all structures depicted in the drawings were constructed in general conformance with the design.

2.7 Standard Operational Procedures

The DJ Power Plant is a coal-fired power plant with a combined nameplate capacity of about 817 MW. Coal is delivered to the power plant by train where it is then conveyed to the furnace and combusted to power the steam turbines. The burning of coal produces several gases and fly ash which are vented from the boiler. Bottom ash, which is composed of coarse fragments, falls to the bottom of the boiler, and is removed along with boiler slag. Coal combustion waste from the boiler is wet sluiced through subsurface piping into the 4A/4B Ash Ponds.

CCW and other Plant wastewater is conveyed to either the 4A or 4B Ash Pond for primary settling. When full, the CCW is excavated from the ash pond and transported offsite for recycling/disposal. The water level in the 4A and 4B Ash Ponds is controlled by fixed drop-inlet culverts located at the western end of both ponds. Decant water from the 4A/4B Ash Ponds is conveyed to the 4 Clear Pond where additional settling of solids occurs. Some water is pumped from the 4 Clear Pond back to the Power Plant for reuse. Excess water from the 4 Clear Pond is conveyed through a drop-inlet culvert to the Blowdown Canal and then to the 1-series Ash Ponds/Clear Ponds for additional settling before ultimate discharge to the recirculation canal and the North Platte River under NPDES permit No. WY0003115.

According to PacifiCorp, an operation and maintenance manual currently does not exist for the CCW facilities. Flow and water level measurement instrumentation is installed on the weir at the Blowdown Canal, at the two discharge pipes from the 1A and 1B Clear Ponds (007 and 008 outfalls), and at the scrubber effluent discharge pipe in the 4 Clear Pond. Plant staff periodically record water level and flow measurements at the Blowdown Canal and outfalls 007 and 008. A visual inspection of the CCW impoundments is performed at least once per 12-hour shift by a PacifiCorp employee.

3.0 Summary of Construction History and Operation

Eight interconnected CCW impoundments currently exist at the DJ Power Plant. Four ponds were constructed in 1959 with installation of the original power plant, and four additional ponds were constructed in 1972 to meet the demand for greater ash storage capacity following plant expansion through the 1960's. Currently, CCW is pumped into the upstream 4A/4B Ash Ponds for primary settling and then flows to the 4 Clear Pond for clearing. Discharge from the 4 Clear Pond flows by gravity to the original 1-series ash ponds that are now used for additional clearing and water storage. Discharge to the North Platte River occurs through one of two outfalls regulated under NPDES permit No. WY0003115.

Five of the eight ponds are entirely sub-surface (enclosed by natural cut slopes) and three ponds are partially above-grade enclosed by a combination of natural cut slopes and constructed earth fill embankments. Water flows by gravity from the upstream 4-series settling ponds through the entire CCW impoundment system and ultimately to the North Platte River. A series of drop-inlet culverts, straight culverts, and weirs are used to convey water from one pond to another.

The dams were not likely constructed on top of CCW—the majority of embankments are natural cut slopes and limited design drawings show the earth fill embankments were constructed on natural earth subgrade. Plant personnel are currently in the process of partially filling the 1A Ash Pond with fly ash and imported fill to provide additional staging and lay-down space for plant operations. The proposed filling will permanently reduce the capacity of the 1A Ash Pond from the original 114.8 acre-feet (ac-ft) to about 16 ac-ft.

4.0 Hazard Potential Classification

4.1 Overview

Consistent with the Federal Guidelines for Dam Safety, the hazard potential classification for the CCW impoundments is based on the possible adverse incremental consequences that could result from release of stored contents due to failure of the dam or misoperation of the dam or appurtenances. Impoundments are classified as Less Than Low, Low, Significant, or High hazard, depending on the potential for loss of human life and/or economic and environmental damages.

There are eight CCW ponds at the DJ Power Plant that are impounded by a combination of natural cut slopes, constructed earth fill embankment dams, and interior dikes. Based on the configuration of the ponds and surrounding ground surface elevations, we concluded that there are three critical embankments that could result in an uncontrolled release of CCW upon failure. They are the: 4A / 4B Ash Pond East Embankment Dam, 4 Clear Pond South Embankment Dam, and 1A/1B Clear Pond South Dam. See Figure 2 for Ash Pond and embankment nomenclature.

4.2 4A/4B Ash Ponds, 4 Clear Pond

The 4A/4B Ash Ponds are constructed as a single pond separated by an interior dike (Figure 2). The ponds are partially subsurface and are enclosed by a combination of natural cut slopes and constructed earth fill embankments. The northwest and southeast perimeters are constructed as natural cut slopes which are not considered to be a hazard for embankment instability. The east embankment is constructed as an earthfill dam and is considered below in the hazard evaluation (Section 4.2.1).

The 4 Clear Pond is a three-sided impoundment with a natural cut slope on the northwest and constructed earth embankments on the northeast and south. The northwest cut slope and northeast interior dike are not considered to be a hazard for embankment instability. The south embankment dam is considered below in the hazard evaluation (Section 4.2.2).

The constructed 4A/4B Ash Ponds, with a combined surface area of about 39 acres, combined storage capacity of about 289 ac-ft and maximum embankment height of about 12.5 feet are considered “Small” in accordance with the USACE Recommended Guidelines for Safety Inspection of Dams ER 1110-2-106 criteria. The 4 Clear Pond is also a “Small” sized impoundment with a surface area of about 6.4 acres, a storage capacity of about 45.9 ac-ft and maximum embankment height of about 12.5 feet.

Under normal operations, CCW and other wastewater are pumped into either the 4A or 4B Ash Pond, where primary solids settle out, and decant water flows into the 4 Clear Pond. Water from the 4 Clear Pond is either pumped back to the plant for reuse or flows by gravity into the Blowdown Canal to the 1-Series Ponds (See Section 2.4).

4.2.1 4A/4B East Embankment Dam

The 4A/4B Ash Ponds are contained at their east margin by constructed earth-fill dam approximately 12.5 feet high. The most likely scenarios which could result in a breach of the east embankment dam would be:

- If the outlet to the 4 Clear Pond was closed or became blocked and pumped inflows continued, the embankment could be overtopped.
- A significant rain storm event when stormwater runoff inflow exceeds the gravity outfall.

A breach in the 4A/4B Ash Pond east embankment dam would result in a release of CCW to the topographically low sand and clay borrow area to the east. The topography of this low area is such that the total contents of the 4A/4B Ash Ponds would be contained within the combined low area and the current area of the 4A/4B Ash Ponds. On this basis, it is our opinion that a failure of the east embankments would pose no threat to human life, the environment or property.

4.2.2 4 Clear Pond South Embankment Dam

The 4 Clear Pond is a three-sided pond enclosed by a natural cut slope to the northwest, an interior dike to the northeast between the 4 Clear Pond and the 4A/4B Ash Ponds, and a constructed earthfill embankment dam to the south. There are two potential scenarios that could result in a breach of the 4 Clear Pond south embankment dam that would cause an uncontrolled release of CCW:

- A breach in the northeast interior dike could result in movement of water with a relatively high concentration of CCW from the 4A/4B Ash Ponds to the 4 Clear Pond. Since the top-of-slope/crest elevations surrounding the 4 Clear Pond are the same at those surrounding the 4A/4B Ash Ponds, we do not believe that a cascading failure would result, however, if pumped inflows continued into the 4A/4B Ash Ponds, the south embankment dam could be overtopped.
- If the 4 Clear Pond outlets were closed or became blocked and pumped inflows continued, the south embankment dam could be overtopped.

A breach in the 4 Clear Pond south embankment dam would result in a release of CCW to the topographic low area containing the pumphouse structure to the south. It is estimated this

low area does not have the capacity to contain the entire volume of the 4 Clear Pond and some CCW would continue flowing south and east before eventually flowing into the 1A Ash Pond. Low-lying areas of PacifiCorp property to the south and east of the 4 Clear Pond could become inundated with shallow floodwaters, although in the absence of detailed site topography the extent of flooding cannot be determined. Based on our site observations, it appears that an uncontrolled release of the contents of the 4 Clear Pond is unlikely to result in the release of flows beyond the immediate plant area owned by PacifiCorp. On this basis, it is our opinion that a failure of the 4 Clear Pond south embankment dam would pose no threat to human life or the environment. Property damage would be limited to PacifiCorp property.

4.3 1A/1B Ash Ponds and Clear Ponds, Blowdown Canal

4.3.1 1A/1B Clear Pond North and East Cut Slopes

The 1A/1B Ash Ponds, 1A/1B Clear Ponds, and Blowdown Canal occupy a single, large triangular shaped depression (Figure 2). The ponds are all constructed entirely below grade and there is little concern for cut slope instability. Failure of one of the interior dikes would result in an equalization of water levels in the affected ponds, but would not result in overtopping of any of the perimeter slopes or embankments. Overtopping the cut slopes to the north or east would result in minor flooding of PacifiCorp property and would be contained within a limited area. No loss of life or environmental damage is expected; property damage would be limited to PacifiCorp property.

4.3.2 1A/1B Clear Pond South Dam

The 1A/1B Clear Pond south dam appears to be a natural embankment with upstream and downstream slopes formed by excavations for the Recirculation Canal to the southwest and the 1A/1B Clear Ponds to the northeast. The dam crest lies at the same elevation as the adjacent natural ground surface and the embankment is the only feature that separates the CCW impoundments from the North Platte River. The most likely scenario that could result in a breach of the 1A/1B Clear Pond south dam would be during a heavy rain event or if the upstream impoundments failed and flowed into the 1-Series ponds.

A breach in the 1A/1B Clear Pond south dam would result in an uncontrolled release of CCW to the recirculation canal and ultimately the North Platte River. It is our opinion that an uncontrolled release of the contents of the CCW impoundments into the North Platte River would not pose a threat to human life or property. Some environmental damage to the North Platte River should be expected.

4.4 Cascading Release Analysis

The purpose of this analysis is to assess the cumulative effects of an uncontrolled release of CCW from the upstream 4-Series Ash Ponds to the downstream 1-Series Ash Ponds. The

DJ Power Plant typically manages their operations so that only one of the 4A or 4B Ash Ponds is in service at a time. The out-of-service pond is assumed to be full of CCW solids; thus only one of the two ponds would be expected to contribute CCW products during a dam failure. Currently, the 4B Ash Pond is in service for primary settling and the 4A Ash Pond is full of CCW solids.

