FOUR CORNERS POWER PLANT
Lined Ash Impoundment,
Lined Decant Water Pond,
Combined Waste Treatment Pond,
and Dry Fly Ash Disposal Area

Annual
CCR Impoundment and
Landfill Inspection Report

2019

GENERATION ENGINEERING
Design Engineering
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1.0 INTRODUCTION

Arizona Public Service Company (APS) prepared this report to comply with the Environmental Protection Agency's (EPA) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule (2015) requiring "*...inspections by a qualified professional engineer at intervals not exceeding one year to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards*" (40 CFR 257.83(b)(1) for CCR surface impoundments and 40 CFR 257.84(b)(1) for CCR landfills). AECOM staff participated in the CCR unit inspection and provided technical support in the preparation of this document.

This report includes a review of relevant data in the operating record as well as visual inspections of the Lined Ash Impoundment, the Lined Decant Water Pond, the Combined Waste Treatment Pond, and the Dry Fly Ash Disposal Area. The Lined Ash Impoundment and Lined Decant Water Pond are instrumented with piezometers, inclinometers, settlement monuments, and settlement rods.

Inspection Conducted by

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2.0 SITE BACKGROUND AND INSPECTION CONDITIONS

The Four Corners Power Plant (FCPP, the Plant) is located in Fruitland, New Mexico, approximately 20 miles west of Farmington, New Mexico and 13 miles southeast of Shiprock, New Mexico. The Plant is immediately south of Morgan Lake and primarily in Section 36, Township 29 North, Range 16 West on the Navajo Indian Reservation in San Juan County. Units 1, 2, and 3 ceased generation in 2013 and were then decommissioned. Units 4 and 5 burn low sulfur coal and have a total net generating capacity of 1,540 megawatts.

The coal combustion process produces Coal Combustion Residuals (CCR) consisting of bottom ash (silty sand, Unified Soil Classification System SM), fly ash (low plasticity silt, Unified Soil Classification System ML), and flue gas desulfurization sludge (FGD). The Plant is operated as a low volume water usage system. The Lined Ash Impoundment (LAI) is used for CCR disposal and the Lined Decant Water Pond (LDWP) is used to temporarily store water drained from the LAI. The Dry Fly Ash Disposal Area (DFADA) is a CCR landfill used to dispose of dry CCR from Units 4 and 5. The Combined Waste Treatment Pond (CWTP) is a settling pond for bottom ash sluice water and various storm water, process water, and Plant washdown streams. The CWTP discharges through a NPDES-permitted outfall to Morgan Lake. These four coal combustion waste units are the subject of this inspection report.

In June 2018, APS initiated a construction project to decommission and permanently close the existing Upper Retention Sump (a CCR Unit) and to replace it with the new Upper Retention Sump Tank, an in-ground reinforced concrete tank. APS removed the CCR material and CCR-affected materials for closure by removal of the existing Upper Retention Sump for the construction of the new Upper Retention Sump Tank. The Upper Retention Sump Tank went into service on December 19, 2018. APS intends to refer to the new Upper Retention Sump Tank as the "Upper Retention Sump." APS assesses that the new Upper Retention Sump Tank is not classified as a CCR Unit and is not subject to requirements of 40 CFR Part 257 (EPA 2015). Therefore, APS does not plan to include the tank as a subject of this or subsequent annual field inspection reports.

The field inspection was conducted on Tuesday, November 19, 2019 and Wednesday, November 20, 2019. Conditions were cool (40-53 degrees Fahrenheit) with cloudy skies and light to moderate winds on both days. Rain fell overnight Tuesday and into early Wednesday morning. Approximately 7.54 inches of precipitation had fallen since the start of the year based on data recorded at the Four Corners Regional Airport in Farmington, New Mexico (NOAA 2019).

Instrumentation at the LAI and LDWP generally consists of open standpipe PVC piezometers, vibrating wire piezometers, inclinometers, settlement monuments, and settlement rods measured using a Global Positioning System (GPS) survey. Water levels in the open standpipe piezometers are measured with an electronic water level indicator attached to a cable stamped with increments of 0.01 feet. Water level data for the vibrating wire piezometers are downloaded at a central readout box and processed by Plant personnel. Data for the inclinometers, settlement monuments, and settlement rods are also gathered and processed by Plant personnel.

The benchmarks for the elevations reported for GPS surveys of the settlement monuments at the Four Corners Power Plant are based on one of three survey monuments: EMMA, an aluminum cap, and two Southern California Edison (SCE) brass caps – HV-53, and HV-61. The latitude and

longitude of the monuments are based on the NAD83 datum. The elevations of EMMA, HV-53, and HV-61 are 5382.251, 5331.214, and 5085.898 feet, respectively.

3.0 UNIT DESCRIPTIONS

3.1 LINED ASH IMPOUNDMENT (LAI)

The LAI is represented on Figure 1 – Lined Ash Impoundment (LAI).

The LAI (listed by the New Mexico Office of the State Engineer (NMOSE) Dam Safety Bureau as dam number D-634) was constructed between 2003 and 2014, has a reservoir storage capacity of 5,346 acre-feet, and is approximately 107 feet high. The embankment is approximately 6,600 feet long and is classified under the New Mexico Administrative Code (NMAC) as "intermediate" size and "significant" hazard potential. The impoundment is lined with a single HDPE geomembrane. The nominal (lowest) crest elevation (EL) is 5280.0 feet. The maximum operating water level is EL 5275.2 feet and the water level was observed to be at approximate EL 5274.5 feet during the inspection.

3.2 LINED DECANT WATER POND (LDWP)

The LDWP is represented on Figure 2 – Lined Decant Water Pond (LDWP).

The LDWP (NMOSE dam number D-635) was constructed in 2003, has a maximum storage capacity of 435 acre-feet, and has a statutory height of approximately 16 feet (the LDWP was constructed on top of Ash Pond 3 and is 90 feet above the original ground surface along the South and West Embankments). The embankment is approximately 5,488 feet long and is classified under the NMAC as "intermediate" size and "significant" hazard. The impoundment is lined with two HDPE geomembranes and a leak detection layer. The maximum surcharge reservoir level is EL 5213.2 feet and the reservoir level was observed to be at approximate EL 5211.8 feet during the inspection.

3.3 COMBINED WASTE TREATMENT POND (CWTP)

The CWTP is represented on Figure 3 – Combined Waste Treatment Pond (CWTP).

The CWTP is an approximately 13.4-acre unlined detention pond located adjacent to Morgan Lake. The CWTP is not regulated by NMOSE. It was constructed in 1978, has a maximum storage capacity of 137 acre-feet. The embankment is approximately 32 feet high (maximum) and is approximately 1,800 feet long. The embankment is classified under the NMAC as "small" size and "low" hazard. The CWTP is used as a settling basin for ash-transport wastewater prior to discharge to Morgan Lake through a monitored National Pollutant Discharge Elimination System (NPDES) permitted discharge point. The primary source of water entering the CWTP is from bottom ash recovery and transport processes at Units 4 and 5. Bottom ash is hydraulically transported to the Units 4 and 5 hydrobins where the transport water is separated and conveyed to the CWTP. Ash and other sediment settle in separate earthen settling basins within the CWTP footprint prior to the water overflowing into the main CWTP.

3.4 DRY FLY ASH DISPOSAL AREA (DFADA)

The DFADA is represented on Figure 4 – Dry Fly Ash Disposal Area (DFADA).

The DFADA is a lined landfill and dry fly ash disposal facility. The DFADA currently consists of three conjoined cells: Sites 1, 2, and 3. Construction at the three Sites has been ongoing since 2007. The DFADA has a maximum intended capacity of 6,261 acre-feet and an ultimate maximum height of approximately 105 feet. Site 1 is constructed with an HDPE geomembrane overlying a compacted clay subgrade. Sites 2 and 3 are constructed with a composite liner system selected for general compliance with the EPA's *Guide for Industrial Waste Management*: a geosynthetic clay liner (GCL) overlain by an HDPE geomembrane. A drainage layer was installed over the HDPE geomembrane in all three cells as recommended in the EPA guidance. Each cell is connected to a leachate collection system designed to remove water from the storage area. The leachate collection system generally consists of a drainage layer, collection piping, a removal system, and a protective filter layer.

4.0 FIELD INSPECTIONS

This section contains the 2019 annual field inspections conducted by APS and accompanied by a representative from AECOM at the LAI (Section 4.1), the LDWP (Section 4.2), the CWTP (Section 4.3), and the DFADA (Section 4.4).

4.1 APS FIELD INSPECTION – LINED ASH IMPOUNDMENT (LAI)

<table>
<tr><td colspan="2">Lined Ash Impoundment (LAI)</td><td colspan="3">State Identification Number (SID): D-634</td><td rowspan="15">Not Applicable</td><td rowspan="15">No</td><td rowspan="15">Yes</td><td rowspan="15">Monitor</td><td rowspan="15">Repair</td><td rowspan="15">Investigate</td></tr>
<tr><td>SID: D-634</td><td>Dam Name: Lined Ash Impoundment (LAI)</td><td>Type: Zoned earth and ash fill with geomembrane</td><td colspan="2">Purpose: Fly ash and FGD sludge disposal</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="3">Report Date: January 17, 2020</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Dennis Carlson (APS), Lee Wright, P.E. (AECOM)</td><td colspan="3">Inspection Date: November 20, 2019</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 14, 2020</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,280</td><td colspan="3">Design Spillway Crest Elevation (ft): 5,277.84 (rim of 8-foot-diameter riser; no spillway)</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 4.8 (West Embankment)</td><td colspan="3">Measured Total Freeboard (ft): 12 (in the Southwest Corner)</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 107 (South Embankment)</td><td colspan="3">Structural Height (ft): 107 (South Embankment)</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Length (ft): 6,600</td><td>Upstream Slope:
3:1 (West Embankment)
2:1 (South Embankment)</td><td colspan="2">Downstream Slope:
3:1 (West Embankment)
2:1 (South Embankment)</td></tr>
<tr><td colspan="2">Dam Crest Width (ft): 30 (West Embankment)
20 (South Embankment)</td></tr>
<tr><td rowspan="2">Lat: 36° 41' 05" (per NMOSE permit)</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108° 30' 26" (per NMOSE permit)</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 126.8 (high water line)</td><td colspan="3">Reservoir Storage (ac-ft): 5,346 (high water line)
5,986 (maximum)</td></tr>
<tr><td colspan="5">Inflow Design Flood/Safe Flood-Passing Capacity: PMF – fully contained</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): EL 5274.5 (in the Southwest Corner)</td><td rowspan="2">Photos: Yes</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): ~ EL 5275.3 (average)</td></tr>
</table>

