



Huntington Power Plant

6 miles west of Huntington, Utah on Hwy. 31
P.O. Box 680
Huntington, Utah 84528

December 9, 2011

Mr. Rob Herbert
Utah Department of Environmental Quality
Division of Water Quality
P.O. Box 144870
Salt Lake City, Utah 84114-4870
Attention: Ground Water Protection Program

Subject: Closure Report, Lacey's Lake Pond Area
Ground Water Discharge Permit No. UGW150002
PacifiCorp, Huntington Power Plant

Dear Mr. Herbert,

Enclosed is the Closure Report for Lacey's Lake Pond Area as required by the Huntington Power Plant Ground Water Discharge Permit No. UGW150002, Appendix G, "Closure Plan, Lacey's Lake Pond Area". The schedule for submission of the final report was updated and approved in a letter from the Utah Department of Environmental Quality dated September 27, 2011.

Should you have questions or need additional information, please feel free to contact Bradley Giles. His phone is (435) 748-6576. His e-mail address is Bradley.Giles@PacifiCorp.com

I hereby certify that the information submitted herein is true, accurate, and complete, based on information and belief formed after reasonable inquiry.

Sincerely,

Darrell Cunningham
Huntington Plant Managing Director

cc: Mark Novak (DWQ)
Attachments



DWQ-2011-008903

Document Date 12/9/2011



Closure Report Lacey's Lake Pond Area

PacifiCorp Huntington Power Plant

December 2011

**Prepared by:
URS Corporation**

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1.0 INTRODUCTION

The purpose of this report is to document closure of Lacey's Lake for Utah Division of Water Quality (DWQ) review and approval. Lacey's Lake is identified in PacifiCorp Huntington Power Plant (Huntington) Huntington's Ground Water Discharge Permit (Permit) number 150002 (UDEQ, 2009), issued by the DWQ, as an unlined pond with potential to impact groundwater. Huntington management determined that closure of Lacey's Lake would reduce the environmental footprint of the plant by eliminating an unlined surface water impoundment. Huntington's approach to closure of Lacey's Lake was described in the *Final Closure Plan Lacey's Lake Pond Area* dated May 2011 (URS, 2011).

This report includes a brief description of closure activities including deviations from the approved plan based on site conditions encountered during implementation of the Plan. Estimated quantities of material removed from Lacey's Lake and adjacent waste handling areas are reported and disposal location noted. Estimated quantities of backfill material are reported and a description of the final site grading is included. Field observations including site photographs of the extent of excavation and final site conditions are included in Attachment A – Photographic Log.

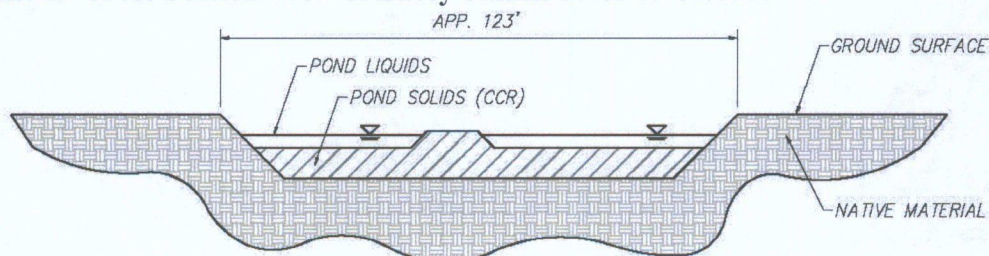
1.1 Operating History

Lacey's Lake was originally constructed in 1979 to serve as a settling and evaporation pond with a design volume of approximately four acre-feet (ac ft). Waste streams with high suspended and dissolved solids concentrations were routed to the pond prior to flowing to the on-site waste water collection pond for treatment and reuse.