For our primary assessment, we assumed that the 4B Ash Pond and 4 Clear Pond act as a single pond with a combined storage volume of approximately 190.5 ac-ft. If the 4 Clear Pond south embankment dam failed, we conservatively assumed that the entire volume of the 4B Ash Pond and 4 Clear Pond (190.5 ac-ft) would be released downstream to the 1-Series Ponds. Based on the current available freeboard (approximately 2 feet) in the 1-Series Ponds, the total combined available storage capacity is estimated to be approximately 62 ac-ft. Under these conditions, the 190.5 ac-ft of water released from the 4-Series ponds would be expected to overtop and fail the 1A/1B Clear Pond south dam, resulting in an uncontrolled release of CCW to the recirculation canal and eventually the North Platte River.

As a secondary assessment, we looked at the potential for cascading failure if only the 4 Clear Pond south embankment dam failed. As noted above, floodwaters would pool in the low area on the south side on the embankment, inundate portions of the Plant property to the east and southeast of the pond, and ultimately flow into the 1-Series pond system. Conservatively assuming that the entire 4 Clear Pond contents (45.9 ac-ft) flowed into the 1-Series ponds, there is adequate storage capacity (62 ac-ft) to fully contain the 4 Clear Pond volume. Thus, a failure of only the 4 Clear Pond south embankment dam is not expected to result in a cascading failure and release of CCW products off PacifiCorp property.

4.5 Recommendation

Based on the information and assessments noted in this Report, we recommend the following hazard potential classifications for the CCW impoundment structures at the DJ Power Plant:

- 4A/4B Ash Ponds East Embankment Dam: Low Hazard
- 4 Clear Pond South Embankment Dam: Low Hazard
- 1A/1B Clear Ponds South Dam: Significant Hazard

5.0 Hydrology and Hydraulics

5.1 Floods of Record

Floods of record have not been evaluated and documented for the CCW impoundments at the DJ Power Plant.

5.2 Inflow Design Floods

Currently there are no hazard classifications for the CCW impoundment structures at the DJ Power Plant. Based on observations during the field inspection, we recommend assigning the 1A/1B Clear Ponds South Dam a Significant hazard potential classification (see Section 4.0). The Wyoming State Engineer's Office oversees the safety of dams in Wyoming and does not have a system of dam classification or associated guidelines for inflow design flood (IDF) analyses. The USACE Recommended Guidelines for Safety Inspection of Dams ER 1110-2-106 recommends that small, Significant Hazard, dams should be capable of passing the 100-year to 50 percent probable maximum flood (PMF) without overtopping. Considering the hazard rating and potential economic and environmental impacts we recommend selecting the 50 percent probable maximum precipitation (PMP) as the IDF for all of the CCW impoundments at the DJ Power Plant. The 72-hour 50 percent PMP precipitation at the DJ Power Plant is about 16.7 inches (Hydrometeorological Report Number 55A).

5.2.1 4-Series Ash Ponds

Although the 4-series Ash Ponds are considered Low Hazard impoundments, we recommend selecting the 50 percent PMP flood, which is normally reserved for Significant Hazard dams, as the IDF because of the potential for downstream transport of the floodwaters to the 1-Series ponds, which are Significant Hazard impoundments. The contributing drainage area for the 4-Series Ash Ponds includes the combined surface area of the ponds (4A Ash Pond = 19.5 acres, 4B Ash Pond = 19.5 acres, 4 Clear Pond = 6.4 acres), and portions of the adjacent landfill to the northwest of the 4B Ash Pond and 4 Clear Pond (estimated to be approximately 25.1 acres), for a total of 70.5 acres. Conservatively assuming no runoff losses, 16.7 inches of rain will produce approximately 98 ac-ft of runoff into the 4-Series Ash Ponds.

As there are no spillways on the 4-Series Ash Ponds, storm runoff inflows that exceed the available excess storage capacity of the ponds (total pond capacity less operating storage) will overtop the embankments. For our evaluation, we have assumed that embankment overtopping will result in a breach and uncontrolled release of the pond contents.

Based on our understanding of the current operation of the 4-Series Ash Ponds, we estimate that between 20 ac-ft and 65 ac-ft of excess storage capacity will be available in the

combined 4-Series Ponds at any given time. Since the excess storage capacity is substantively less than the estimated inflows, the storm runoff from the recommended IDF is expected to overtop and fail one or more of the 4-Series pond embankments.

5.2.2 1A/1B Ash Ponds, 1A/1B Clear Ponds

The contributing drainage area for the 1-Series Ash Ponds includes the combined surface area of the ponds (1A/1B Ash Ponds = 25.4 acres, 1A/1B Clear Ponds = 3.6 acres), portions of the plant site generally to the east of the ponds, and portions of the adjacent landfill generally to the northwest of the Blowdown Canal. In the absence of detailed site topography, we assumed the plant site to include the plant buildings, parking, staging and laydown areas to the southwest of the buildings, and the coal pile, for a total of approximately 119 acres. The total contributing drainage area was then estimated to be approximately 148 acres. Conservatively assuming no runoff losses, 16.7 inches of rain will produce approximately 205 ac-ft of runoff into the 1-Series Ash Ponds.

As there are no spillways on the 1-Series Ash Ponds, storm runoff inflows that exceed the available excess storage capacity of the ponds (total pond capacity less operating storage) will overtop the embankments. For our evaluation, we have assumed that embankment overtopping will result in a breach and uncontrolled release of the pond contents.

Based on our understanding of the current operation of the 1-Series Ash Ponds, we estimate that between 50 ac-ft and 70 ac-ft of excess storage capacity will be available in the combined 1-Series Ponds at any given time. Since the excess storage capacity is substantively less than the estimated inflows, the storm runoff from the recommended IDF is expected to overtop and fail one or more of the 1-Sreies pond embankments.

5.2.3 Determination of the PMF

Not applicable.

5.2.4 Freeboard Adequacy

Since the IDF is expected to overtop the embankments for both the 4-Series and 1-Series ponds, the freeboard is judged to be inadequate at all CCW impoundments at the DJ Power Plant.

5.2.5 Dam Break Analysis

Dam break analyses have not been performed for the CCW impoundments at the DJ Power Plant.

5.3 Spillway Rating Curves

Not applicable.

5.4 Evaluation

Based on the current facility operations and very preliminary IDF evaluations documented in this Report, the CCW impoundments at the DJ Power Plant appear to have inadequate capacity to safely store and/or pass the recommended IDF without overtopping the dams.

6.0 Geologic and Seismic Considerations

Site-specific geologic data such as boring logs, soil descriptions, or bedrock descriptions for the immediate plant area were not available. In general, the plant and related structures are presumed to be constructed on sand, silt, and clay deposits of the North Platte River. The overburden thickness is not known and large areas of the plant site have been disturbed by cut and fill activities over the last 60 years. According to the Geologic Map of Wyoming (1985) bedrock in the area consists of the Lance Formation, which underlies the Fort Union Formation. The Lance Formation is characterized by thickly-bedded gray sandstone with thin interbedded shale and conglomerate layers.

We are not aware of any seismic analyses that have been performed on the dams at the DJ Power Plant. According to the 2008 U.S. Geological Survey (USGS) Seismic Hazard Map of the western United States, the site has a regional probabilistic peak ground acceleration of approximately 0.10 to 0.14 g with a 2 percent Probability of Exceedance within 50 years (recurrence interval of approximately 2,500 years).

7.0 Field Assessment

7.1 General

A site visit to visually assess the condition of the CCW impoundments at the DJ Power Plant was performed on October 27, 2010, by Brian Johnson, P.E., and Thomas Daigle of GEI. Anne Prettyman and Jeff Tucker of PacifiCorp, assisted in the assessment.

The weather during the site visit (October 27, 2010) was cloudy and windy, with temperatures around 40 degrees Fahrenheit. The majority of the ground was dry at the time of the site visit.

At the time of inspection, GEI completed an EPA inspection checklist, which is provided in Appendix A, and photographs, which are provided in Appendix B. Field assessment of the eight CCW impoundments included a site walk to observe the dam crests, upstream slopes, downstream slopes, and intake structures.

Based on the configuration of the Ash Ponds and perimeter containments (mostly subsurface ponds with natural cut slopes), GEI concluded that there are three critical embankments that required a detailed field assessment. They are: the 4A/4B Ash Pond east embankment, the 4 Clear Pond south embankment dam, and the 1A/1B Clear Pond south dam. The remainder of the pond containments are either natural cut slopes or interior dikes that would not result in an uncontrolled release of CCW upon failure. The three critical embankment dams are evaluated in detail below.

7.2 4A / 4B Ash Pond East Embankment Dam

7.2.1 Dam Crest

The crest of the east embankment dam appeared to be in good condition. No signs of cracking, settlement, movement, erosion or deterioration were observed. The dam crest surface was generally composed of road base material that traverses the length of the dam.

7.2.2 Upstream Slope

The visible portion of the upstream slope of the east embankment dam was generally exposed earth with little or no vegetation or erosion control measures and an estimated slope of approximately 4H:1V. The slope appeared stable and there appeared to be sufficient crest width to maintain overall dam stability. No scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

7.2.3 Downstream Slope

The downstream slope of the east embankment dam was covered with sparse grassy vegetation. The downstream slope was estimated to be approximately 2H:1V. No signs of scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

7.3 4 Clear Pond South Embankment Dam

7.3.1 Dam Crest

The crest of the 4 Clear Pond south embankment dam appeared to be in good condition. No signs of cracking, settlement, movement, erosion or deterioration were observed. The dam crest surface was generally composed of road base material that traverses the length of the dam.

7.3.2 Upstream Slope

The visible portion of the upstream slope of the 4 Clear Pond south embankment dam was generally covered with grass and cattails and had an estimated slope of approximately 2H:1V. No scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

The upstream slope of the 4 Clear Pond northeast divider dike adjacent to the 4A and 4B Ash Ponds was reported to have experienced significant erosion and oversteepening prior to 2009 as a result of wind-generated waves. The erosion was noted in the Phase I Geotechnical Assessment conducted by Cornforth Consultants, Inc. in 2009 and rockfill rip-rap was installed by PacifiCorp to remediate the condition. GEI did not observe evidence of continued erosion on the upstream slope of the divider dike and the rip-rap appeared to be in good condition.

7.3.3 Downstream Slope

The downstream slope of the 4 Clear Pond south embankment dam was covered with sparse grassy vegetation. The downstream slope of the dam was estimated to be approximately 2H:1V. No signs of scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

7.4 1A/1B Clear Pond South Dam

7.4.1 Dam Crest

The crest of the 1A/1B Clear Pond south dam appeared to be in good condition. No signs of cracking, settlement, movement, erosion or deterioration were observed. The dam crest surface was generally composed of road base material that traverses the length of the dam.