Lined Ash Impoundment (LAI)			SID: **D-634**	N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST									
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard:	**Significant**	Should hazard be revised?		**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **N/A**		Is there a significant increase since the last inspection?		**X**				
c	Recorded size:	**Intermediate**	Should size be revised?		**X**				
d	Any safety deficiencies?	**No**	Describe:		**X**				
e	Any statute or rule violations?	**No**	Describe and list required action:		**X**				
f	Safe storage level on License:	**5,275.2 feet**	Should level be revised:		**X**				
g	Any License violations?	**No**	Describe and list required action:		**X**				
h	Date of current License:	**October 27, 2015**	Should new License be issued?		**X**				
i	Date of last Emergency Action Plan revision: **2/2017**		Should EAP be revised?		**X**				
j	Any Agency actions?	**No**	Describe and list required action:		**X**				
k	Normal inspection frequency:	**Weekly, Annually**	Should inspection frequency be revised?		**X**				
l	Recommended date for next inspection: **November 2020**								

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe:	**West Embankment** **1) Six clusters of three vibrating wire piezometers each (varying elevations),** **2) Four buried settlement rods to measure settlement at depth,** **3) Two inclinometers, and** **4) Two crest survey/settlement monuments.** **North Toe Buttress** **1) Eleven clusters of three vibrating wire piezometers and one cluster of two vibrating wire piezometers (varying elevations),** **2) Eight buried settlement rods to measure settlement at depth, and** **3) Three inclinometers.** **Other** **1) Permanent water elevation markers on the geomembrane liner at three locations within the impoundment.** **2) No inflow or outflow measurement devices.**							
b	Any repair or replacement required?	**No.**	Describe:		**X**				
c	Date of last monitoring report:	**January 2019 (for 2018)**	Should new readings be taken and new report provided? **Monthly measurement and annual reporting are required.**			**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions?			**X**				
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?	**Cracks were observed along portions of the geomembrane liner anchor trench in the Northwest Embankment. See Photos IMG_6612 and IMG_6622.**			**X**	**X**		
d	Animal burrows?			**X**				
e	Adverse vegetation?			**X**				
f	Erosion?			**X**				

Lined Ash Impoundment (LAI)		SID: **D-634**	N/A	No	Yes	Mon	Rep	Inv
4	***UPSTREAM SLOPE***							
a	Erosion?	**See comment i.**		**X**		**X**		
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?			**X**				
d	Longitudinal/Transverse cracking?	**Could not observe due to the presence of the geomembrane liner.**	**X**					
e	Inadequate riprap?	**The upstream slope is covered with a geomembrane liner.**	**X**					
f	Stone deterioration?		**X**					
g	Settlements, slides, depressions, bulges?	**See comment ii.**			**X**		**X**	**X**
h	Animal burrows?			**X**				
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**Minor erosion rills on the West and Northwest Embankments that were noted on the 2018 inspection were less apparent or had been repaired since the last inspection.**		**X**				
b	Inadequate ground cover?	**The LAI embankment slopes are faced with bottom ash that supports only sporadic and uneven vegetation. A lime-based, white- and turquoise-colored dust suppression agent is applied in accordance with the Plant's Dust Control Plan.**		**X**				
c	Adverse vegetation?			**X**				
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap?		**X**					
f	Stone deterioration?		**X**					
g	Settlements, slides, depressions, bulges?	**See comment iii.**			**X**	**X**		**X**
h	Soft spots or boggy areas?			**X**				
i	Movement at or beyond toe?			**X**				
j	Animal burrows?			**X**				
6	***ABUTMENT CONTACTS***							
a	Erosion?			**X**				
b	Differential movement?			**X**				
c	Cracks?			**X**				
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?			**X**				
f	Animal burrows?			**X**				

7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**Historic seepage at the downstream toe of the South Embankment is captured using a French drain beneath the toe. There was no flow from the outlet at the time of inspection (Photo IMG_6795).**						
b	Internal drains flowing?	**See comments vi and vii.**			**X**			
c	Seepage at or beyond toe?			**X**				
d	If so, does seepage contain fines?		**X**					
e	Evidence of sand boils at or beyond toe?			**X**				

	RESERVOIR CHECKLIST							
8	***RESERVOIR***							
a	High water marks?				**X**			
b	Erosion/slides into pool area?			**X**				
c	Sediment accumulation?	**Suspended FGD solids and fly ash settle in the impoundment.**			**X**			
d	Floating debris present?	**Sparse debris on top of the impounded ash.**		**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?			**X**				
g	Structures below dam crest elevation?	**Yes. See comment vii.**			**X**			

Additional comments and recommendations for the LAI:

i. The upstream clay blanket erosion observed at a hole in the liner during the 2018 inspection was not observed during this inspection. APS has repaired the liner at this location and replaced the clay.

ii. The geomembrane liner was observed to exhibit uneven depressions and bulges in the Southwest Corner (Photo IMG_6504). These depressions and bulges are in the vicinity of previously observed holes in the upstream liner. In addition, a new cut and a possible new hole in the geomembrane liner were observed during this inspection (Photo IMG_6506). The presence and identified causes of the depressions, bulges, and liner damage should be recorded and any tears should be repaired in accordance with the recommendation of the geotechnical engineer. Repair documentation should be maintained with the operating record.

iii. An 8-inch diameter hole was observed at the toe of the West Embankment where it meets the crest of the LDWP (Photo IMG_6732). Part of the hole appeared to have been made mechanically. The cause of the hole should be investigated under the direction of a geotechnical engineer.

iv. In 2018 and through 2019, APS used two portable diesel-powered pumps to lower the water level in the LAI. The water level was lowered in order to facilitate repair of the liner tears identified in the 2018 inspection. The water was pumped from the Southwest Corner to the Drop Inlet Structure utilizing two HDPE pipes placed along the crest of the West Embankment (Photo IMG_6494). The pumping was stopped in June 2019. If the HDPE pipes are used again for pumping, they should be moved to the inside of the impoundment and placed on top of the liner. APS's CCR hauling contractor, who would operate this pump, is instructed to run the pump on the daylight shift only and monitor the HDPE pipe.

v. The North Toe Buttress (NTB) was constructed as part of the 5280 Lift of the LAI to provide additional stability in the northern portion of the West Embankment (Photo IMG_6451). The NTB appeared to be in good condition during the inspection. The NTB foundation instruments are discussed in Section 5.1.

vi. The primary outlet from the LAI is an 8-foot diameter vertical, perforated HDPE riser, referred to as the Drop Inlet Structure, connected at the bottom to 16-inch and 8-inch diameter HDPE gravity pipe outlets that drain into the LDWP. The ash working platform surrounding the Drop Inlet Structure has been raised since the 2018 inspection as the water level in the area increased.

vii. Water was observed discharging into the LDWP via the Deadpool Pump pipe (LDWP Photo IMG_6711).

viii. The weekly inspection reports for the period between October 1, 2018 and September 30, 2019 were reviewed and do not indicate that there were any appearances of actual or potential structural weakness or other conditions that have the potential to disrupt the operation or safety of the CCR unit.

4.2 APS FIELD INSPECTION – LINED DECANT WATER POND (LDWP)

<table>
<tr><td colspan="3">Lined Decant Water Pond (LDWP)</td><td colspan="2">State Identification Number (SID): D-635</td><td rowspan="16">Not Applicable</td><td rowspan="16">No</td><td rowspan="16">Yes</td><td rowspan="16">Monitor</td><td rowspan="16">Repair</td><td rowspan="16">Investigate</td></tr>
<tr><td>SID: D-635</td><td>Dam Name: Lined Decant Water Pond (LDWP)</td><td>Type: Zoned earth and ash fill with double-liner geomembrane and leak detection</td><td>Purpose: Store recycled LAI decant water and collected groundwater</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 17, 2020</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Dennis Carlson (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: November 20, 2019</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 14, 2020</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,216</td><td colspan="2">Design Spillway Crest Elevation: No spillway</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 2.8 (above the maximum surcharge level, EL 5213.2)</td><td colspan="2">Measured Total Freeboard (ft): 4.2</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 16</td><td colspan="2">Structural Height (ft): 16</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 5,488</td><td>Upstream Slope: 3:1</td><td>Downstream Slope: 2:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 30 feet (North, East Embankments)
20 feet (West, South Embankments)</td><td>Lat: 36° 41' 00" (per NMOSE permit)</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108° 30' 45" (per NMOSE permit)</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 45.4 (at EL 5213.2 ft) per APS drawing 150793.2.1</td><td colspan="2">Reservoir Storage (ac-ft): 435 (normal operating capacity)</td></tr>
<tr><td colspan="4">Inflow Design Flood/Safe Flood-Passing Capacity: PMF – fully contained</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~ EL 5211.8</td><td rowspan="2">Photos: Yes</td><td rowspan="2">Pages: 4</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): N/A (the LDWP does not impound a significant volume of soils)</td></tr>
</table>

Lined Decant Water Pond (LDWP)		SID: **D-635**		N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST									
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard: **Significant**	Should hazard be revised?			**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **N/A**	Is there a significant increase since the last inspection?			**X**				
c	Recorded size: **Intermediate**	Should size be revised?			**X**				
d	Any safety deficiencies? **No**	Describe:			**X**				
e	Any statute or rule violations? **No**	Describe and list required action:			**X**				
f	Safe storage level on License: **5,213.2 feet**	Should level be revised:			**X**				
g	Any License violations? **Yes**	Describe and list required action: **See comment ix.**				**X**	**X**		**X**
h	Date of current License: **February 7, 2008**	Should new License be issued?			**X**				
i	Date of last Emergency Action Plan revision: **2/2017**	Should EAP be revised?			**X**				
j	Any Agency actions? **No**	Describe and list required action:			**X**				
k	Normal inspection frequency: **Weekly, Annually**	Should inspection frequency be revised?			**X**				
l	Recommended date for next inspection: **November 2020**								