Wastewater streams from the plant discharging to Lacey's Lake included RCC blowdown water, coal conveyor wash water, wash water associated with the fly ash loadout area (both Pug Mill wash water and water used to clean spills of ash in the loadout area), pump seal water, and truck wash water. In addition to the above plant process wastewater streams, Lacey's Lake received stormwater runoff from the south coal pile area and the south area of the plant upgradient from the pond.

These waste streams previously directed to Lacey's Lake contain high solids concentrations, both dissolved and suspended. Suspended solids are primarily ash or coal combustion residuals (CCR). This solid material would accumulate in Lacey's Lake requiring periodic removal. This was accomplished using a long arm reach excavator capable of dredging sludge from all but the center of the pond, as shown in Photographs 1 and 2 in Attachment A. This dredged material was then staged adjacent to the pond for drying prior to transport to the on-site Class III Industrial Waste Landfill for disposal. The schematic below depicts the cross section configuration of Lacey's Lake prior to closure.

Schematic 1. Cross Section View of Lacey's Lake Prior to Closure



2.0 CLOSURE ACTIVITIES

Huntington's approach to closure of Lacey's Lake included the following activities; identification and rerouting of all inputs, sampling, waste removal, and site restoration including backfill, compaction and final site grading. A brief description of each activity is included below.

2.1 Rerouting Waste Streams

Beginning in April, 2011 advance construction actions were implemented to reroute all waste streams from Lacey's Lake to alternate waste handling areas. These actions effectively served to facilitate dewatering of the pond and subsequent waste removal activity. Huntington completed these advance construction activities in May, 2011. A detailed description of each action is described in the Final Construction Plans dated September 27, 2011. A brief summary of these advance construction actions is included below for reference.

- Water that previously discharged from the Lacey's Lake Pump Station (Pump Station) was rerouted to the existing sewer collection facility
- Water decanted from the existing fly ash loadout area was collected and pumped to the RCC trough which discharges to the Pump Station.
- Coal conveyor washwater is commingled with the fly ash loadout area water and pumped to the RCC trough/Pump Station.
- The water and solids from the truck wash area continued to discharge to the RCC trough/Pump Station.
- Stormwater was rerouted south of Lacey's Lake for management in the South Detention Basin, which will be enlarged as part of this project.

Following completion of the Lacey's Lake Decommissioning facilities all plant process water that entered Lacey's Lake will be mixed with fly ash for disposal. Only truck washdown water and low flow Coal Pile runoff will discharge to the existing sewer collection system. Other stormwater will be collected in the new Coal Pile Detention Basin and the enlarged South Area Retention Basin.

2.2 Sampling and Analysis

As described in the approved Closure Plan (URS, 2011) surface water grab samples were collected from Lacey's Lake prior to waste removal activity to determine the expected contaminant concentrations in Lacey's Lake prior to closure. A total of eight samples were collected during routine ground water monitoring activity through the period of June 2010 to July 2011. Surface water samples from Lacey's Lake were not accessible after July 2011 because the pond area was dry.

The samples were analyzed for the parameters listed in Section I,E,2,(b) of Huntington's Ground Water Discharge Permit Number 150002 (UDEQ, 2009) identified below reference:

- Field Measurements: water level, pH, specific conductance, temperature.
- Laboratory Analysis: TDS, Major Ions (Na, K, Mg, Ca, Cl, SO₄, CO₃, HCO₃), nitrate + nitrite as N, boron.

A summary of the analytical results is presented in Table 1.

2.3 Waste Removal

Huntington selected Nielson Construction located at 825 North Loop Road in Huntington, Utah, as the excavation contractor responsible for conducting waste removal activity and site restoration and URS corporation provided general project oversight during waste removal activity.

Nielson Construction began waste removal activity in the pond area beginning in mid-October 2011. Heavy equipment including excavators, backhoes and front end loaders were used to enter Lacey's Lake and methodically remove waste material beginning with the southeast embankment. Material was then consolidated and moved to the north side of Lacey's Lake where additional excavators and front end loaders transferred the material to dump trucks for transport and disposal in Huntington's on-site Class III Industrial Waste Landfill. As waste removal activity progressed Nielson Construction began excavating in the material handling area south of Lacey's Lake. This material was moved to the north end of the project site and consolidated with material removed from Lacey's Lake. Finally, material adjacent to Lacey's Lake on the north side of the project area was excavated.