7.4.2 Upstream Slope

The visible portion of the upstream slope of the 1A/1B Clear Pond south dam was generally exposed earth with sparse grassy vegetation and had an estimated slope of approximately 2H:1V. The upstream slope was as steep as approximately 0.5H:1V in some localized areas. The slope appeared stable and there appeared to be sufficient crest width compared to the dam height to maintain overall dam stability (approximately 45 feet wide and 10 feet high). No scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

7.4.3 Downstream Slope

The downstream slope of the 1A/1B Clear Pond south dam was generally covered with grassy vegetation and some brush. Occasional small Russian Olives were observed growing out of the embankment face. The downstream slope was typically very steep to the waterline (near vertical in some locations). There appeared to be sufficient crest width compared to the dam height (approximately 45 feet wide and 10 feet high) to maintain overall dam stability. A minor surficial slump feature was observed downstream of the 1A Clear Pond and may require bank stabilization repairs in the future. No other signs of scarps, sloughs, depressions or other indications of slope instability or signs of erosion were observed.

7.5 Seepage Conditions

No evidence of ongoing or potential seepage was observed at any of the embankment dams or interior dikes.

7.6 Appurtenant Structures

7.6.1 Outlet Structures

The eight CCW impoundments at the DJ Power Plant receive inflow from five sources (See Section 2.4). Water flows from one pond to another through a variety of inlet/outlet structures. Limited details were available from the original design drawings and not all inlet/outlet structures were visible in the field. In general, water levels in the ponds are controlled by the elevation of drop-inlet culverts that convey water from one pond to another. A combination of horizontal culverts and weirs are installed through the interior dikes to convey water through the system. Drop-inlet culverts installed through the 1A/1B south dam (the 007 or 008 outfalls) convey water to the Recirculation Canal and the North Platte River.

Where visible, the outlet structures appeared to be in good condition and there were no signs of erosion or seepage around the pipes.

7.6.2 Pump Structures

The equipment in the pumphouse located in the topographic low area south of the 4 Clear Pond was not inspected.

7.6.3 Emergency Spillways

There are no spillways installed at the CCW ponds.

7.6.4 Water Surface Elevations and Reservoir Discharge

Water surface elevations at the time of the inspection were not available, and no gages exist to accurately measure water levels. PacifiCorp indicated the ponds are kept at relatively stable water elevations and are primarily controlled by the elevation of inlet structures throughout the system. Based on field observations on October 27, 2010, water surface elevations appear to be approximately 2-3 feet below the dam crest for all of the ponds.

Discharge to the Recirculation Canal is measured daily by PacifiCorp employees at the 007 and 008 outfalls. Flow is calculated by measuring the weir depth and converting to flow using appropriate weir formulas. Based on the past two years of data, water depth in the discharge weirs generally varied between 5 and 8 inches, equivalent to approximately 5.2 to 10.4 million gallons per day.

At the time of the field inspection, the water surface elevation in the Recirculation Canal was judged to be about 6 feet below the crest of the 1A/1B Clear Pond south dam, which is 3-4 feet below the water surface elevation in the 1A and 1B Clear Ponds.

8.0 Structural Stability

8.1 Visual Observations

The assessment team saw no visible signs of widespread instability associated with the containment embankments of the Ash Ponds during the October 27, 2010 site assessment. A small surficial slump feature was observed on the downstream slope of the 1A/1B Clear Pond South Dam; however, this feature was not judged to pose a substantive overall risk to the embankment.

8.2 Field Investigations

No subsurface investigation reports were provided for the original design and construction of the CCW impoundments. Cornforth Consultants, Inc. conducted a Phase I Geotechnical Assessment of the CCW impoundments in June 2009, but did not conduct subsurface investigations. The Geotechnical Assessment included visual observations of the CCW impoundments and measurements of embankment height, width, and slope angles. The general findings of the Phase I Geotechnical Assessment were that the impoundments were in relatively good condition with no concerns for major slope instability. A few small areas of minor slope erosion were noted and Cornforth Consultants, Inc. recommended continued monitoring of those areas.

The observations made during GEI's October 27, 2010 site assessment are generally consistent with conditions reported by Cornforth.

8.3 Structural Analyses

No structural analyses have been performed for the Ash Pond containment embankments at the DJ Power Plant.

8.3.1 4-Series Ash Ponds

The 4A/4B Ash Pond east embankment has a maximum height of about 12.5 feet, upstream slope of about 4H:1V, 40 foot crest width, downstream slope of about 2.5H:1V and base width of about 120 feet. An embankment having this configuration, constructed with silt and clay soils, would generally be expected to provide adequate stability under comparable hydraulic loading conditions. Given the absence of any observed signs of slope instability or distress, the 4A/4B Ash Pond embankment is judged by inspection to be stable for expected hydraulic loading conditions.

The 4 Clear Pond south embankment has a maximum height of about 12.5 feet, upstream slope of about 2H:1V, 30 foot crest width, downstream slope of about 3H:1V and base width

of about 92 feet. A theoretical embankment prism with 12.5-foot height, 3H:1V upstream slope, 15-foot crest width, 2.5H:1V downstream slope and 84-foot bottom width, constructed of low-plasticity clays and silts, would generally be expected to provide adequate stability under comparable hydraulic loading conditions. Since the theoretical embankment prism is contained within the existing embankment cross-section, and in the absence of any observed signs of slope instability or distress, the overall embankment is judged to be stable for expected hydraulic loading conditions.

8.3.2 1-Series Ash Ponds

The 1A/1B Clear Pond south dam has a maximum height of about 10 feet, upstream slope as steep as about 0.5H:1V, 45 foot crest width, downstream slope as steep as about 0.5H:1V and base width of about 55 feet. A theoretical embankment prism with 10-foot height, 3H:1V upstream slope, 15-foot crest width, 2.5H:1V downstream slope and 70-foot bottom width, constructed of low-plasticity clays and silts, would generally be expected to provide adequate stability under comparable hydraulic loading conditions. The theoretically-stable embankment prism is not contained within the existing embankment cross-section, and the existing embankment may not meet stability criteria for expected hydraulic loading conditions. However, with the exception of a small surficial slump on the downstream slope, the embankment did not exhibit signs of slope instability or distress.

8.3.3 Operational Conditions

We understand that the Ash Pond embankments are used as haul roads for Plant operations, and have assumed that the crest is regularly traversed by highway construction excavating and hauling vehicles (e.g. semi-tractor haul trucks), and may be traversed by large, off-road construction excavating and hauling vehicles. The structural stability assessment described in the preceding paragraphs does not consider the potentially significant surcharge loads imposed on the embankments by these vehicles. Significant surcharge loads on the embankments will reduce the stability of the slopes, and could induce slope failures, with potential safety risks to vehicle operators. This Report does not address stability and safety of the embankments with respect to operational uses other than water retention.

9.0 Maintenance and Methods of Operation

9.1 Procedures

Semi-annual inspections of the eight CCW impoundments began in 2010 and are documented by PacifiCorp. Prior to 2010, visual inspections of the CCW impoundments were made on a periodic basis by PacifiCorp staff. A third party inspection of the CCW impoundments was conducted by Cornforth on March 3 and May 4, 2009.

9.2 Maintenance of Impoundments

Maintenance of the three CCW impoundments is performed by PacifiCorp staff under the guidance of PacifiCorp managers and engineers.

9.3 Surveillance

The Ash Ponds and settling basins are patrolled once per 12-hour shift by PacifiCorp operations personnel. Formal inspections of the CCW impoundments are conducted on a semi-annual basis by PacifiCorp staff. A Phase I Geotechnical Assessment of the eight CCW impoundments was performed by Cornforth on March 3 and May 4, 2009. Dam safety-related inspections have not been previously made by state or federal agencies.

10.0 Conclusions

10.1 Assessment of Dams

10.1.1 Field Assessment

Issues of potential concern for the eight CCW impoundments were identified from our field assessment as follows:

- Downstream slopes of the 1A/1B Clear Pond south dam are near vertical, with increased potential for local, surficial slope instability and sloughing. A shallow surficial slump was observed during the October 27 inspection, but is not judged to present an immediate dam safety concern.
- On-going efforts to control and remove nuisance vegetation (e.g. Russian Olive trees) on the downstream slope of the 1A/1B Clear Pond south dam should be continued.

10.1.2 Adequacy of Structural Stability

There are no records of a structural stability evaluation of the CCW impoundments. Based on the information documented in this Report, the 4-Series Ash Pond impoundments are judged by inspection to be stable under expected loading conditions.

The 1A/1B Clear Pond south dam embankment may not meet stability criteria for expected hydraulic loading conditions. The upstream and downstream slopes are over-steepened, and are at increased risk for localized, surficial slope failures, resulting in slumps, sloughing and other forms of slope instability. Localized slope failures can reduce the overall embankment stability.

10.1.3 Adequacy of Hydrologic/Hydraulic Safety

Hydrologic/Hydraulic safety analyses have not been completed for the eight CCW impoundments. Preliminary assessments documented in this Report suggest that the Ash Ponds do not have sufficient storage and/or spillway capacity to safely pass the recommended IDF.

10.1.4 Adequacy of Instrumentation and Monitoring of Instrumentation

Water level and flow measurement instruments are installed at the 007 and 008 outfalls, the Blowdown Canal weir, and the 4 Clear Pond inlet pipes. GEI did not inspect the instrumentation during the October 27, 2010 site visit.

10.1.5 Adequacy of Maintenance and Surveillance

The eight CCW impoundments at the DJ Power Plant have fair maintenance and surveillance programs. The facilities appear to be adequately maintained and routine surveillance is performed by the plant staff.

10.1.6 Adequacy of Project Operations

Operating personnel appear to be knowledgeable and trained in the operation of the project. The Ash Ponds are operated with relatively little freeboard, increasing the risk for overtopping in the event of heavy precipitation or operational failures.

11.0 Recommendations

11.1 Corrective Measures and Analyses for the Structures

1. A geotechnical exploration program should be performed to classify the embankment and foundation soils of the following impoundment features (See Figure 2):

   a. 1A/1B Clear Pond south dam

   b. 4 Clear Pond south embankment dam.

   The exploration program should include subsurface drilling and geotechnical soils testing. Soil testing should include index property and strength tests. The exploration program should provide the necessary information to perform the slope stability analyses described below.

2. Slope stability analyses should be performed on the following impoundment features:

   c. 1A/1B Clear Pond south dam

   d. 4 Clear Pond south embankment dam.

   Slope stability analyses should be performed on the maximum embankment section with a phreatic surface representative of steady seepage under normal operating conditions. Stability analyses should be performed for the full range of expected loading conditions, including appropriate application of surcharge loads from equipment operating on the embankment crests.

3. Hydrologic analyses should be performed to evaluate the IDF and accurately assess the ability of the Ash Ponds to store the IDF. Consistent with the results of the hydrologic analyses, the Ash Pond structures and/or operations should be modified to allow safe storage and/or passage of the IDF.

11.2 Corrective Measures Required for Instrumentation and Monitoring Procedures

See Section 11.3.