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe: **Instrumentation:** **1) Eight standpipe piezometers** **2) Two crest survey/settlement monuments.** **Other** **1) Interstitial geomembrane leak detection and evacuation pump.** **2) Surveyed level markings on geomembrane liner.** **3) No inflow measurement devices.** **4) Outflow estimation by LDWP pump rating/hours of operation, if needed.**								
b	Any repair or replacement required? **No.**	Describe:			**X**				
c	Date of last monitoring report: **January 2019 (for 2018)**	Should new readings be taken and new report provided? **Monthly measurement and annual reporting are required.**				**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions? **See comments i and ii.**				**X**	**X**		**X**
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?			**X**				
d	Animal burrows?			**X**				
e	Adverse vegetation?			**X**				
f	Erosion?			**X**				
4	***UPSTREAM SLOPE***							
a	Erosion? **The upstream slope is covered with geomembrane.**			**X**				
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?			**X**				
d	Longitudinal/Transverse cracking? **Could not observe due to the presence of the geomembrane liner.**	**X**						
e	Inadequate riprap?	**X**						
f	Stone deterioration?	**X**						
g	Settlements, slides, depressions, bulges?			**X**				
h	Animal burrows?			**X**				

Lined Decant Water Pond (LDWP)		SID: **D-635**	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**Minor rilling on the South and West Embankments (Photos IMG_6643, IMG_6648, IMG_6674, IMG_6700, and IMG_6702).**			**X**	**X**		
b	Inadequate ground cover?	**The LDWP South and West Embankment slopes are faced with bottom ash that supports only sporadic and uneven vegetation. A lime-based, white- and turquoise-colored dust suppression agent is applied in accordance with the Plant's Dust Control Plan.**		**X**				
c	Adverse vegetation?			**X**				
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap?		**X**					
f	Stone deterioration?		**X**					
g	Settlements, slides, depressions, bulges?	**No. See comment iv.**		**X**				
h	Soft spots or boggy areas?			**X**				
i	Movement at or beyond toe?			**X**				
j	Animal burrows?			**X**				
6	***ABUTMENT CONTACTS***							
a	Erosion?			**X**				
b	Differential movement?			**X**				
c	Cracks?			**X**				
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?			**X**				
f	Animal burrows?			**X**				
7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**The inflow pipes through the East Embankment were conveying water from the LAI at the time of the inspection.**			**X**	**X**		
b	Internal drains flowing?	**The leakage collection and evacuation system Interstitial Evacuation Pump was not active during the inspection (Photo IMG_6680), APS regularly monitors it for corrosion and replaces it when necessary. The auxiliary operators monitor this pump on their daily inspection.**			**X**	**X**		
c	Seepage at or beyond toe?			**X**				
d	If so, does seepage contain fines?		**X**					
e	Evidence of sand boils at or beyond toe?			**X**				

RESERVOIR CHECKLIST								
8	***RESERVOIR***							
a	High water marks?				**X**			
b	Erosion/slides into pool area?			**X**				
c	Sediment accumulation?	**Minor amounts of suspended FGD solids and fly ash may settle in the impoundment.**			**X**			
d	Floating debris present?			**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?			**X**				
g	Structures below dam crest elevation?	**The interstitial geomembrane leak detection and evacuation pump system includes a pump situated between the two geomembrane liners. See comment v.**			**X**			

Additional comments and recommendations for the LDWP:

i. An 8-inch diameter hole was observed at the toe of the LAI West Embankment where it meets the crest of the LDWP (Photo IMG_6732). Part of the hole appeared to have been made mechanically. The cause of the hole should be investigated under the supervision of a geotechnical engineer.

ii. Ponded rainwater was observed in the southwest corner near the Interstitial Evacuation Pump (Photo IMG_6671). Monitor this area for signs of erosion and monitor the nearby piezometer (P-19) for water level increases.

iii. Shallow erosion rills observed on the West and South Embankments during the inspection should be monitored and repaired if they are observed to exceed 1 foot in depth.

iv. The two shallow sloughs that were observed on the lower bench of the West Embankment in 2018 have been repaired (Photos IMG_6772 and IMG_6774).

v. The LDWP interstitial geomembrane leak detection and evacuation pump was not operating at the time of the inspection. Commercially available submersible pumps (Photo IMG_6680) break down on a regular basis due to the water chemistry in the LDWP. APS has determined that regularly replacing the pumps is more economical and feasible than temporarily decommissioning the entire pond and constructing a different access port configuration. Because the pump is replaced on a regular basis, the Plant should maintain an inventory of spares and monitor the system and replace the pump if it is degraded. The pump was placed back in service on November 23.

vi. Only one hole was observed in the liner during this inspection (Photo IMG_6768). One of the locations with damage observed during the 2018 inspection had been repaired prior to this inspection (Photo IMG_6766). Continue to monitor the liner for damage and repair it.

vii. The liner was observed to be pulling out of the anchor trench in isolated areas along the West and East Embankments (Photo IMG_6652). The magnitude of pullout does not appear to have changed compared to the 2017 and 2018 inspections. Continue to monitor.

viii. The weekly inspection reports for the period between October 1, 2018 and September 30, 2019 were reviewed and indicate the following:

   a. Signs of erosion requiring repair were observed on the dam crest, upstream slope, and downstream slope on May 30, 2019. A Service Request was written, repairs were made, and no signs of erosion were observed during subsequent inspections.

ix. The Operations and Maintenance (O&M) Manual for the LDWP identifies the maximum normal operating pond level as EL 5209.9 feet. APS should maintain the reservoir water level below the maximum operating elevation. The daily SIT status reports indicate that the impounded water elevation first exceeded EL 5213.2 feet on May 9, 2019 and remained above EL 5213.2 feet mid-May 2019 and mid-September 2019, reaching a maximum at EL 5214.65 feet between June 4 and June 9, 2019. The pumps that evacuate water from the LDWP (pumping water back to the plant for use) were run 24 hours a day to return the water level in the pond to safe storage condition. The pool elevation was below EL 5213.2 feet at the time of the inspection.

4.3 APS FIELD INSPECTION – COMBINED WASTE TREATMENT POND (CWTP)

<table>
<tr><td colspan="3">Combined Waste Treatment Pond (CWTP)</td><td colspan="3">State Identification Number (SID): N/A</td></tr>
<tr><td>SID: N/A</td><td>Dam Name: Combined Waste Treatment Pond (CWTP)</td><td colspan="2">Type: Earth</td><td>Purpose: CCR-transport surface water collection</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="3">Report Date: January 17, 2020</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="3">Inspection Date: November 19, 2019</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 14, 2020</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,335</td><td colspan="3">Design Spillway Crest Elevation (ft): 5,328.77</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 7</td><td colspan="3">Measured Total Freeboard (ft): Not measured</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 32 (max), 22.81 (avg)</td><td colspan="3">Structural Height (ft): 32 (max), 22.81 (avg)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 1,800</td><td colspan="2">Upstream Slope: 2:1</td><td>Downstream Slope: 1.5:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 24-30</td><td colspan="2">Lat: 34° 41′ 29.19″N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td colspan="2">Long: 108° 28′ 28.73″W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 13.4 (7.5 acres for reservoir, 5.9 acres for decant cells)</td><td colspan="3">Reservoir Storage (ac-ft): 137 (27 additional ac-ft for stormwater storage)</td></tr>
<tr><td colspan="5">Inflow Design Flood/Safe Flood-Passing Capacity: Not Calculated</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~EL 5329 (water was passing over the spillway)</td><td colspan="2" rowspan="2">Photos: Yes</td><td rowspan="2">Pages: 4</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): Variable (below EL 5328.77). The CWTP is periodically dredged to remove impounded solids.</td></tr>
</table>

Not Applicable | No | Yes | Monitor | Repair | Investigate

Combined Waste Treatment Pond (CWTP)		SID: N/A		N/A	No	Yes	Mon	Rep	Inv
		COMPLIANCE CHECKLIST							
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard: **Low**	Should hazard be revised?			**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **N/A**	Is there a significant increase since the last inspection?			**X**				
c	Recorded size: **Small**	Should size be revised?			**X**				
d	Any safety deficiencies? **No**	Describe:			**X**				
e	Any statute or rule violations? **No**	Describe and list required action:			**X**				
f	Safe storage level on License: **N/A**	Should level be revised:			**X**				
g	Any License violations? **No**	Describe and list required action:			**X**				
h	Date of current License: **N/A**	Should new License be issued?			**X**				
i	Date of last Emergency Action Plan revision: **N/A**	Should EAP be revised?			**X**				
j	Any Agency actions? **No**	Describe and list required action:			**X**				
k	Normal inspection frequency: **Weekly, Annually**	Should inspection frequency be revised?			**X**				
l	Recommended date for next inspection: **November 2020**								

		MONITORING CHECKLIST							
2	***INSTRUMENTATION AND MONITORING***								
a	Describe: **There are four monitoring wells for this structure to comply with groundwater monitoring requirements.**								
b	Any repair or replacement required? **N/A**	Describe: **N/A**		**X**					
c	Date of last monitoring report: **January 2019 (for 2018)**	Should new readings be taken and new report provided? **Annual reporting is required.**				**X**			

		DAM EMBANKMENT CHECKLIST							
3	***DAM CREST***								
a	Settlements, slides, depressions?				**X**				
b	Misalignment?				**X**				
c	Longitudinal/Transverse cracking?				**X**				
d	Animal burrows?				**X**		**X**		
e	Adverse vegetation?				**X**				
f	Erosion?				**X**				
4	***UPSTREAM SLOPE***								
a	Erosion? **See comment i.**					**X**	**X**		
b	Inadequate ground cover?				**X**				
c	Adverse vegetation? **See comment ii.**					**X**		**X**	
d	Longitudinal/Transverse cracking?				**X**				
e	Inadequate riprap? **No riprap was observed above the water line on the upstream slope.**					**X**			
f	Stone deterioration?			**X**					
g	Settlements, slides, depressions, bulges? **Portions of the slope are steeper than others (Photos IMG_6259 and IMG_6262).**					**X**	**X**		
h	Animal burrows? **None observed. Continue to monitor.**				**X**		**X**		

Combined Waste Treatment Pond (CWTP)		SID: N/A	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**See comment iii.**			**X**	**X**		
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?	**See comment ii.**			**X**	**X**		
d	Longitudinal/Transverse cracking?	**See comment iv.**			**X**	**X**		
e	Inadequate riprap?	**See comment v.**		**X**				
f	Stone deterioration?			**X**				
g	Settlements, slides, depressions, bulges?	**Portions of the downstream slope are uneven (Photos IMG_6242 and IMG_6280).**			**X**	**X**		
h	Soft spots or boggy areas?			**X**				
i	Movement at or beyond toe?	**Cannot observe.**	**X**					
j	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
6	***ABUTMENT CONTACTS***							
a	Erosion?			**X**				
b	Differential movement?			**X**				
c	Cracks?			**X**				
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?			**X**				
f	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**None.**						
b	Internal drains flowing?		**X**					
c	Seepage at or beyond toe?	**Cannot observe.**	**X**					
d	If so, does seepage contain fines?		**X**					
e	Evidence of sand boils at or beyond toe?		**X**					