Upon reaching the underlying native material a clear difference in color and texture was observed. This can clearly be seen in the series of site photographs included in Attachment A and provided a visual indicator of completion. A total of approximately 26,600 tons of waste material was removed from the Lacey's Lake pond area. Attachment A shows the general construction sequence as it progressed through the month of October 2011.

During excavation a large diameter culvert was observed in the southeast corner of the excavation. The culvert was approximately three feet in diameter and appeared to be designed to convey stormwater under the access road to the south although the terminal end of the culvert was not located. Based on site observations the culvert appeared to be at approximately the same elevation as surrounding native material. However, the surrounding native material and culvert had been buried by ash material in the past and was not anticipated prior to closure activity. This culvert may have inadvertently served as a conduit for contaminant migration in the horizontal flow direction thereby accelerating contaminant migration to the south toward groundwater monitoring location HSW-1. The culvert was plugged with concrete prior to site restoration in the area to prevent potential future migration of groundwater and/or contaminants in the subsurface.

On October 31, 2011, Nielson Construction, URS and Huntington staff inspected the site and determined that removal of waste material from Lacey's Lake and adjacent waste handling areas was completed. The approximate elevation at the base of the excavated areas were measured using an automatic level. These approximate elevations are shown in Figure 1.

2.4 Site Restoration

Site restoration activity began on October 31, 2011 with preliminary grading and placement of backfill material in the former Lacey's Lake pond area. Nielson Construction provided the backfill material (known as "reject sand") which they generated as a result of material sorting operations. This material met the construction specification for backfill material described in the associated construction plans dated September 27, 2011. Large belly dump trucks were used to

place the backfill material directly in the former pond area where it was then graded and compacted in a series of lifts to the required 90% compaction. Placement of backfill material was completed at the end of November 2011. Photographs 23 and 24 in Attachment A show the final site grade after completion of site restoration activity. The approximate final grade follows the surrounding topography and is depicted in Figure 1. This final grade provides positive drainage with a surface slope of approximately two percent.

Huntington is currently considering future land use options for the area. Therefore, placement of six inches of topsoil and reseedling of the area as described in the approved Closure Plan (URS, 2011) has been temporarily suspended.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Decommissioning of the Lacey's Lake Pond Area was completed in December 2011 according to the approved Closure Plan (URS, 2011). A total of approximately 26,600 tons of waste material was removed from the pond area. Waste material removed from the pond area was disposed of in Huntington's on-site Class III Industrial Waste Landfill. The final site grading in the pond area follows the surrounding topography and provides draining with a surface slope of approximately two percent. No significant issues were encountered during closure activity and all tasks are complete with the exception of placement of topsoil and reseedling (described in Section 2.4).

URS recommends formal acknowledgement of the Lacey's Lake Pond Area closure with revision to Huntington's Ground Water Discharge Permit Number 150002 (UDEQ, 2009).

4.0 REFERENCES

UDEQ, 2009. Utah Department of Environmental Quality. *PacifiCorp Huntington Power Plant Ground Water Discharge Permit* (Permit No. UGW150002). Division of Water Quality, Utah Water Quality Board. March 30, 2009.

URS, 2011. *Final Closure Plan Lacey's Lake Pond Area*. May, 2011.