11.3 Corrective Measures Required for Maintenance and Surveillance Procedures

Implement early warning measures to more closely monitor water levels in the Ash Ponds and reduce the potential for overtopping failure of the embankments. Early warning measures could include enhanced visual surveillance and/or automated water level and alarm systems. Automated water level and alarm systems, if included in the early warning measures, should be installed at the 1A and 1B Clear Ponds and the 4 Clear Pond.

11.4 Corrective Measures Required for the Methods of Operation of the Project Works

None.

11.5 Summary

The following factors were the main considerations in determining the final rating of the CCW impoundments at the Dave Johnston Power Plant.

- The CCW impoundments were observed to be in generally good condition at the time of the field assessment.
- The 1A/1B Clear Pond embankments may not meet stability criteria for expected hydraulic loading conditions. The embankment slopes are over-steepened and are at increased risk for localized, surficial slope failures, resulting in slumps, sloughing and other forms of slope instability. A shallow surficial slump was observed during the October 27 inspection, but is not judged to present an immediate dam safety concern.
- There is the potential for an overtopping failure from the recommended IDF.
- There are no hydrology/hydraulic analyses on record for the CCW impoundments.
- There are no stability analyses on record for the critical impoundment embankments identified in this Report.

11.6 Acknowledgement of Assessment

I acknowledge that the management unit(s) referenced herein was personally inspected by me and was found to be in the following condition **(select one only):**

SATISFACTORY

FAIR

POOR

UNSATISFACTORY

DEFINITIONS:

SATISFACTORY: No existing or potential management unit safety deficiencies are recognized. Acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable criteria. Minor maintenance items may be required.

FAIR: Acceptable performance is expected under all required loading conditions (static, hydrologic, seismic) in accordance with the applicable safety regulatory criteria. Minor deficiencies may exist that require remedial action and/or secondary studies or investigations

POOR: A management unit safety deficiency is recognized for any required loading condition (static, hydrologic, seismic) in accordance with the applicable dam safety regulatory criteria. Remedial action is necessary. POOR also applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies.

UNSATISFACTORY: Considered unsafe. A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution. Reservoir restrictions may be necessary.

I acknowledge that the management unit referenced herein:

Has been assessed on October 27, 2010 (date)

Signature:_____

List of Participants:

Brian S. Johnson, P.E.	Senior Project Engineer / Task Leader, GEI Consultants, Inc.
Thomas A. Daigle	Project Geologist, GEI Consultants, Inc.
Jeff Tucker	Principal Engineer, PacifiCorp Energy
Anne Prettyman	Environmental Analyst, PacifiCorp Energy

12.0 References

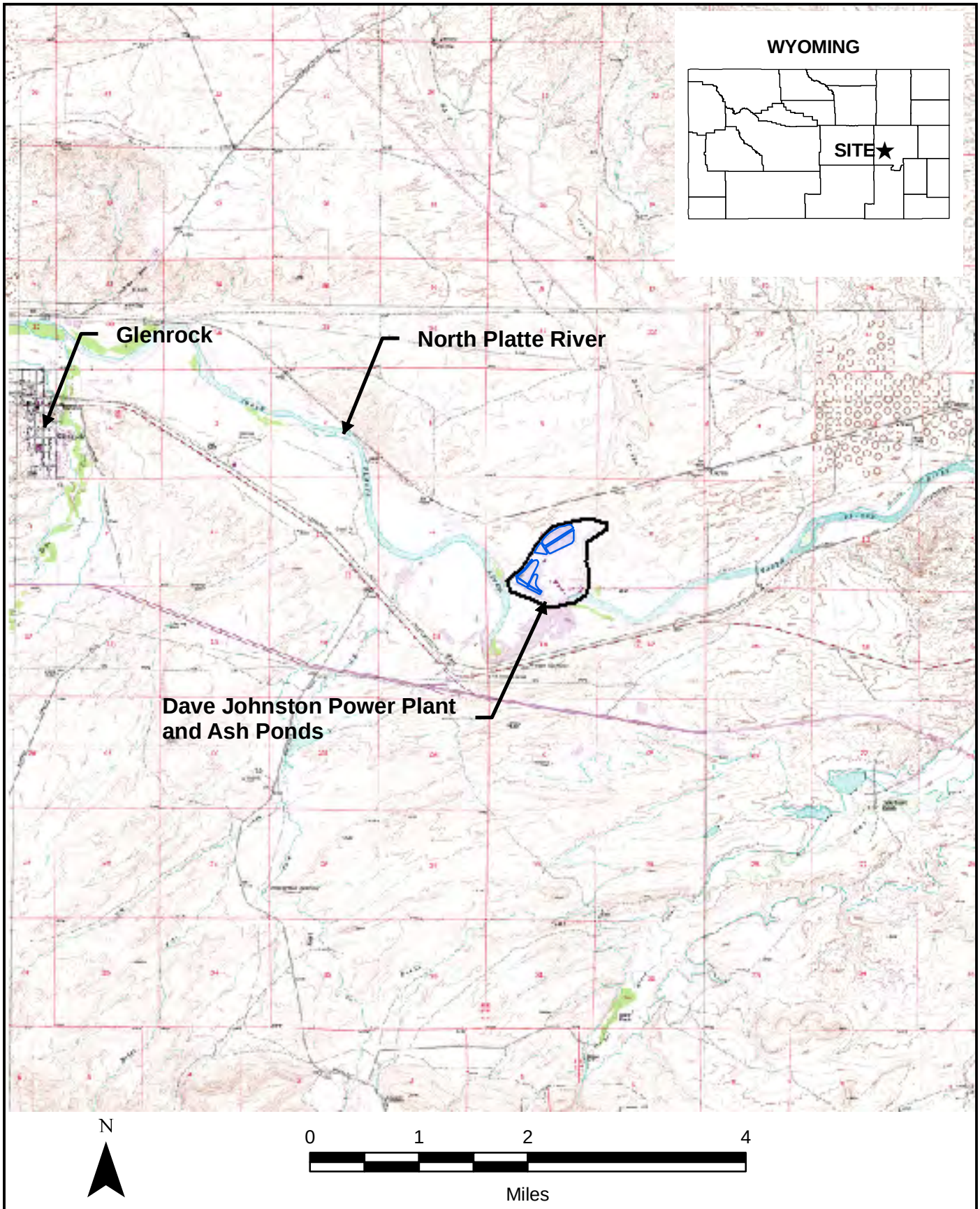
Cornforth Consultants, Inc. (2009). "Phase I Geotechnical Assessments, Coal Combustion Waste Embankments, Dave Johnston Power Plant", prepared for PacifiCorp Energy, June 2009.

Pacific Power and Light Company Design Drawings (various years):

G-145159 unknown date
G-195916 December 10, 1969
G-195908 June 4, 1971
G-195909 June 4, 1971
G-195910 June 4, 1971

U.S. Army Corps of Engineers (1979). "Recommended Guidelines for Safety Inspections of Dams. (ER 1110-2-106)." September 26.

Figures



Assessment of Dam Safety at Coal Combustion Waste Impoiundments Dave Johnston Power Plant	GEI Consultants	VICINITY MAP
Environmental Protection Agency Washington D.C.	Project 092884	December 2010 Figure 1

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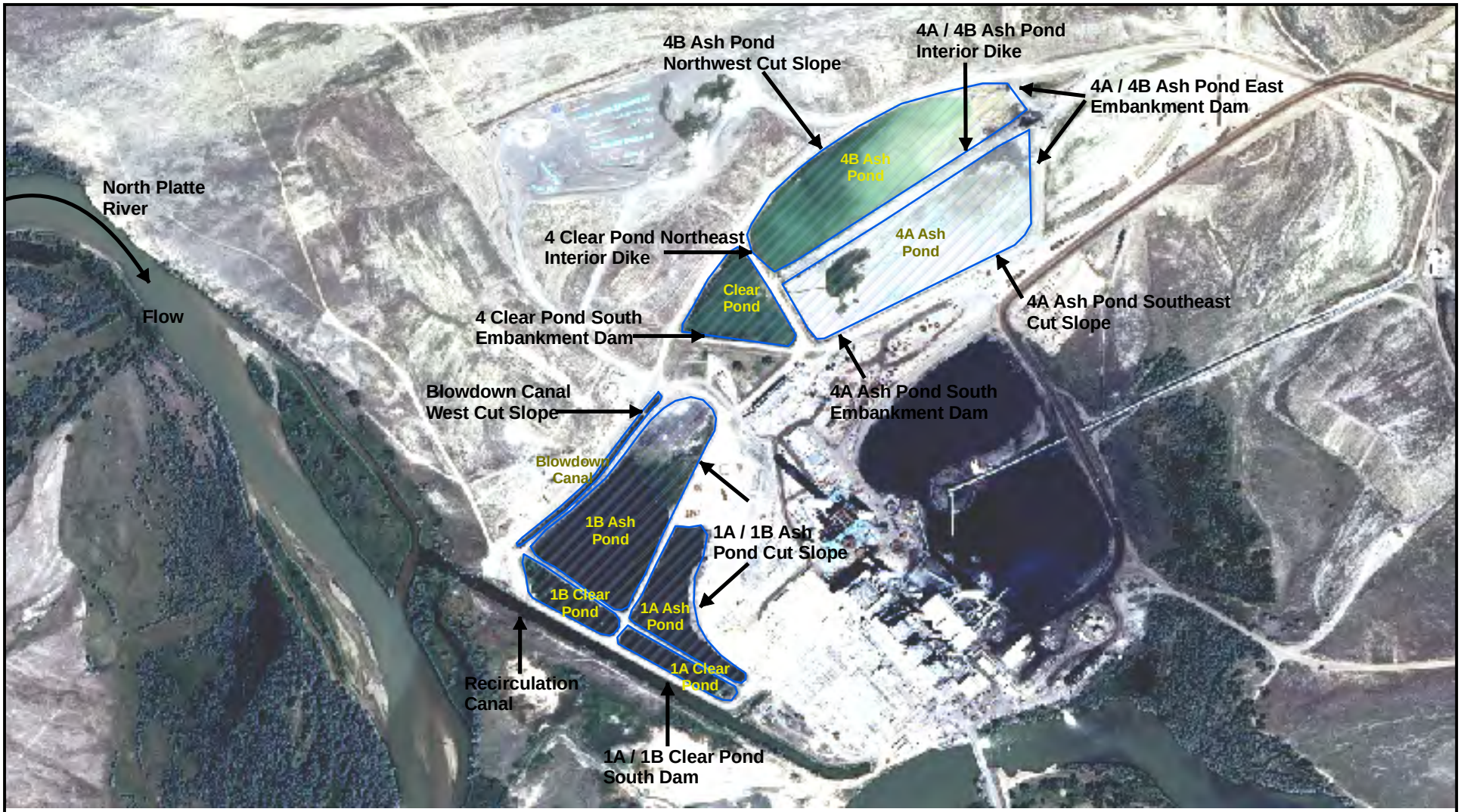

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DJAshPonds

Assessment of Dam Safety at Coal Combustion Waste Impoundments
Dave Johnston Power Plant

Environmental Protection Agency
Washington D.C.