RESERVOIR CHECKLIST								
8	***RESERVOIR***							
a	High water marks?			**X**				
b	Erosion/slides into pool area?			**X**				
c	Sediment accumulation?	**See comment vi.**			**X**			
d	Floating debris present?			**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?	**A weir allows overflow into the NPDES outlet.**			**X**			
g	Structures below dam crest elevation?	**Twin 30-inch reinforced concrete pipe outlets are located at the eastern side of the CWTP.**			**X**			

Additional comments and recommendations for the CWTP:

i. The irregular erosion along the upstream slope (Photo IMG_6262) appears to be similar compared to the 2018 inspection. An erosion gully was observed in this area (Photo IMG_6255). Continue to monitor the area and repair erosion if it exceeds 1 foot in depth.

ii. Vegetation (grass, small trees, and shrubs) was observed on portions of the upstream and downstream slopes during this inspection (Photos IMG_6242, IMG_6257, IMG_6259, and IMG_6274). These grasses have grown substantially over the last few years and the upstream slope is obscured in these areas. The grasses should be cut. The woody vegetation on the upstream slope should be removed if needed using the NMOSE vegetation management guidelines (NMOSE 2011).

iii. Instances of minor erosion were observed on the downstream slope (Photos IMG_6260 and IMG_6272). Continue to monitor these areas and repair erosion if it exceeds 1 foot in depth.

iv. A series of aligned holes, up to 2 feet deep and across a length of approximately 4 feet, was observed on the downstream slope where the embankment transitions from west-east to northwest-southeast (Photo IMG_6266). The area should be monitored and repaired if the cracks expand in depth or extent. These holes were observed in a different location than the series of longitudinal cracks observed along the downstream slope during the 2018 inspection. The longitudinal cracks observed during the 2018 inspection were not observed during this inspection.

v. APS installed additional riprap on the downstream slope of the embankment in August 2017 to prevent wave erosion along the slope. The additional riprap was placed from approximately 5 feet below the canal water surface to approximately 2 feet above the canal water surface.

vi. The facility includes seven decant cells and one forebay cell in the western half of the CWTP. Flow from the collection distribution vault is directed to the selected cells. Settled solids are periodically removed and decanted water flows to the CWTP free water pond. Suspended sediment and CCR settle in the decant cells in the western half of the impoundment.

vii. The weekly inspection reports for the period between October 1, 2018 and September 30, 2019 were reviewed and do not indicate that there were any appearances of actual or potential structural weakness or other conditions which have the potential to disrupt the operation or safety of the CCR unit.

4.4 APS FIELD INSPECTION – DRY FLY ASH DISPOSAL AREA (DFADA)

<table>
<tr><td colspan="2">Dry Fly Ash Disposal Area (DFADA)</td><td colspan="2">State Identification Number (SID): N/A</td><td rowspan="12">Not Applicable</td><td rowspan="12">No</td><td rowspan="12">Yes</td><td rowspan="12">Monitor</td><td rowspan="12">Repair</td><td rowspan="12">Investigate</td></tr>
<tr><td>SID: N/A</td><td>Landfill Name: Dry Fly Ash Disposal Area (Cells 1, 2, and 3)</td><td>Type: Lined Landfill</td><td>Purpose: Permanent storage of dry CCR (fly ash, bottom ash, dry FGD solids) and select construction debris (e.g. concrete and wood)</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 17, 2020</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Dennis Carlson (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: November 20, 2019</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 14, 2020</td></tr>
<tr><td colspan="2">Design Maximum Ash Elevation (ft): 5,295</td><td colspan="2">Current Ash Elevation (ft):
Based on survey data from FHI:
Cell 1 is ~ EL 5290 feet (July 2019)
Cell 2 is ~ EL 5280 feet (July 2019)
Cell 3 is ~ EL 5216-5286 feet (July 2019)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): Not applicable</td><td>Design Side Slope:
Varies. 4:1 on final outside slopes, 2:1 on internal slopes.</td><td>Observed Side Slope:
Varies. 4:1 on final outside slopes, 2:1 on internal slopes.</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): Not applicable</td><td>Lat: 36°40'43.27"N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108°30'12.2"W</td></tr>
<tr><td colspan="2">Landfill Area (acres): 94.8 (Current, Cells 1, 2, and 3)</td><td colspan="2">Landfill Capacity (ac-ft): 6,261 for Cells 1, 2, and 3</td></tr>
<tr><td colspan="4">Inflow Design Flood/Safe Flood-Passing Capacity: Diversion of 100-year, 24-hour run-on storm. Storage of impacted run-off from 25-year, 24-hour storm, spillway passage of impacted run-off from 100-year, 24-hour storm.</td></tr>
<tr><td colspan="2">Photos: Yes</td><td colspan="2">Pages: 3</td></tr>
</table>

Dry Fly Ash Disposal Area (DFADA)		SID: N/A		N/A	No	Yes	Mon	Rep	Inv
MONITORING CHECKLIST									
1	***INSTRUMENTATION AND MONITORING***								
a	Describe:	**There are no instruments or other monitoring devices for this structure.**							
b	Any repair or replacement required?	**N/A**	Describe: **N/A**		**X**				
c	Date of last monitoring report:	**January 2019 (for 2018)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			
2	***CONDITION SUMMARY***								
a	Waste placed in good practices?					**X**			
3	***LANDFILL CONFIGURATION***								
a	Settlements, slides, slope instability?				**X**				
b	Cracking?				**X**				
c	Run on control?	**See comment i.**				**X**	**X**	**X**	
d	Run off control?					**X**			
e	Erosion?				**X**				
f	Dust control issues?				**X**				

Additional comments and recommendations for the DFADA:

i. There is evidence of head-cutting at the inlet to the Stormwater Diversion Channel (Photo IMG_6855). The affected area appears to be relatively unchanged compared to the 2015, 2016, 2017, and 2018 observations. Sediment is accumulating in the adjacent detention basin.

ii. In mid-2019, APS initiated construction of an interim soil cover layer for portions of Cells 1 and 3. At the time of the field inspection, APS was placing ash in the eastern portion of Cell 3 (Photos IMG_6508, IMG_6519, and IMG_6523). The construction contractor has begun placing the infiltration and erosion layers of the soil cover (Photo IMG_6842). This construction is concurrent with the subgrade preparation for DFADA Cell 4, which is being constructed to the south of Cells 1 and 2 (Photo IMG_6839).

iii. Run on control – The run on control system consists of a detention basin and diversion ditch to direct storm water around the DFADA. The absence of excessive erosion at the toe of Cells 1 and 2 indicates that the run on control system is functioning as intended.

iv. Run off control – There are no external runoff collection ditches. Internal drain systems report to two separate lined leachate cell collection ponds for Cells 1 and 2 (Photo IMG_6498). Cell 3 drains to the Cell 1 collection pond. The water level in these two ponds is maintained by the ash haul contractor by use of a mobile suction pump. This water is utilized for dust control on site.

v. Reeds have colonized the DFADA Cell 1 leachate collection pond (Photos IMG_6498 and IMG_6804). The leachate collection ponds are designed to contain the 25-year, 24-hour design storm event (URS 2015). The reeds should be monitored and removed if they are judged to be reducing the available retention volume.

vi. The weekly inspection reports for the period between October 1, 2018 and September 30, 2019 were reviewed indicate the following:

a. A notation to monitor for cracking on the landfill crest was noted in the weekly inspection report dated September 9, 2019. No further notation regarding cracks or cracking was made during subsequent inspections.

vii. The weekly inspection reports do not indicate that there were any appearances of actual or potential structural weakness or other conditions which have the potential to disrupt the operation or safety of the CCR unit.

5.0 DATA REVIEW

5.1 LINED ASH IMPOUNDMENT

5.1.1 Geometry Changes Since Last Inspection

There have not been any significant changes to the geometry of the unit since the last inspection in 2018.

5.1.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the LAI are shown on Figure 5 – Lined Ash Impoundment (LAI) Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2018 – September 30, 2019 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
LAI Piezometers (10/1/18 to 9/30/19)			
P-7.1	5196.87[1]	5196.87[1]	elevation head
P-7.2	5191.35[1]	5191.35[1]	elevation head
P-7.3	5184.75[1]	5184.75[1]	elevation head
P-8.1	5196.60[1]	5196.60[1]	elevation head
P-8.2	5182.10[1]	5182.10[1]	elevation head
P-8.3	5174.10[1]	5174.10[1]	elevation head
P-9.1	5196.87[1]	5196.87[1]	elevation head
P-9.2	5183.97[1]	5183.97[1]	elevation head
P-9.3	5170.87[1]	5170.87[1]	elevation head
P-10.1	5198.22[1]	5198.22[1]	elevation head
P-10.2	5184.22[1]	5184.22[1]	elevation head
P-10.3	5173.72[1]	5173.72[1]	elevation head
P-11.1	5200.79	5201.84	elevation head
P-11.2	5189.65[1]	5189.65[1]	elevation head
P-11.3	5174.65[1]	5174.65[1]	elevation head
P-12.1	5202.54[1]	5202.54[1]	elevation head
P-12.2	5186.54[1]	5186.54[1]	elevation head
P-12.3	5176.54[1]	5176.54[1]	elevation head
[1] Porewater pressure measurements are negative (draining condition). The reported elevation is for the tip of the instrument.			