TABLES AND FIGURES

Table 1 - Surface Water Sample Results - Lacey's Lake

Year	Quarter	Boron (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Chloride (mg/L)	Conductivity (µmhos/cm)	Nitrate (mg/L)	pH	Sulfate (mg/L)	TDS (mg/L)	Elevation	Temp °C (°C)	Spec Cond (µS/cm)
2010	Jun	26.0	830	330	26.0	250	100	<10.0	1400	6900	7.90	9.15	2000	5300	Surface	15.7	9.20
2010	Oct	14.1	884	20	23.6	204	30	<10.0	512	4630	1.63	10.65	1130	3960	Surface	15.7	4.99
2010	Nov	12.2	779	<1.0	29.1	243	39	<20.0	418	4490	1.91	8.65	1410	3540	Surface	6.3	4.93
2010	Dec	13.9	816	76	24.3	202	42	<20.0	498	4080	3.46	8.45	1630	3520	Surface	9.6	4.51
2011	Apr	32.8	941	562	39.0	460	112	<20.0	1670	7950	13.40	9.80	2310	6450	Surface	14.6	8.97
2011	May	12.9	908	21	24.9	266	168	<20.0	724	4740	6.78	11.42	1690	4360	Surface	14.8	5.26
2011	Jun	15.5	1070	<1.0	22.5	227	70	<40.0	376	5480	10.4	12.46	1670	4010	Surface	17.6	5.83
2011	Jul	6.7	650	3	12.0	164	43	<20.0	265	3320	5.2	11.67	1260	2670	Surface	23.1	3.71

Notes:

TDS = Total Dissolved Solids

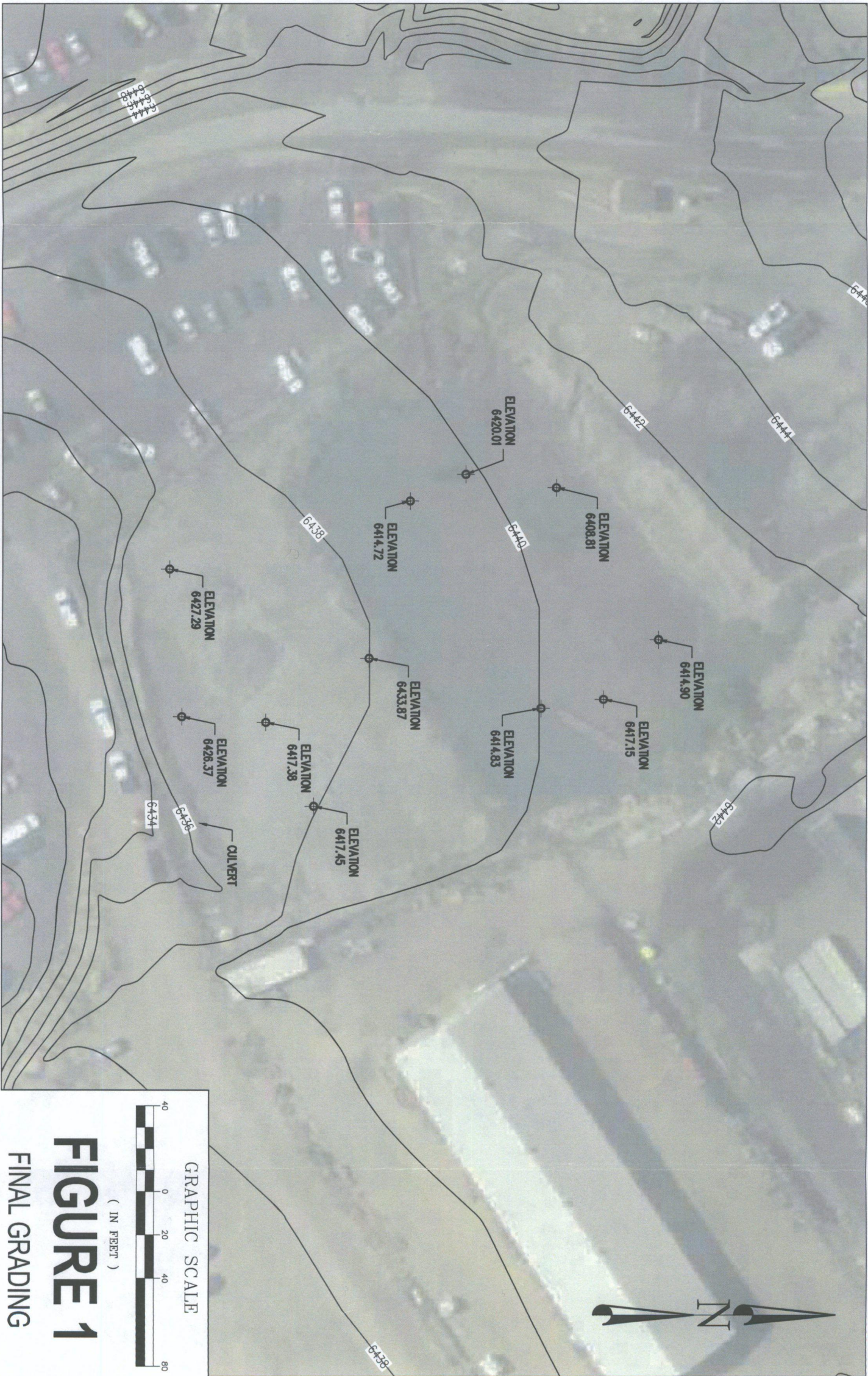
pH = per Hydrogen

°C = degrees Celsius

mg/L = milligrams per liter

µS/cm = microsiemens per centimeter

µmhos/cm = micromhs per centimeter



GRAPHIC SCALE
(IN FEET)
FIGURE 1
FINAL GRADING

ATTACHMENT A – PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

1

Date:

02/21/11

Direction Photo Taken:

South

Description:

View of Lacey's Lake looking South during sludge removal dredging prior to closure.



Photo No.

2

Date:

02/21/11

Direction Photo Taken:

South

Description:

View of Lacey's Lake looking South during sludge removal dredging prior to closure.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

3

Date:

10/19/11

Direction Photo Taken:

West

Description:

View of Lacey's Lake during initial waste removal activity during closure.



Photo No.

4

Date:

10/19/11

Direction Photo Taken:

Northwest

Description:

View of Lacey's Lake during initial waste removal activity during closure.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

5

Date:

10/20/11

Direction Photo Taken:

South

Description:

View of Lacey's Lake during waste removal activity.



Photo No.

6

Date:

10/20/11

Direction Photo Taken:

Northwest

Description:

View of Lacey's Lake during waste removal activity.





PHOTOGRAPHIC LOG


Client Name: PacifiCorp		Site Location: Huntington Power Plant	Project No. 24585242
Photo No. 7	Date: 10/24/11		
Direction Photo Taken: West			
Description: View of Lacey's Lake during waste removal activity.			

Photo No. 8	Date: 10/24/11	
Direction Photo Taken: Northwest		
Description: View of Lacey's Lake during waste removal activity.		



PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

9

Date:

10/25/11

Direction Photo Taken:

Northwest

Description:

View of Lacey's Lake during waste removal activity.



Photo No.

10

Date:

10/25/11

Direction Photo Taken:

Southwest

Description:

View of fly ash drying area south of Lacey's Lake during waste removal activity.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

11

Date:

10/26/11

Direction Photo Taken:

East

Description:

View of Lacey's Lake during waste removal activity.



Photo No.

12

Date:

10/26/11

Direction Photo Taken:

East

Description:

View of fly ash drying area south of Lacey's Lake during waste removal activity.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

13

Date:

10/28/11

Direction Photo Taken:

East

Description:

View of Lacey's Lake during waste removal activity.



Photo No.