GEI Consultants

Project 092884

PLAN OF ASH IMPOUNDMENTS

December 2010

Figure 2

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Appendix A

Inspection Checklists
October 27, 2010

Site Name: **Dave Johnston** Date: **October 27, 2010**

Unit Name: **Dave Johnston Power Plant** Operator's Name: **Pacificorp**

Unit ID: **Dave Johnston** Hazard Potential Classification: High **Significant** Low

Inspector's Name: **Brian Johnson/Tom Daigle**

Check the appropriate box below, Provide comments when appropriate. If not applicable or not available, record "N/A", Any unusual conditions or construction practices that should be noted in the comments section, For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Semi-annual		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	X		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	X		20. Decant Pipes		
4. Open channel spillway elevation (operator records)?	NA		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	Refer to notes		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?		X	Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	NA		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below.)	X		At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?		X	From downstream foundation area?		X
13. Depressions or sink holes in tailings surface or whirlpool in the pool area		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes		X	24. Were Photos taken during the dam inspection?	X	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Inspection Issue #
1: Cornforth Consultants, Inc. conducted geotechnical evaluation in 2009.	
3-5: Elevations listed are from original design drawings in 1950's and 1970's. No substantial modifications have been made to the ponds/dikes since construction.	
6: Flow measurement instrumentation installed at blowdown canal and recirculation canal.	
9: Small Russian Olive trees observed on downstream slope of 1A/1B Clear Pond south embankment dam, less than 3 inches diameter.	

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # WY0003115 INSPECTOR Roland Peterson

Date May 7, 2006

Impoundment Name 4A / 4B Ash Ponds, 4 Clear Pond, 1A / 1B Ash Ponds, 1A / 1B Clear Ponds, Blowdown Canal

Impoundment Company PacifiCorp Energy

EPA Region 8

State Agency (Field Office) Address 1595 Wynkoop St

Denver, CO 80202

Name of Impoundment 4A / 4B Ash Ponds, 4 Clear Pond, 1A / 1B Ash Ponds, 1A / 1B Clear Ponds, Blowdown Canal
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New _____ Update _____

	Yes	No
Is impoundment currently under construction?		X
Is water or ccw currently being pumped into the impoundment?	X	

IMPOUNDMENT FUNCTION: Storage of Bottom Ash and plant wastewater.

Nearest Downstream Town: Name Douglas, WY
Distance from the impoundment 23 miles
Impoundment Location:

Longitude	-105	Degrees	46	Minutes	50	Seconds
Latitude	42	Degrees	50	Minutes	32	Seconds
State WY		County	Converse			

Does a state agency regulate this impoundment? YES X NO _____

If So Which Sate Agency? Wyoming DEQ

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL**: Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

___X_ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

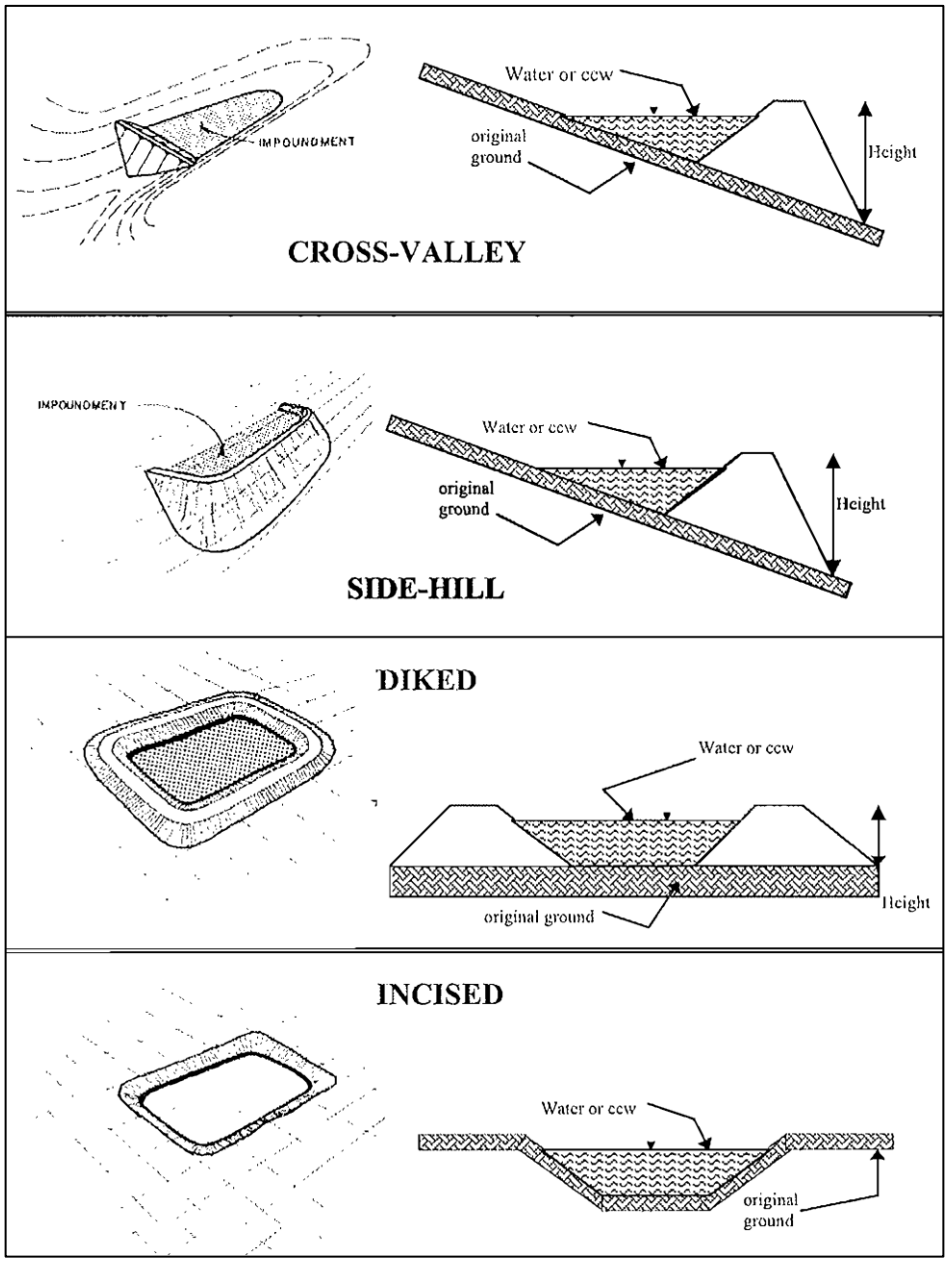
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

An uncontrolled release of the structure's contents due to a failure of the impoundment or misoperation is not expected to cause loss of human life or destruction of property other than PacifiCorp facilities.

Uncontrolled releases could enter the North Platte River, which could result in environmental damage.

CONFIGURATION FOR 4A AND 4B ASH PONDS:



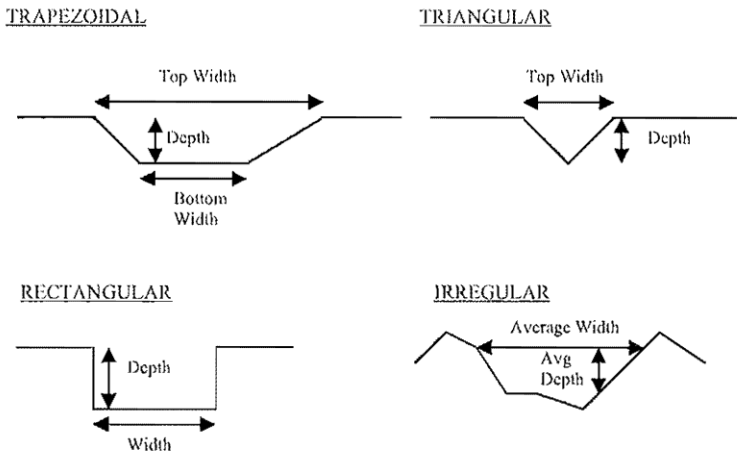
_____ Cross-Valley
_____ Side-Hill
_____ Diked
_____ Incised (form completion optional)
__X__ Combination Incised/Diked

Embankment Height __15__ feet Embankment Material _____Fly Ash and Clay/Sand
Pool Area_39 acres (total)__ Liner__YES_____
Current Freeboard __3__ feet Liner Permeability__NA_____

TYPE OF OUTLET (Mark all that apply)

_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Triangular

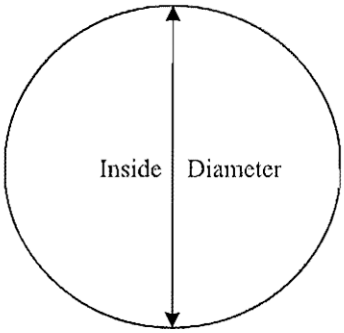
_____ Depth
_____ Bottom (or average) width
_____ Top width



__X__ **Outlet**

__NM__ inside diameter

Material
_____ corrugated metal
_____ welded steel
_____ concrete
_____ plastic (hdpe, pvc, etc.)
__X__ other (specify **unknown**