Instrument Name	Minimum	Maximum	Unit
NTB Piezometers (10/1/18 to 9/30/19)			
P-100.1	5202.06[1]	5202.06[1]	elevation head
P-100.2	5190.06[1]	5190.06[1]	elevation head
P-100.3	5183.23[1]	5183.23[1]	elevation head
P-101.1	5185.93[1]	5186.04	elevation head
P-101.2	5181.98	5183.13	elevation head
P-101.3	5169.66	5171.52	elevation head
P-102.1	5188.85[1]	5188.85[1]	elevation head
P-102.2	5174.60[1]	5174.60[1]	elevation head
P-102.3	5167.44[1]	5167.93	elevation head
P-103.1	5185.91[1]	5185.91[1]	elevation head
P-103.2	5170.91[1]	5170.91[1]	elevation head
P-103.3	5160.24[1]	5160.24[1]	elevation head
P-104.1	5198.72[1]	5198.72[1]	elevation head
P-104.2	5185.47[1]	5185.47[1]	elevation head
P-104.3	5178.47[1]	5178.47[1]	elevation head
P-105.1	5184.82[1]	5184.82[1]	elevation head
P-105.2	5174.16[1]	5174.16[1]	elevation head
P-105.3	5162.16[1]	5162.16[1]	elevation head
P-106.1	5186.09[1]	5186.09[1]	elevation head
P-106.2	5165.51[1]	5165.51[1]	elevation head
P-106.3	5159.88	5160.46	elevation head
P-107.1	5197.27[1]	5197.29	elevation head
P-107.3	5173.44[1]	5173.44[1]	elevation head
P-108.1	5184.26[1]	5184.26[1]	elevation head
P-108.2	5173.59[1]	5173.59[1]	elevation head
P-108.3	5172.68	5174.37	elevation head
P-109.1	5188.76[1]	5188.76[1]	elevation head
P-109.2	5172.51[1]	5172.51[1]	elevation head
P-109.3	5164.93[1]	5164.93[1]	elevation head
P-110.1	5184.28[1]	5184.64	elevation head
P-110.2	5171.86[1]	5171.86[1]	elevation head
P-110.3	5163.44[1]	5163.44[1]	elevation head
P-111.1	5187.29[1]	5187.29[1]	elevation head
P-111.2	5172.33[1]	5172.33[1]	elevation head
P-111.3	5160.19	5160.34	elevation head

[1] Porewater pressure measurements are negative (draining condition). The reported elevation is for the tip of the instrument.

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/18 to 9/30/19)			
SM7[2]	5214.995	5215.460	EL (ft)
SM9[2]	5215.733	5216.729	EL (ft)
Settlement Rods (10/1/18 to 9/30/19)			
SR-7	5250.155	5250.345	EL (ft)
SR-8	5255.635	5255.770	EL (ft)
SR-9	5248.067	5248.201	EL (ft)
SR-10	5248.361	5248.525	EL (ft)
SR-100	5221.649	5222.070	EL (ft)
SR-101	5204.810	5205.285	EL (ft)
SR-102	5204.637	5204.975	EL (ft)
SR-104	5218.598	5219.155	EL (ft)
SR-105	5204.401	5204.805	EL (ft)
SR-106	5204.793	5205.025	EL (ft)
SR-109	5205.944	5206.175	EL (ft)
SR-110	5205.340	5205.812	EL (ft)
Inclinometers (10/1/18 to 9/30/19)			
I-1	0	0.1524	in
I-2	0	0.1260	in
I-103	0	0.1410	in
I-107	0	0.1002	in
I-111	0	0.0864	in
Open Standpipe Piezometers (10/1/18 to 9/30/19)			
P-23	5155.48	5157.08	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

2) No data is available for the settlement monuments between 3/8/2018 and 3/4/2019. In addition, the elevations recorded at SM-7 starting on 3/4/2019 appear to be at least 5.6 inches lower than the elevations recorded at SM-7 prior to 3/4/2019. The elevations recorded at SM-9 starting on 3/4/2019 appear to be at least 4.7 inches lower than the elevations recorded at SM-9 prior to 3/4/2019.

The data for the piezometers over the current review period indicate no significant elevation changes or trends related to the performance of the dam.

The data for the survey monuments and settlement rods is unusual. During the period of transition from in-house surveyor to a third-party surveyor, no instrument survey data are available for the period between March 8, 2018 to March 4, 2019. When the monthly survey was re-initiated by the third-party surveyor in March 2019, the measured elevations were all lower than the prior readings by between 4.5 and 7 inches. While it is likely that systematic survey bias is affecting either the previous or recent results, APS will verify the bias with an independent or parallel comparison survey. The data for the vibrating wire piezometers corresponding to the survey monuments and

settlement rods do not indicate a significant change or negative trend related to the performance of the dam.

The data for the inclinometers over the current review period indicate no significant changes or trends related to the performance of the dam.

5.1.3 CCR and Water Elevations

The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection is presented in the following table:

Water	Depth of Water (ft) (calculated)	Water Elevation (ft) (measured)	Measurement Location
Minimum	Not available	Not available	Not available
Maximum	Not available	Not available	Not available
Present (this inspection)	5.0	5274.5	Southwest Corner (STA 36+00)
CCR	**Depth of CCR (ft) (calculated)**	**CCR Elevation (ft) (measured)**	**Measurement Location**
Minimum (North Corner)	12.47	5286.47	Emergency Ladder on the north end of the LAI (STA 87+04)
Maximum (West Embankment)	70.3	5275.3	Emergency Ladder on the West Embankment near the Drop Inlet Structure (STA 57+00)
Present (this inspection)	70.3	5275.3	Emergency Ladder on the West Embankment near the Drop Inlet Structure (STA 57+00)

APS does not normally record the water level in the LAI. The present depth of water (5.0 feet) is estimated based on an assumed top of ash at EL 5269.5 feet in the Southwest Corner of the impoundment, a value recorded in 2014 prior to the ash being submerged at STA 36+00.

CCR is deposited in the northeast corner of the LAI and slopes from northeast to southwest. The elevation of the CCR is estimated during the inspection by recording where it is impounded against the slope at the emergency ladders and the distance from the crest to the ash. The depth of the CCR at the time of the inspection is estimated by subtracting the bottom of the LAI (EL 5205 feet) from the estimated average ash elevation (the average ash elevation is assumed to be near the Drop Inlet Structure at STA 57+00).

5.1.4 Storage Capacity

The maximum storage capacity of the LAI is 5,986 acre-feet (ac-ft) based on the 2012 elevation-area-capacity curve (EAC) (URS 2012).

5.1.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded CCR in the LAI at the time of the inspection was 5,390.19 ac-ft based on the average impounded volume at EL 5275.3 feet from the 2012 EAC (URS 2012).

5.1.6 Structural Weakness or Operational Change/Disruption

No conditions associated with structural weakness were identified during the field inspection.

The locations along the South Embankment where holes appeared to have been cut in the geomembrane liner observed during the 2018 inspection appeared to have been repaired prior to this inspection; however, an additional hole appeared to have been cut in this area (Photo IMG_6506) and a second hole appeared to have developed at a seam near a previous repair.

There are no significant changes to the structural integrity or operation of the dam since the 2018 inspection.

5.2 LINED DECANT WATER POND

5.2.1 Geometry Changes Since Last Inspection

There have not been any significant changes to the geometry of the unit since the last inspection in 2018.

5.2.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the LDWP are shown on Figure 6 – Lined Decant Water Pond (LDWP) Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2018 – September 30, 2019 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/18 to 9/30/19)			
SM7[1]	5214.995	5215.460	EL (ft)
SM9[1]	5215.733	5216.729	EL (ft)
Open Standpipe Piezometers (10/1/18 to 9/30/19)			
P-18	Dry	Dry	EL (ft)
P-19	Dry	Dry	EL (ft)
P-20	Dry	Dry	EL (ft)
P-21	Dry	Dry	EL (ft)
P-22	Dry	Dry	EL (ft)
P-23	5155.48	5157.08	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

1) No data is available for the settlement monuments between 3/8/2018 and 3/4/2019. In addition, the elevations recorded at SM-7 starting on 3/4/2019 appear to be at least 5.6 inches lower than the elevations recorded at SM-7 prior to 3/4/2019. The elevations recorded at SM-9 starting on 3/4/2019 appear to be at least 4.7 inches lower than the elevations recorded at SM-9 prior to 3/4/2019.

The data for the survey monuments and settlement rods is unusual. During the period of transition from in-house surveyor to a third-party surveyor, no instrument survey data are available for the period between March 8, 2018 to March 4, 2019. When the monthly survey was re-initiated by the third-party surveyor in March 2019, the measured elevations were all lower than the prior readings by between 4.5 and 7 inches. While it is likely that systematic survey bias is affecting either the previous or recent results, APS will verify the bias with an independent or parallel comparison survey. The data for the vibrating wire piezometers corresponding to the survey monuments and settlement rods do not indicate a significant change or negative trend related to the performance of the dam.

The data for the piezometers over the current review period indicate no significant elevation changes or trends related to the performance of the dam.

5.2.3 CCR and Water Elevations

The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection is presented in the following table:

Water	Depth of Water (ft) (calculated)	Water Elevation (ft) (measured)	Measurement Location
Minimum	1.1	5205.50	Staff gauge near the East Embankment
Maximum	12.65	5214.65	Elevation marks on the liner
Present (this inspection)	7.4	5211.80	Staff gauge near the East Embankment
CCR	**Depth of CCR (ft)**	**CCR Elevation (ft)**	**Measurement Location**
Minimum	Not applicable	Not applicable	Not applicable
Maximum	Not applicable	Not applicable	Not applicable
Present (this inspection)	Not applicable	Not applicable	Not applicable

The LDWP does not impound a significant quantity of solids. It is used to impound CCR transport water decanted from the LAI. Therefore, the CCR depth is minimal and not normally measured.

The water elevation is monitored using the staff gauge in the pond along the East Embankment and the elevation markings written on the liner. At the staff gauge, the original grade (top of Ash Pond 3) is approximately EL 5204.4 based on APS Drawing FC-C-17-ADS-150793-2 Rev 1 (APS 2004). The minimum elevation of the LDWP (top of Ash Pond 3) is EL 5202 (in the southwest corner) based on Sections D and E in APS Drawing FC-C-17-ADS-150793-4 (APS 2004).

5.2.4 Storage Capacity

The storage capacity of the LDWP is 435 ac-ft at EL 5213.2 feet. The maximum storage capacity of the LDWP is 517 ac-ft at EL 5216 feet based on the 2012 EAC (URS 2012).

5.2.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water in the LDWP at the time of the inspection was 373.75 ac-ft.

5.2.6 Structural Weakness or Operational Change/Disruption

No conditions associated with structural weakness were identified during the field inspection.