14

Date:

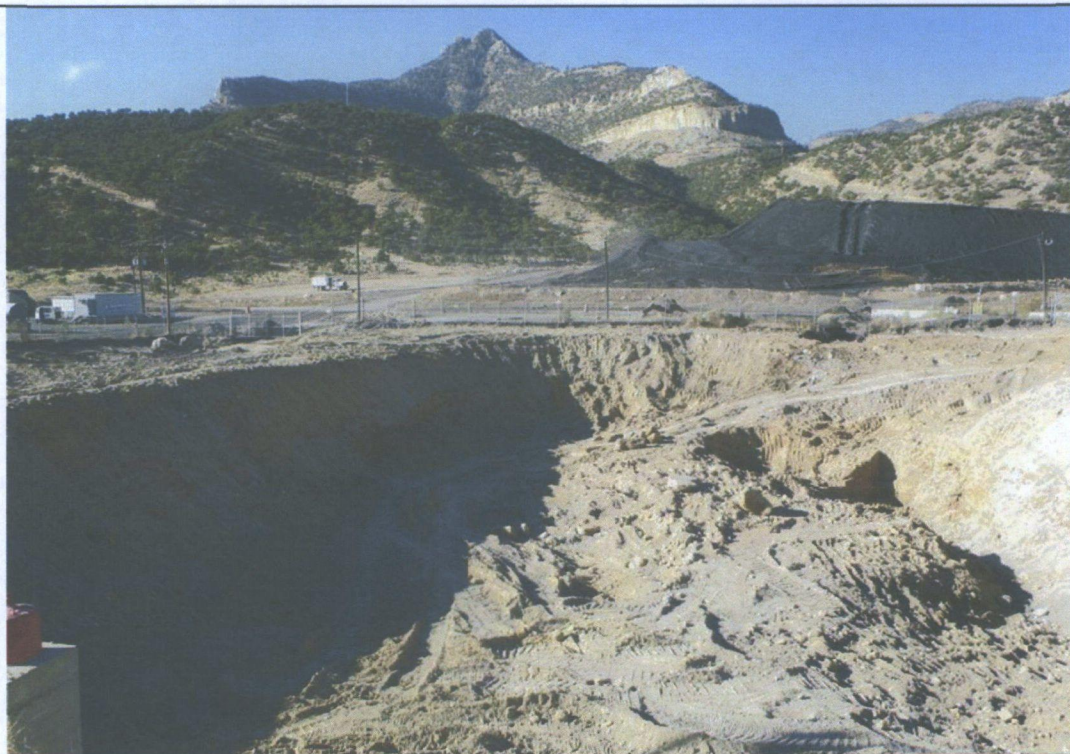
10/31/11

Direction Photo Taken:

West

Description:

View of Lacey's Lake during waste removal activity.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

15

Date:

10/31/11

Direction Photo Taken:

East

Description:

View of fly ash drying area south of Lacey's Lake during waste removal activity.

Note the individual collecting elevation survey data at the approximate location of the three foot diameter culvert.



Photo No.

16

Date:

10/31/11

Direction Photo Taken:

East

Description:

View of the large diameter culvert located at the south end of the fly ash drying area south of Lacey's Lake.





Client Name: PacifiCorp		Site Location: Huntington Power Plant	Project No. 24585242
Photo No. 17	Date: 10/31/11		
Direction Photo Taken: Northwest			
Description: View of Lacey's Lake during site restoration activity.			

Photo No. 18	Date: 10/31/11	
Direction Photo Taken: Southwest		
Description: View of Lacey's Lake during site restoration activity.		



PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

19

Date:

11/01/11

Direction Photo Taken:

West

Description:

View of Lacey's Lake during site restoration activity.



Photo No.

20

Date:

11/01/11

Direction Photo Taken:

West

Description:

View of Lacey's Lake during site restoration activity.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

21

Date:

11/01/11

Direction Photo Taken:

Northwest

Description:

View of Lacey's Lake during site restoration activity.



Photo No.

22

Date:

11/02/11

Direction Photo Taken:

West-Southwest

Description:

View of Lacey's Lake during site restoration activity.





PHOTOGRAPHIC LOG

Client Name:

PacifiCorp

Site Location:

Huntington Power Plant

Project No.

24585242

Photo No.

23

Date:

12/02/11

Direction Photo Taken:

Northwest

Description:

View of Lacey's Lake post closure activity.



Photo No.

24

Date:

12/02/11

Direction Photo Taken:

South

Description:

View of Lacey's Lake post closure activity.