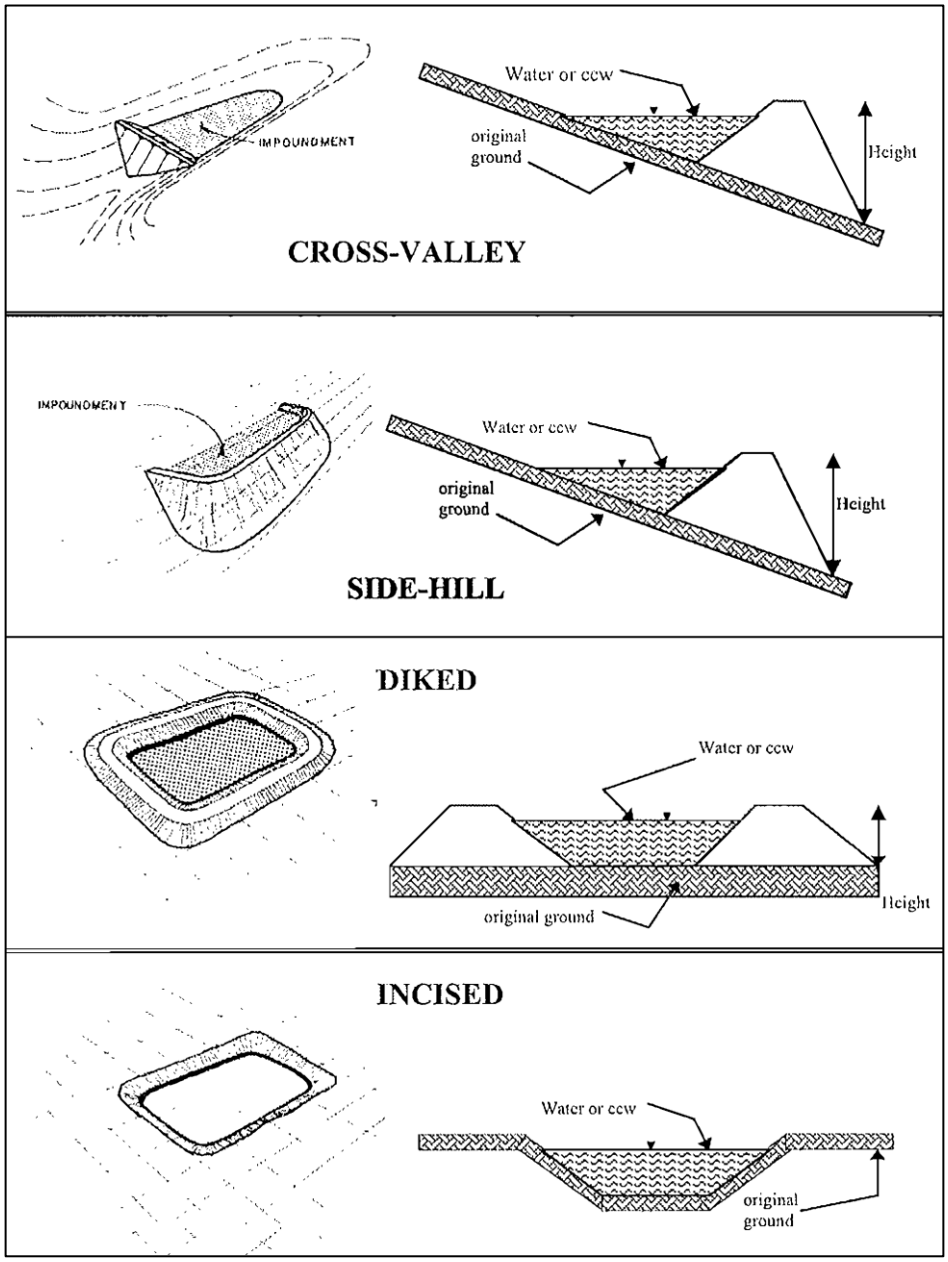
Is water flowing through the outlet? YES__X__ NO_____

_____**No Outlet**

_____ **Other Type of Outlet (Specify)** _____

The Impoundment was Designed By **PACIFIC POWER AND LIGHT CO.**

CONFIGURATION FOR 4 CLEAR POND:



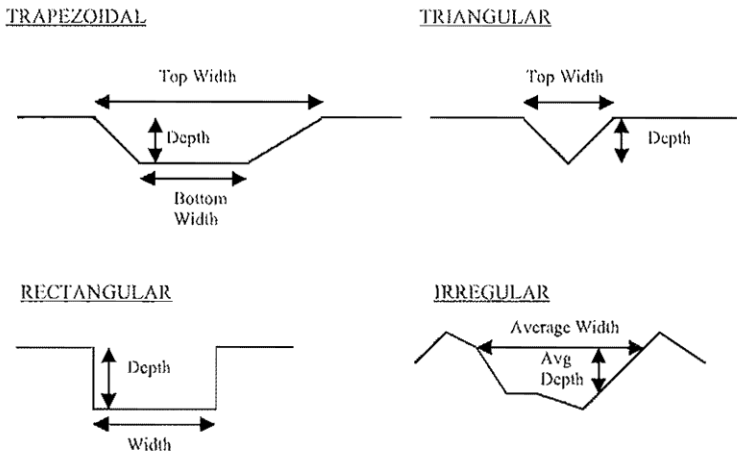
_____ Cross-Valley
_____ Side-Hill
_____ Diked
_____ Incised (form completion optional)
__X__ Combination Incised/Diked

Embankment Height __15__ feet Embankment Material _____Fly Ash and Clay/Sand
Pool Area____6.4_____ acres Liner_____NA_____
Current Freeboard __3__ feet Liner Permeability__NA_____

TYPE OF OUTLET (Mark all that apply)

_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Triangular

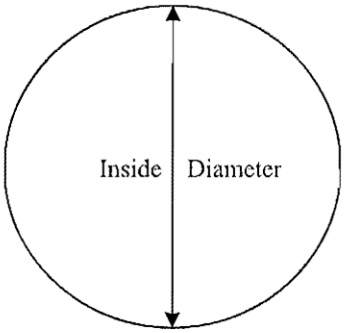
_____ Depth
_____ Bottom (or average) width
_____ Top width



__X__ **Outlet**

__NM__ inside diameter

Material
__X__ corrugated metal
_____ welded steel
_____ concrete
_____ plastic (hdpe, pvc, etc.)
_____ other (specify_____



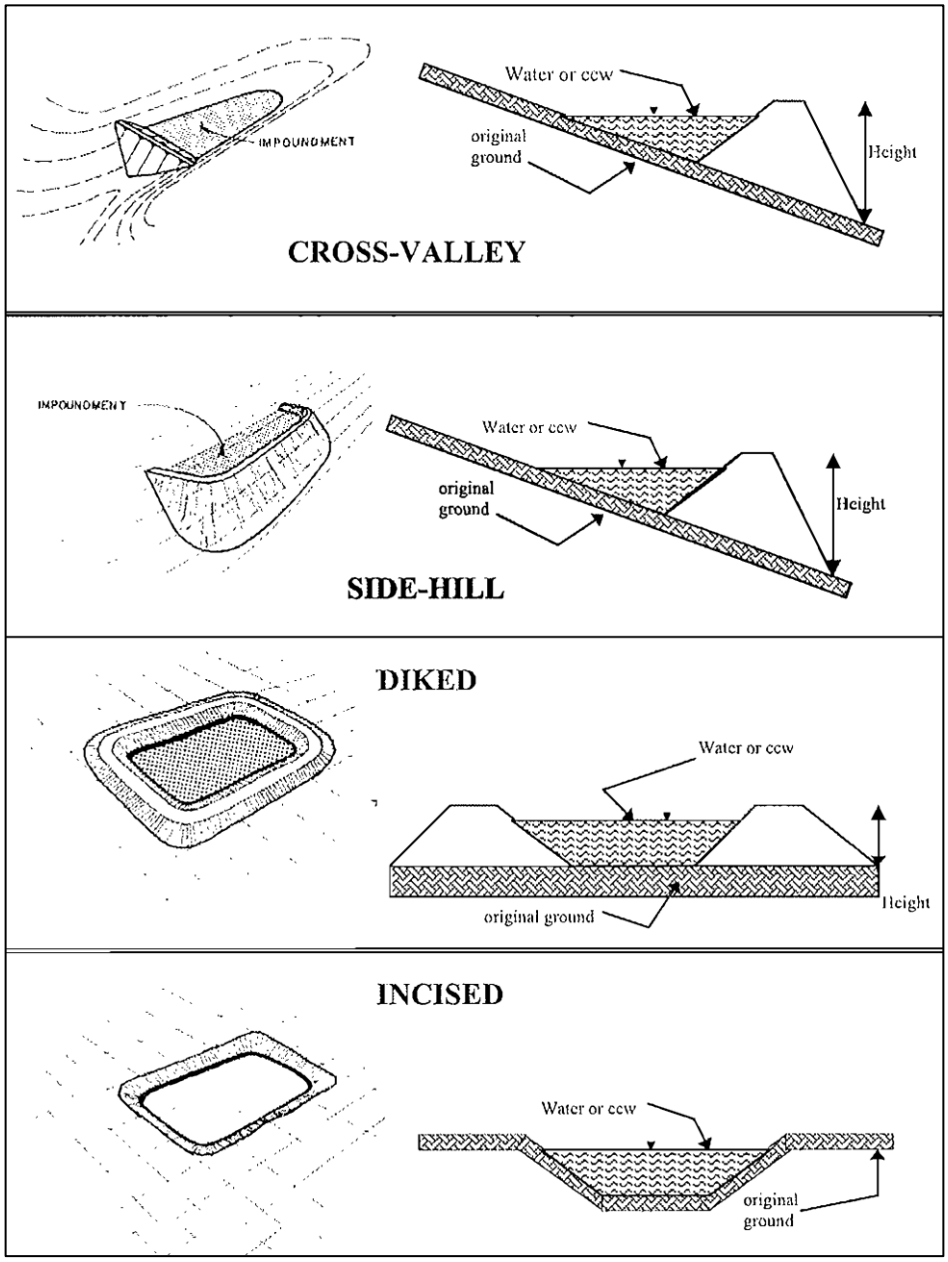
Is water flowing through the outlet? YES__X__ NO_____

_____**No Outlet**

_____ **Other Type of Outlet (Specify)** _____

The Impoundment was Designed By **PACIFIC POWER AND LIGHT CO.**

CONFIGURATION FOR BLOWDOWN CANAL AND 1A AND 1B ASH PONDS AND 1A AND 1B CLEAR PONDS:



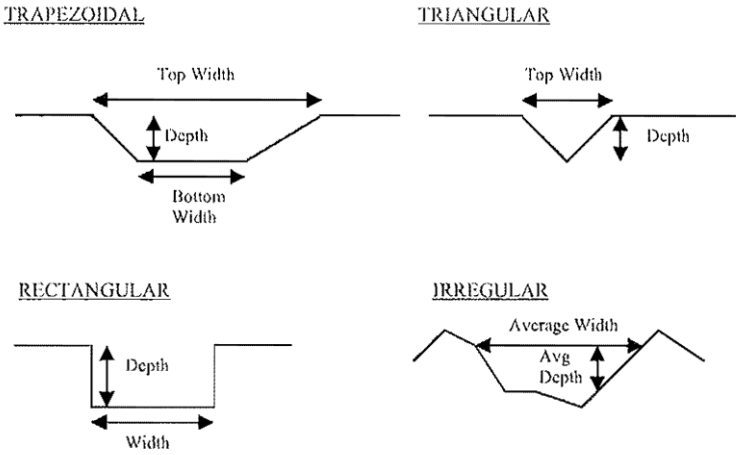
_____ Cross-Valley
_____ Side-Hill
_____ Diked
__X__ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height __NA__ feet Embankment Material _____NA_____
Pool Area 29.5 acres (total) Liner 1A AND 1B ASH PONDS LINED
Current Freeboard __3__ feet Liner Permeability NA

TYPE OF OUTLET (Mark all that apply)

_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Triangular

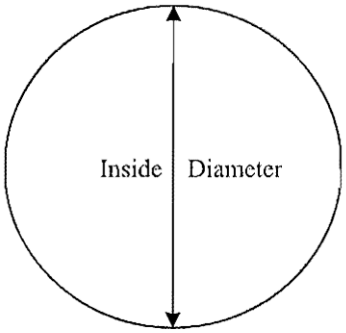
_____ Depth
_____ Bottom (or average) width
_____ Top width



__X__ **Outlet**

__NM__ inside diameter

Material
_____ corrugated metal
_____ welded steel
_____ concrete
_____ plastic (hdpe, pvc, etc.)
__X__ other (specify unknown_____



Is water flowing through the outlet? YES__X__ NO_____

_____**No Outlet**

_____ **Other Type of Outlet (Specify)** _____

The Impoundment was Designed By PACIFIC POWER AND LIGHT CO.