Reviewed records indicate that the LDWP experienced an operational disruption during 2019. Per the O&M Manual for the LDWP dam, the maximum operating level of the pond should not exceed EL 5209.9 feet to maintain sufficient freeboard to contain runoff from a PMP storm event and for wave set-up and run-up. LDWP operating records indicate that the impounded water elevation was higher than EL 5209.9 feet between mid-April 2019 and mid-September 2019. LDWP operating records further indicate that the impounded water elevation was higher than EL 5213.2 feet between mid-May 2019 and mid-September 2019 and was at EL 5211.8 feet, 1.9 feet above the

normal operating maximum level, at the time of the field inspection. The LDWP should not be operated above EL 5209.9 feet under normal conditions.

There are no significant changes to the structural integrity or operation of the dam since the 2018 inspection.

5.3 COMBINED WASTE TREATMENT POND

5.3.1 Geometry Changes Since Last Inspection

There have not been any significant changes to the geometry of the unit since the last inspection in 2018.

5.3.2 Instrumentation

There are no instruments associated with the CWTP.

5.3.3 CCR and Water Elevations

The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection is presented in the following table:

Water	Depth of Water (ft) (calculated)	Water Elevation (ft) (measured)	Measurement Location
Minimum	Not available	Not available	APS does not regularly record the water elevation.
Maximum	Not available	Not available	
Present (this inspection)	~10	5329 (NGVD29)	Spillway Crest
CCR	**Depth of CCR (ft) (estimated)**	**CCR Elevation (ft) (estimated)**	**Measurement Location**
Minimum	Not available	Not available	APS does not record the ash level.
Maximum	Not available	Not available	
Present (this inspection)	7.68	5319 (NGVD29)	Assumed from 2016 bathymetry*

*The majority of the solids are caught in the decant cells on the west side of the CWTP.

CCR solids in the CWTP reservoir are typically submerged and periodically dredged; however, the typical CCR elevation is assumed to be approximately EL 5322 feet (NAVD88; approximate EL 5319 feet NGVD29) based on historic bathymetry.

APS does not regularly record or track the water elevation in the CWTP. Water in the CWTP normally overflows a weir on the east side of the reservoir and flows into Morgan Lake. The elevation of the water as it flows over the weir wall is generally constant at EL 5329 feet.

5.3.4 Storage Capacity

The estimated storage capacity of the CWTP reservoir is 164 ac-ft.

5.3.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water and solids in the CWTP reservoir at the time of the inspection was 137 ac-ft based on the impounded water elevation.

5.3.6 Structural Weakness or Operational Change/Disruption

The inspection identified a series of aligned holes up to 2 feet deep and across a length of approximately 4 feet forming along the downstream slope where the embankment transitions from

west-east to northwest-southeast (Photo IMG_6266). The area should be monitored and the cracks should be repaired to prevent a disruption to the normal operation of the CCR unit if they are observed to expand.

There are no significant changes to the structural integrity or operation of the dam since the 2018 inspection.

5.4 UPPER RETENTION SUMP

5.4.1 Geometry Changes Since Last Inspection

APS completed the Upper Retention Sump replacement on December 14, 2018 and removed the old Upper Retention Sump from service. The new Upper Retention Sump is a concrete tank and not subject to the EPA CCR Rule (EPA 2015).

5.5 DRY FLY ASH DISPOSAL AREA

5.5.1 Geometry Changes Since Last Inspection

Cell 3 continued to receive ash loading after the 2018 inspection. Cell 3 is divided into approximately three sequential sections from the east to the west. APS has been placing ash in the easternmost section to bring the eastern third of Cell 3 up to the same elevation as the South Embankment of the LAI in preparation for the placement of an infiltration and erosion layer of a soil cap. APS has already graded the top of Cell 1 and was in the process of installing an interim soil cover layer during the inspection.

5.5.2 Instrumentation

There are no instruments associated with the DFADA.

5.5.3 CCR Volume

The approximate volume of CCR in the DFADA at the time of the inspection was estimated to be 5,036.6 ac-ft based on the July 2019 survey performed by the ash placement contractor (FHI).

5.5.4 Structural Weakness or Operational Change/Disruption

No conditions associated with structural weakness were identified during the field inspection.

No conditions that are or could be disruptive to the operation and safety of the CCR unit and appurtenant structures were identified during the field inspection.

There are no significant changes to the structural integrity of the landfill since the 2018 inspection.

6.0 OPERATION AND MAINTENANCE RECOMMENDATIONS

The following items were noted during inspections as requiring attention.

6.1 LINED ASH IMPOUNDMENT

Observed Condition	Action Item
1) Two holes were observed in the geomembrane liner along western portion of the South Embankment. These holes are near the area where previous holes were observed to have been cut in the liner. One of the new holes appears to be a cut and the other may be due to the liner separating at a seam from a previous repair.	The presence and identified causes of the liner damage should be recorded and any tears should be repaired in accordance with the recommendation of the geotechnical engineer. Repair documentation should be recorded.
2) There are two bulges and a depression along the upstream slope in the Southwest Corner of the LAI.	The presence and identified causes of the bulges and depression should be recorded and any tears should be repaired in accordance with the recommendation of the geotechnical engineer. Repair documentation should be recorded.
3) Cracks were observed in the anchor trench in the Northwest Embankment.	Monitor the cracks and repair them if they extend below the anchor trench excavation or begin to manifest in the rest of the crest.
4) There is a small hole in the crest of the LDWP along the LAI toe of the West Embankment.	Repair the hole under the direction of a geotechnical engineer.
5) The survey monument and settlement rod data indicate settlement of several inches over the course of the 1-year data gap when surveyors changed.	Perform an additional or parallel survey for the survey monuments and settlement rods either to verify that there is a survey bias or to confirm the presence of settlement. If settlement is confirmed, investigate the cause and initiate monitoring and evaluation protocol as listed in the Comprehensive Instrumentation Plan (URS 2014).

6.2 LINED DECANT WATER POND

Observed Condition	Action Item
1) The liner in the anchor trench in the central portion of the West Embankment appeared to be pulling out of the trench.	Continue to monitor the liner in the anchor trench. Re-anchor the liner if the liner continues to pull out of the trench.
2) Minor erosion rilling was observed on the West and South downstream slopes of the LDWP at the time of the inspection.	Continue ongoing repair program for repairing rills if the erosion depth exceeds 1 foot.
3) There is a small hole in the liner at the crest elevation along the North Embankment.	Repair the hole.
4) There is a small hole in the crest of the LDWP along the LAI toe of the West Embankment.	Repair the hole under the direction of a geotechnical engineer.
5) The impounded water level in the LDWP was at or above the safe storage level on the operating license and above the maximum operating elevation for several months during 2019.	Maintain the impounded water EL below 5209.9 feet.
6) The survey monument data indicate settlement of several inches over the course of the 1-year data gap when surveyors changed.	Perform an additional or parallel survey for the survey monuments either to verify that there is a survey bias or to confirm the presence of settlement. If settlement is confirmed, investigate the cause and initiate monitoring and evaluation protocol as listed in the Comprehensive Instrumentation Plan (URS 2014).
7) Ponded rainwater was observed in the southwest corner near the Interstitial Evacuation Pump.	Monitor this area for signs of erosion and monitor the nearby piezometer (P-19) for water level increases.

6.3 COMBINED WASTE TREATMENT POND

Observed Condition	Action Item
1) Vegetation (grass, small trees, and shrubs) was observed on portions of the upstream and downstream slopes during this inspection.	This is an ongoing maintenance requirement. The grasses should be cut and vegetation removal along the upstream and downstream slopes should be performed in accordance with the NMOSE vegetation maintenance guidelines "*Vegetation Management on Dams*" (2011) reference.
2) Instances of minor erosion were observed along the upstream and downstream slopes.	Continue to monitor these areas and repair erosion if it exceeds 1 foot in depth.
3) A series of aligned holes, up to 2 feet deep and across a length of approximately 4 feet, was observed on the downstream slope where the embankment transitions from west-east to northwest-southeast.	The area should be monitored and repaired if the cracks expand in depth or extent..
4) Erosion along the upstream slope resulting in an irregular face.	Continue to monitor the area repair the area if required to bring it to the design slope (2H:1V).
5) Continue to monitor the embankment for animal burrows.	This is an ongoing maintenance requirement. Repair animal burrows as needed.

6.4 DRY FLY ASH DISPOSAL AREA

Observed Condition	Action Item
1) There is erosion at the inlet and outlet of the Stormwater Diversion Channel.	With future expansion of the DFADA, perform an engineering re-evaluation to understand whether the run off pattern has changed or whether a different erosion control method should be applied. Monitor erosion and repair as required. Alternately, place additional sandstone riprap in the eroded area.
2) Several plants are growing through the Pyramat geosynthetic along the western toe of Cell 1.	Monitor the plant growth and remove the vegetation if it is determined to be damaging the primary geomembrane liner.
3) A colony of reeds is growing in the Cell 1 leachate collection pond.	The reeds should be monitored and removed if they are judged to be reducing the available retention volume.

7.0 REFERENCES

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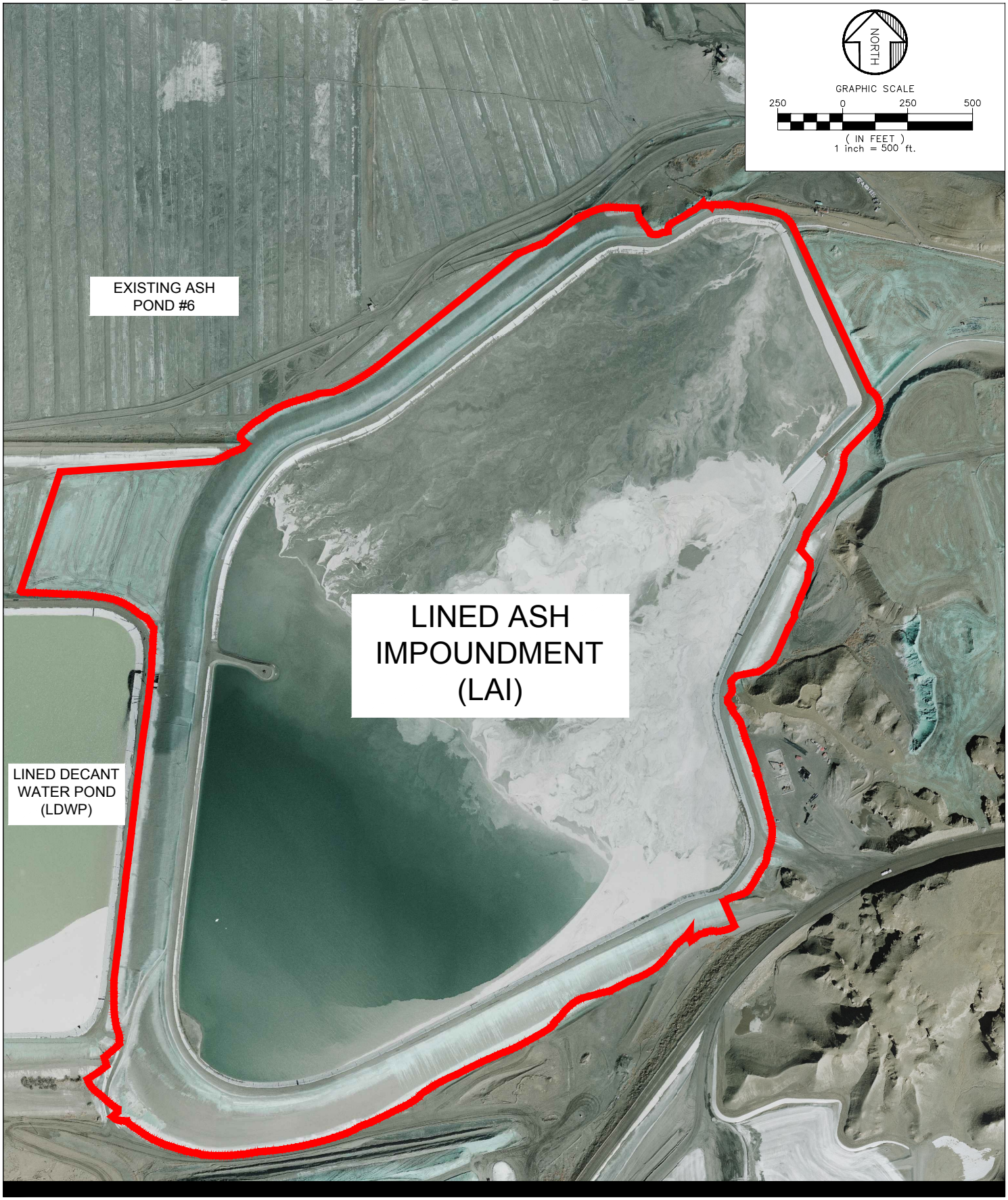
FIGURES

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 1 - LAI.DWG
ANSI A 8.5" x 11"



FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

LINED ASH IMPOUNDMENT (LAI)

AECOM

FIGURE 1

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 2 - LDWP.DWG
ANSI A 8.5" x 11"

FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

LINED DECANT WATER POND (LDWP)

AECOM

FIGURE 2

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 3 - CWTP.DWG
ANSI A 8.5" x 11"

FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

COMBINED WASTE TREATMENT POND (CWTP)

AECOM

FIGURE 3

Last saved by: LEE.WRIGHT(2019-12-03) Last Plotted: 2019-12-03
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60616173_2019_FCPP_DAM_INSPECTIONS\900 - CAD, GIS\910_CAD\25-SKETCHES\FIGURE 4 - DFADA.DWG
ANSI A 8.5" x 11"

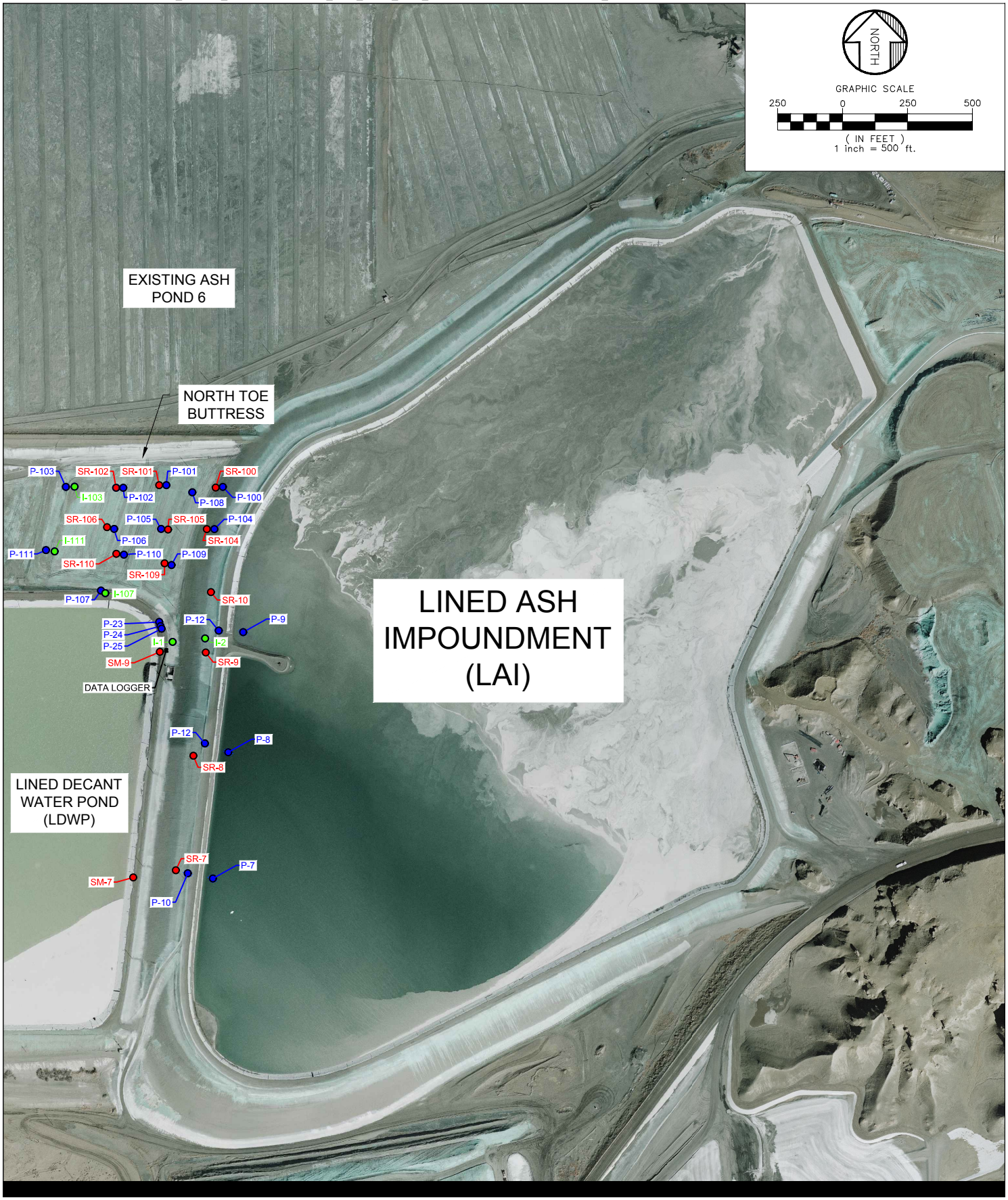
FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

DRY FLY ASH
DISPOSAL AREA
(DFADA)

AECOM

FIGURE 4

Last saved by: LEE.WRIGHT(2019-12-03) Last Plotted: 2019-12-03 ANSI A 8.5" x 11"
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60616173_2019_FCPP_DAM_INSPECTIONS\900 - CAD, GIS\910_CAD\25-SKETCHES\FIGURE 5 - LAI INSTRUMENTATION MAP.DWG



FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

LINED ASH IMPOUNDMENT (LAI) INSTRUMENTATION MAP

AECOM

FIGURE 5

Last saved by: LEE.WRIGHT(2019-12-03) Last Plotted: 2019-12-03 ANSI A 8.5" x 11"
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60616173_2019_FCPP_DAM_INSPECTIONS\900 - CAD, GIS\910_CAD\25-SKETCHES\FIGURE 6 - LDWP INSTRUMENTATION MAP.DWG

FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

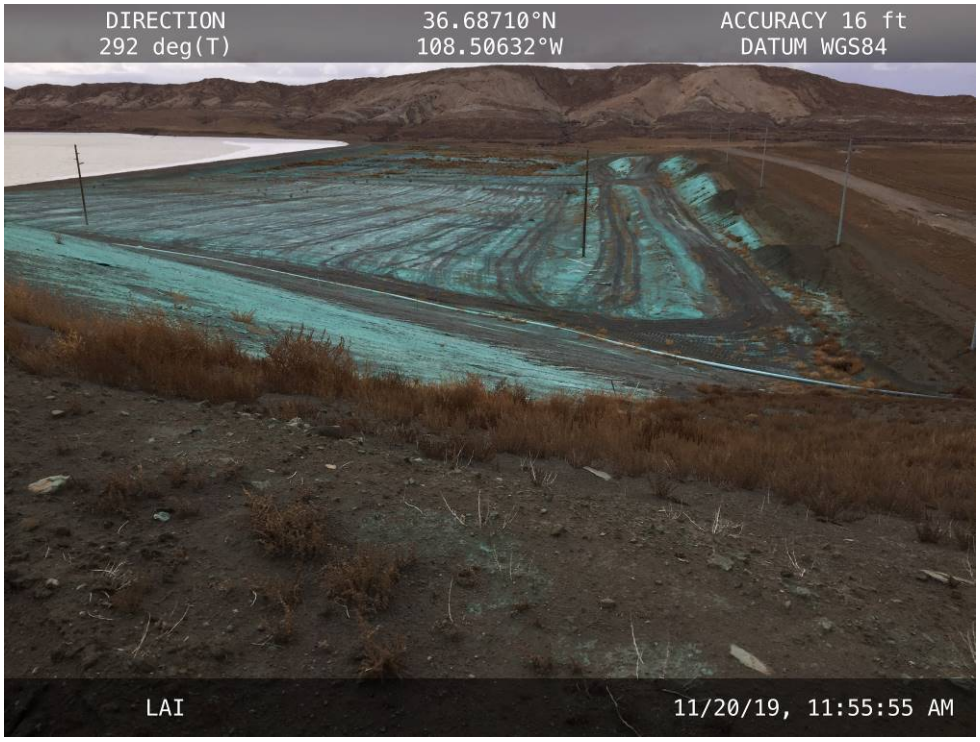
LINED DECANT WATER POND (LDWP) INSTRUMENTATION MAP

AECOM

FIGURE 6

APPENDIX A

LINED ASH IMPOUNDMENT (LAI) PHOTO LOG



20191120 – IMG_6451
The North Toe Buttress, facing west from the crest of the West Embankment.

20191120 – IMG_6452
The crest of the West Embankment, facing south.