Has there ever been a failure at this site? YES X NO _____

If So When? **2008**

If So Please Describe: **From blow-down canal; high precipitation and snowmelt led to the canal overflowing into the recirculation canal (the river). The plant subsequently reconfigured the blow-down canal to reduce future potential. Estimated 8 hour duration and a total volume lost equal to 300 gal. A spill report was filed with state DEQ.**

Has there ever been significant seepages at this site? YES _____ NO __X__

If So When? _____

If So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____ NO __X__

If So which method (e.g., piezometers, gw pumping, …)? _____

If So Please Describe:

Appendix B

Inspection Photographs

Photo 1: Aerial image of Dave Johnston Power Plant and CCW impoundments. From www.bing.com maps.

Photo 2: Sand and clay borrow area east of 4A Ash Pond looking east.

Photo 3: Sand and clay borrow area east of 4A Ash Pond looking north.

Photo 4: 4A Ash Pond east embankment dam downstream side looking south.

Photo 5: 4A Ash Pond east embankment dam downstream side looking north.

Photo 6: 4A Ash Pond east embankment dam crest looking south.

Photo 7: 4A Ash Pond east embankment dam crest looking north.

Photo 8: 4A Ash Pond east embankment dam upstream side looking south. Note that pond is full of CCW solids and not currently receiving wastewater.

Photo 9: 4A Ash Pond looking southwest showing full pond.

Photo 10: 4A Ash Pond east embankment dam upstream side looking north.

Photo 11: 4A / 4B Ash Pond interior dike crest looking southwest.

Photo 12: 4B Ash Pond inlet pipes along east embankment dam upstream side.

Photo 13: Topographic depression east of 4B Ash Pond.

Photo 14: Topographic depression east of 4B Ash Pond.

Photo 15: 4B Ash Pond east embankment dam downstream side. Topographic depression to right.

Photo 16: 4B Ash Pond east embankment dam crest looking north.

Photo 17: 4B Ash Pond inlet pipes at east margin of pond.

Photo 18: 4B Ash Pond inlet pipes looking west toward the natural cut slope and landfill on northwest side of pond.

Photo 19: 4B Ash Pond northwest cut slope looking west from northern corner.

Photo 20: 4B Ash Pond northwest cut slope looking northeast from western corner.

Photo 21: 4A Ash Pond south embankment dam downstream side from southwest corner looking northeast.

Photo 22: 4A Ash Pond south embankment dam crest from southwest corner looking northeast.

Photo 23: 4 Clear Pond northeast interior dike upstream side looking northwest. 4A Ash Pond on right.

Photo 24: 4 Clear Pond northeast interior dike crest looking northwest. 4 Clear Pond on left.

Photo 25: 4 Clear Pond south embankment dam upstream side looking west.

Photo 26: 4 Clear Pond south embankment dam upstream side looking east.

Photo 27: 4 Clear Pond south embankment dam crest looking west.

Photo 28: 4 Clear Pond south embankment dam crest looking east.

Photo 29: 4 Clear Pond south embankment dam downstream side looking west. Topographic depression on left.

Photo 30: 4 Clear Pond south embankment dam downstream side looking east.

Photo 31: Topographic depression and pumphouse south of 4 Clear Pond looking southeast.

Photo 32: Topographic depression and pumphouse south of 4 Clear Pond looking south. 1B and 1A Ash Ponds visible beyond roadway.

Photo 33: Topographic depression south of 4 Clear Pond looking southwest from east corner.

Photo 34: Blowdown Canal looking northeast from southwest corner. Natural cut slope on left, 1B Ash Pond on right.

Photo 35: Blowdown Canal southwest corner showing outlet valve (discharge to 1B Ash Pond).

Photo 36: Blowdown Canal (left) / 1B Ash Pond (right) interior dike crest looking northeast.

Photo 37: Blowdown Canal / 1B Ash Pond interior dike looking northeast from southwest corner. 1B Ash Pond on right.

Photo 38: 1B Ash Pond / 1B Clear Pond interior dike crest looking southeast (1B Ash Pond on left, 1B clear pond on right).

Photo 39: 1B Ash Pond / 1B Clear Pond interior dike looking northwest (1B Ash Pond on right, 1B Clear Pond on left).

Photo 40: 1B Ash Pond / 1A Ash Pond interior dike crest looking northeast (1B Ash Pond on left, 1A Ash Pond on Right).

Photo 41: 1B Clear Pond / 1A Clear Pond interior dike crest looking southwest (1A Clear Pond on left, 1B Clear Pond on right).

Photo 42: Intake culverts at southeast corner of 1A Clear Pond. Water flows from 1A to 1B Clear Pond through the interior dike and is treated with CO_2 to adjust pH.

Photo 43: 1A Ash Pond / 1A Clear Pond interior dike crest looking southeast (1A Ash Pond on left, 1A Clear Pond on right).

Photo 44: Platform around 1B Clear Pond drop-inlet pipe looking north.

Photo 45: Platform around 1A Clear Pond drop-inlet pipe looking north (1A Ash Pond / 1A Clear Pond interior dike in background).

Photo 46: 1A / 1B Clear Pond south embankment dam upstream side looking southeast (1B Clear Pond drop-inlet pipe in foreground left).

Photo 47: 1A / 1B Clear Pond south embankment dam crest looking southeast (1B Clear Pond on left, Recirculation Canal on right).

Photo 48: 1A / 1B Clear Pond south embankment dam downstream looking southeast showing steep downstream slope and Recirculation Canal.

Photo 49: 1A / 1B Clear Pond south embankment dam upstream side looking northwest (1A Clear Pond drop-inlet pipe in foreground, Recirculation canal on left)

Photo 50: 1A / 1B Clear Pond south embankment dam crest looking northwest (Recirculation Canal on left, 1A Clear Pond on right).

Photo 51: 1A / 1B Clear Pond south embankment dam downstream side looking northwest showing steep downstream slopes and Recirculation Canal. Inactive 008 Outfall in foreground left.

Appendix C

Reply to Request for Information Under Section 104(e)

PACIFICORP ENERGY
A DIVISION OF PACIFICORP
DAVE JOHNSTON STEAM ELECTRIC PLANT
1591 TANK FARM ROAD · GLENROCK, WYOMING 82637 · PHONE (307) 436-2712 · FAX (307) 436-2020

March 30, 2009

Mr. Richard Kinch
US Environmental Protection Agency
Two Potomac Yard
2733 S. Crystal Dr.
5th Floor; N-5783
Arlington, VA 22202-2733

Via Overnight Delivery

Re: Dave Johnston Power Station: Request for Information Under Section 104(e) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9604(e) dated March 9, 2009 and received on March 16, 2009

Dear Mr. Kinch,

This letter and the enclosed materials constitute the response of the Dave Johnston Power Station to the above request for information. Specifically, this letter and the enclosed materials provide the Dave Johnston Power Station's response "to each request for information set forth in the Enclosure [A], including all documents responsive to such request."

Although PacifiCorp, as operator of the Dave Johnston Power Station, intends to cooperate fully in responding to the request for information, this response is made subject to the objections and other exceptions as noted herein.

Moreover, PacifiCorp affirmatively asserts that the ten business day response deadline contained in the request for information is unrealistically short and does not reasonably reflect the type and volume of responsive information which EPA has requested, particularly when considering that PacifiCorp is required to provide similar responses at three other facilities at the same time. Therefore, PacifiCorp objects to this deadline and reserves the right to supplement this response after the 10 business day deadline with any materials that it was unable to gather and submit by the requested deadline.

Please be aware that PacifiCorp has included in this response those "surface impoundments or similar diked or bermed management unit(s)" at the Dave Johnston Power Station which appear to be covered by the Request for Information. These "surface impoundments or similar diked or bermed management units" are described in more

detail below. PacifiCorp has not included in this response, however, stormwater and wastewater retention basins which are neither managed nor operated as coal combustion waste impoundments even though they may contain storm or waste water which has been in incidental contact with coal ash or coal combustion products. Please advise us to the extent EPA interprets its request for information to include these stormwater and wastewater retention basins.

I certify that the information contained in this response to EPA's request for information and the accompanying documents is true, accurate and complete. As to the identified portions of this response for which I cannot personally verify their accuracy, I certify under penalty of law that this response and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, those persons directly responsible for fathering the information, the information submitted is, to the best of my knowledge, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

If you have any questions regarding this response, please direct them to Mr. Brett Shakespear at 801-220-2575 or at brett.shakespear@pacificorp.com. Legal inquires should be made to Mr. Michael Jenkins at 801-220-2233 or at michael.jenkins@pacificorp.com.

Sincerely,

Gary Slanina
Managing Director
Dave Johnston Power Station

cc: Brett Shakespear, Michael Jenkins

Response To Enclosure A For 1A Ash Pond

The term "1A Ash Pond" as used in this response means a single pond that historically received bottom ash from the plant. A portion of the pond is currently being closed. The remaining portion of the pond will be used as a clear pond for 1B Ash Pond. The water from the pond drains to 1A Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 1A Ash Pond.

"If the unit(s) does not have a rating, please note that fact"

The 1A Ash Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 1A Ash Pond was placed in service in 1959. There has been no expansion of 1A Ash Pond.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the 1A Ash Pond: fly ash; bottom ash; boiler slag; flue gas emission control residuals; other.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 1A Ash Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc.; a geotechnical firm staffed with professional engineers and certified engineering geologists.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 1A Ash Pond Surface Area is 12.9 acres.

The 1A Ash Pond Storage Capacity is 114.8 acre feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 1A Ash Pond is approximately 57.4 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

This is a subsurface pond so no maximum height is provided.

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in connection with the 1A Ash Pond in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 1A Clear Pond

The term "1A Clear Pond" as used in this response means a single pond which receives water from the 1A Ash Pond or the 1B Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 1A Clear Pond.

"If the unit(s) does not have a rating, please note that fact"

The 1A Clear Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 1A Clear Pond was commissioned in 1959. There has been no expansion of the 1A Clear Pond.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the 1A Clear Pond: fly ash; bottom ash; boiler slag; flue gas emission control residuals; other.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4:

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 1A Clear Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc.; a geotechnical firm staffed with professional engineers and certified engineering geologists.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 1A Clear Pond surface area is 1.6 acres.

1A Clear Pond storage capacity is 16.1 acre-feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 1A Clear Pond is approximately 1.6 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

This is a subsurface pond so no maximum height is provided.

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in connection with the 1A Clear Pond in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 1B Ash Pond

The term "1B Ash Pond" as used in this response means a single pond that historically received bottom ash from the plant. The pond currently receives wastewater from the plant. The water from the pond drains to 1B Clear Pond or 1A Ash Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 1B Ash Pond.

"If the unit(s) does not have a rating, please note that fact"

The 1B Ash Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 1B Ash Pond was commissioned in 1959. There has been no expansion of the 1B Ash Pond.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following category of materials have been placed in the 1B As Pond: fly ash; bottom ash; boiler slag; flue gas emission control residuals; other.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 1B Ash Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 1B Ash Pond Surface Area is 12.5 acres.

The 1B Ash Pond Storage Capacity is 112.4 acre-feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 1B Ash Pond is approximately 56.2 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

This is a subsurface pond so now maximum height is provided.

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility.

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 1B Clear Pond

The term "1B Clear Pond" as used in this response means a single pond which receives water from the 1B Ash Pond or 1A Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 1B Clear Pond.

"If the unit(s) does not have a rating, please note that fact"

The 1B Clear Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 1B Clear Pond was commissioned in 1959. There has been no expansion of the 1B Clear Pond.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following category of materials have been placed in the 1B Clear Pond: fly ash; bottom ash; boiler slag; flue gas emission control residuals; other.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 1B Clear Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 1B Clear Pond surface area is 2.0 acres.

The 1B Clear Pond storage capacity is 19.7 acre-feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 1B Clear Pond is approximately 2.0 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

This is a subsurface pond so no maximum height is provided.

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 4 Clear Pond

The term "4 Clear Pond" as used in this response means a single pond which receives water from the 4A and the 4B Ash Ponds. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 4 Clear Pond.

"If the unit(s) does not have a rating, please note that fact"

The 4 Clear Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 4 Clear Pond was commissioned in 1972.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the 4 Clear Pond: fly ash, bottom ash, boiler slag, flue gas emission control residuals.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 4 Clear Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

A repair of the north bank is planned for March/April 2009.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

NA

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 4 Clear Pond surface area is 6.4 acres.

The 4 Clear Pond storage capacity is 45.9 acre feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 4 Clear Pond is approximately 15.3 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

The 4 Clear Pond is a three sided unit with 67% sub–surface and 33% contained with a dam. The maximum height of the dam is 12'6".

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in the last ten years.

Dave Johnston Power Station Response to Request No. 10

Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 4A Ash Pond

The term "4A Ash Pond" as used in this response means a single pond that receives bottom ash from Units 1, 2, and 3 and also scrubber solution from Unit 4. The water from the pond drains to 4 Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 4A Ash Pond.

"If the unit(s) does not have a rating, please note that fact"

The 4A Ash Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 4A Ash Pond was commissioned in 1972.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the 4A Ash Pond: fly ash, bottom ash, boiler slag, flue gas emission control residuals.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 4A Ash Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 4A Ash Pond surface area is 19.5 acres.

The 4A Ash Pond storage capacity is 144.6 acre-feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 4A Ash Pond is approximately 137.7 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

Maximum Height of 4A Ash Pond: 52% of this unit is sub–surface and 48% is contained with a dam. Maximum height of dam is 12'6".

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp Energy. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For 4B Ash Pond

The term "4B Ash Pond" as used in this response means a single pond that receives bottom ash from Units 1, 2, and 3 and also scrubber solution from Unit 4. The water from the pond drains to 4 Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the 4B Ash Pond.

"If the unit(s) does not have a rating, please note that fact"

The 4B Ash Pond does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The 4B Ash Pond was commissioned in 1972.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the 4B Ash Pond: fly ash, bottom ash, boiler slag, flue gas emission control residuals.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The 4B Ash Pond was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The 4B Ash Pond surface area is 19.5 acres.

The 4B Ash Pond storage capacity is 144.6 acre-feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in 4B Ash Pond is approximately 14.5 acre-feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

The maximum height of 4B Ash Pond: 60% of this unit is sub-surface and 40% is contained with a dam. Maximum height of dam is 12'6".

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

No known spills or unpermitted releases have occurred in the last ten years.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Response To Enclosure A For Blowdown Canal

The term "Blowdown Canal" as used in this response means a canal that receives overflow from the 4 Clear Pond. The water from the canal flows to 1B Ash Pond or to 1B Clear Pond. EPA's Enclosure A requests are reproduced below in italics and separated within request numbers for ease of response. The responses below are offered without waiving any of the objections noted herein and in the cover letter.

Dave Johnston Power Station Response to Request No. 1

"Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit"

NA

"Indicate who established the rating"

NA

"What the basis of the rating is"

NA

"What federal or state agency regulates the unit(s)"

No agency regulates the structural integrity of the Blowdown Canal.

"If the unit(s) does not have a rating, please note that fact"

The Blowdown Canal does not have a hazard rating.

Dave Johnston Power Station Response to Request No. 2

"What year was each management unit commissioned and expanded?"

The Blowdown Canal was commissioned in 1972.

Dave Johnston Power Station Response to Request No. 3

"What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s)."

The following categories of materials have been placed in the Blowdown Canal: fly ash, bottom ash, boiler slag, flue gas emission control residuals.

The "other" category of materials consists of boiler chemical clean rinse waste (tested and confirmed nonhazardous before discharged into pond).

Dave Johnston Power Station Response to Request No. 4

"Was the management unit(s) designed by a Professional Engineer?"

Yes

"Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer?"

PacifiCorp has been unable to locate documentation to make this assessment.

"Is inspection and monitoring of the safety of the waste management unit(s) under the supervision of a Professional Engineer?"

No

Dave Johnston Power Station Response to Request No. 5

"When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)?"

The Blowdown Canal was last inspected on March 2 & 3, 2009.

"Briefly describe the credentials of those conducting the structural integrity assessments/evaluations."

Cornforth Consultants, Inc., a geotechnical firm staffed with professional engineers and certified engineering geologists, is conducting the evaluations.

"Identify actions taken or planned by facility personnel as a result of these assessments or evaluations."

The recent inspections will be evaluated as they are received, and actions, if any, will be based on the results.

"If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors."

See response above.

"If the company plans an assessment or evaluation in the future, when is it expected to occur?"

The need for further assessments or evaluations and their frequencies will be based on the results of the recently completed inspections.

Dave Johnston Power Station Response to Request No. 6

"When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)?"

PacifiCorp has no record of any state or federal inspections.

"If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur?"

PacifiCorp is not aware of any planned state or federal inspections at this time.

"Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation."

See response above.

"Please provide a copy of the most recent official inspection report or evaluation"

NA

Dave Johnston Power Station Response to Request No. 7

"Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s)?"

NA

"If so, describe the actions that have been or are being taken to deal with the issue or issues"

NA

"Please provide any documentation that you have for these actions."

NA

Dave Johnston Power Station Response to Request No. 8

"What is the surface area (acres) and total storage capacity of each of the management units?"

The Blowdown Canal surface area is 0.5 acres.

The Blowdown Canal Storage Capacity is 3.3 acre feet.

"What is the volume of material currently stored in each of the management unit(s)?"

The volume of material currently stored in the Blowdown Canal is approximately 1.0 acre feet.

"Please provide the date that the volume measurement(s) was taken."

Exact measurements were not taken. An estimate was made on March 17, 2009.

"Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this Enclosure."

The Blowdown Canal is a subsurface canal so no maximum height is provided.

Dave Johnston Power Station Response to Request No. 9

"Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater)."

On January 9, 2009, 14, 400 gallons of process water overflowed the capacity of the Blowdown Canal and bypassed the outfall. Operating procedures were put into place to prevent a reoccurrence. The Wyoming Department of Environmental Quality was notified of the circumstance.

Dave Johnston Power Station Response to Request No. 10

"Please identify all current legal owner(s) and operator(s) at the facility."

The current legal owner of the Dave Johnston Power Station is PacifiCorp. The current operator of the Dave Johnston Power Station is PacifiCorp.

Objections To Enclosure A

Dave Johnston Power Station Objections to the Introductory Paragraph of Enclosure A: PacifiCorp objects to the general request for information contained in the introductory paragraph of Enclosure A, including the information "requested below," on the grounds that the request is outside the scope of EPA's authority as contained in Section 104(e) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9604(e). Moreover, PacifiCorp objects to this general request because it contains undefined and ambiguous terms such as "surface impoundment" "similar diked or bermed management unit(s)," "landfills," "liquid-borne material," "storage or disposal," "no longer receive," "coal combustion residues," "residuals or byproducts," "residues or by-products" and "free liquids" and because some of these terms seem to be used interchangeably within the introductory paragraph and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 1: PacifiCorp objects to Request No. 1 because it contains undefined and ambiguous terms such as "management unit" and "unit(s)" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 2: PacifiCorp objects to Request No. 2 because it contains undefined and ambiguous terms such as "management unit," "unit(s)," "commissioned" and "expanded" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 3: PacifiCorp objects to Request No. 3 because it contains undefined and ambiguous terms such as "temporarily," "permanently," "management unit(s)" and "unit(s)" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 4: PacifiCorp objects to Request No. 4 because it contains undefined and ambiguous terms such as "management unit(s)", "designed," "construction," "waste management unit(s)", "inspection," and "monitoring" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 5: PacifiCorp objects to Request No. 5 because it contains undefined and ambiguous terms such as "safety," "structural integrity," "management unit(s)," "assessments," "evaluations," "actions," "corrective actions," and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 6: PacifiCorp objects to Request No. 6 because it contains undefined and ambiguous terms such as "official," "safety," "structural integrity," "management unit(s)," "inspection," "evaluation," "actions," "official inspection report," and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 7: PacifiCorp objects to Request No. 7 because it contains undefined and ambiguous terms such as "assessments," "evaluations," "inspections," "officials," "safety issue(s)," "management unit(s)," "actions," and "deal with" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 8: PacifiCorp objects to Request No. 8 because it contains undefined and ambiguous terms such as "surface area (acres)," "total storage capacity," "management units," "volume," "material," "stored," "volume measurements," and "maximum height" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.

Dave Johnston Power Station Objections to Request No. 9: PacifiCorp objects to Request No. 9 because it contains undefined and ambiguous terms such as "known spills," "unpermitted releases," "unit," "surface water," "land," and "groundwater" and because some of these terms seem to be used interchangeably within this request and in other requests without an explanation of whether they are intended to have the same meaning.