20191120 – IMG_6459
The downstream slope of the West Embankment, facing north toward Pond 6.

20191120 – IMG_6463
The downstream slope of the West Embankment, facing south from the north end.

20191120 – IMG_6464
The upstream slope of the West Embankment, facing south from the Drop Inlet Structure.

20191120 – IMG_6465
The upstream slope of the West Embankment, facing south from the Drop Inlet Structure.

20191120 – IMG_6468

The Drop Inlet Structure with pipes used to convey water when pumped from the Southwest Corner. The ash working platform has been raised since the previous inspection.

20191120 – IMG_6476

The downstream slope of the West Embankment, facing south near the Drop Inlet Structure.

20191120 – IMG_6477
The crest of the West Embankment, facing south near the Drop Inlet Structure.

20191120 – IMG_6478
The upstream slope of the West Embankment, facing north toward the Drop Inlet Structure.

20191120 – IMG_6481
The upstream slope of the West Embankment, facing south from the embankment midpoint.

20191120 – IMG_6483
The downstream slope at the south end of the West Embankment, facing south.

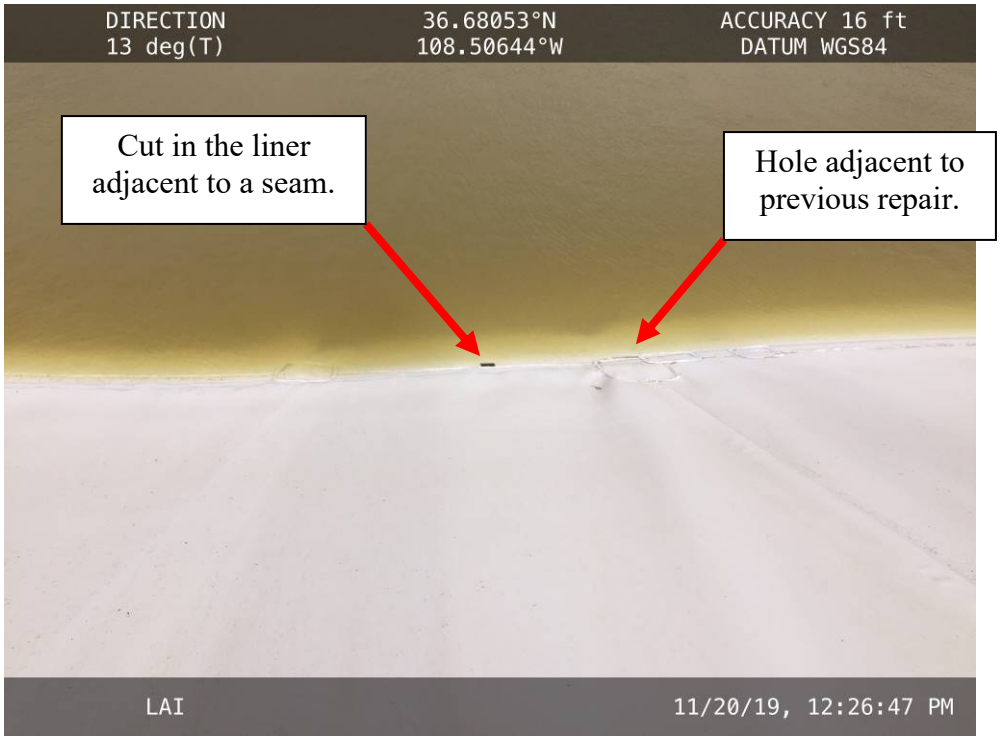
20191120 – IMG_6485
The downstream slope of the West Embankment, facing north from the Southwest Corner.

20191120 – IMG_6487
The crest of the West Embankment, facing north from the south end.

20191120 – IMG_6494
The upstream slope of the West Embankment, facing north from the Southwest Corner.

20191120 – IMG_6503
The upstream slope of the South Embankment, facing east from the Southwest Corner.

20191120 – IMG_6504
Uneven section of the upstream liner along the South Embankment.



20191120 – IMG_6506
Two holes in the liner along the upstream slope on the South Embankment.

20191120 – IMG_6513
The upstream slope of the South Embankment, facing west.

20191120 – IMG_6517
The upstream slope of the South Embankment, facing east.

20191120 – IMG_6527
The downstream slope of the South Embankment, facing west.

20191120 – IMG_6541
The crest of the East Embankment, facing north from the ash stockpile in the southeast corner.

20191120 – IMG_6549
The downstream slope of the East Embankment.

20191120 – IMG_6552
The upstream slope of the East Embankment, facing north.

20191120 – IMG_6578
FGD sludge being deposited into the LAI from the V-ditch at the East Embankment.

20191120 – IMG_6581
The pond and upstream slope north of the V-ditch, facing north.

20191120 – IMG_6584
The pond on the north side of the impoundment, facing north.

20191120 – IMG_6595
The pond and upstream slope on the north end of the LAI, facing south.

20191120 – IMG_6600
The downstream slope of the Northwest Embankment, facing west.

20191120 – IMG_6605
The downstream slope of the Northwest Embankment, facing east.

20191120 – IMG_6612
Longitudinal cracks at the anchor trench along the Northwest Embankment.

20191120 – IMG_6614
The upstream slope of the Northwest Embankment, facing southwest.

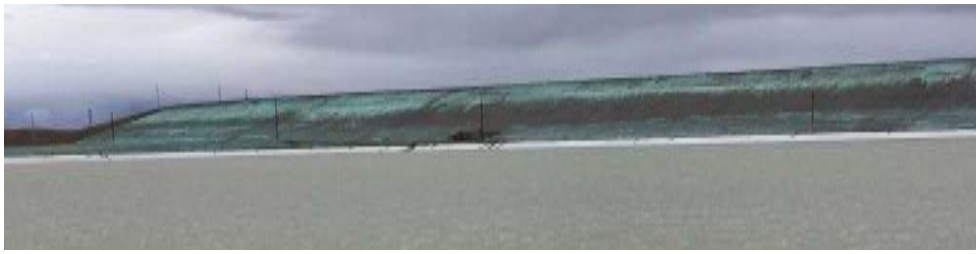
20191120 – IMG_6620
The downstream slope of the Northwest Embankment, facing west.

20191120 – IMG_6622
The upstream slope of the Northwest Embankment and a crack in the anchor trench, facing southwest.

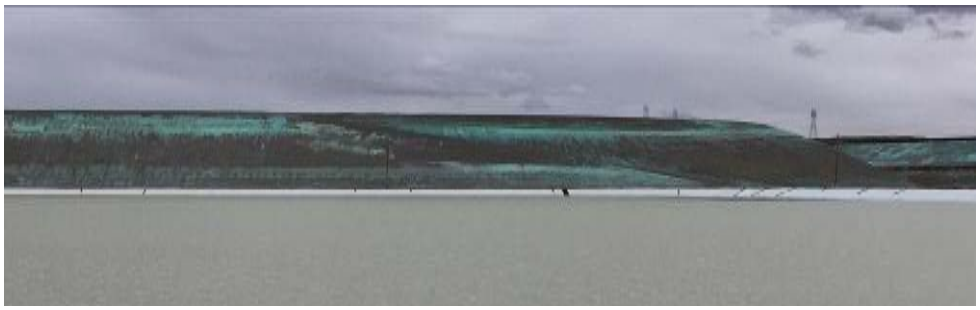
20191120 – IMG_6623
The crest of the Northwest Embankment, facing southwest.

20191120 – IMG_6631
The downstream slope of the Northwest Embankment, facing northeast.

20191120 – IMG_6633
The upstream slope of the Northwest Embankment, facing southwest.



20191120 – IMG_6667
The downstream slope of the West Embankment, facing east from the LDWP.



20191120 – IMG_6669
The downstream slope of the West Embankment, facing east from the LDWP.

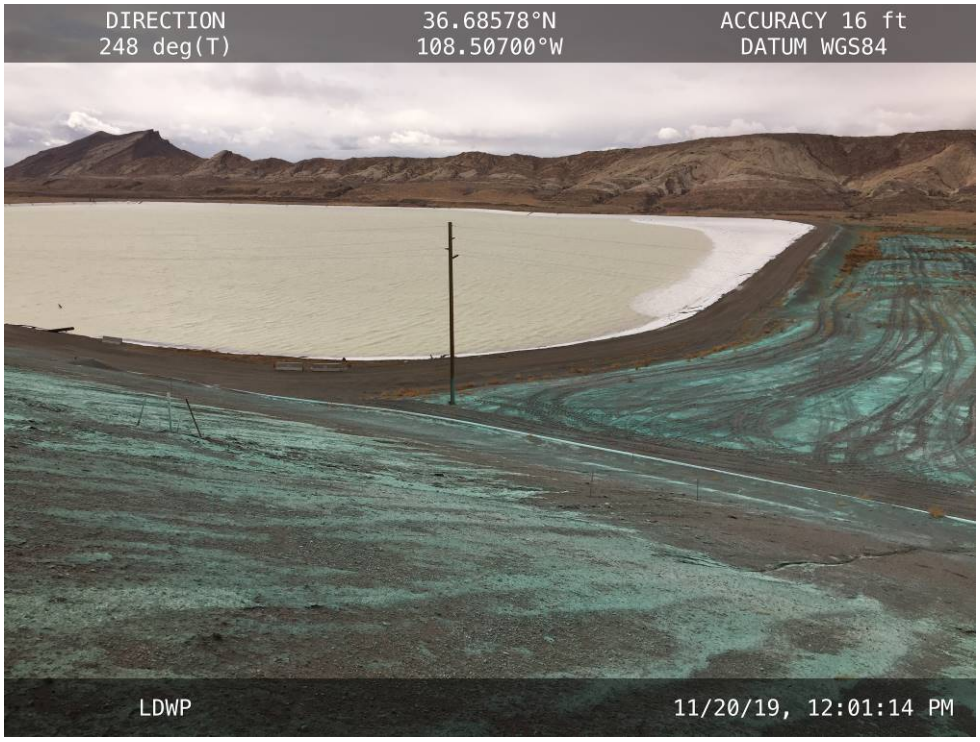
20191120 – IMG_6719
The downstream toe of the West Embankment, facing north.

20191120 – IMG_6732
A hole at the downstream toe of the West Embankment.

20191120 – IMG_6795
The South Embankment toe drain in a dry condition.

APPENDIX B

LINED DECANT WATER POND (LDWP) PHOTO LOG

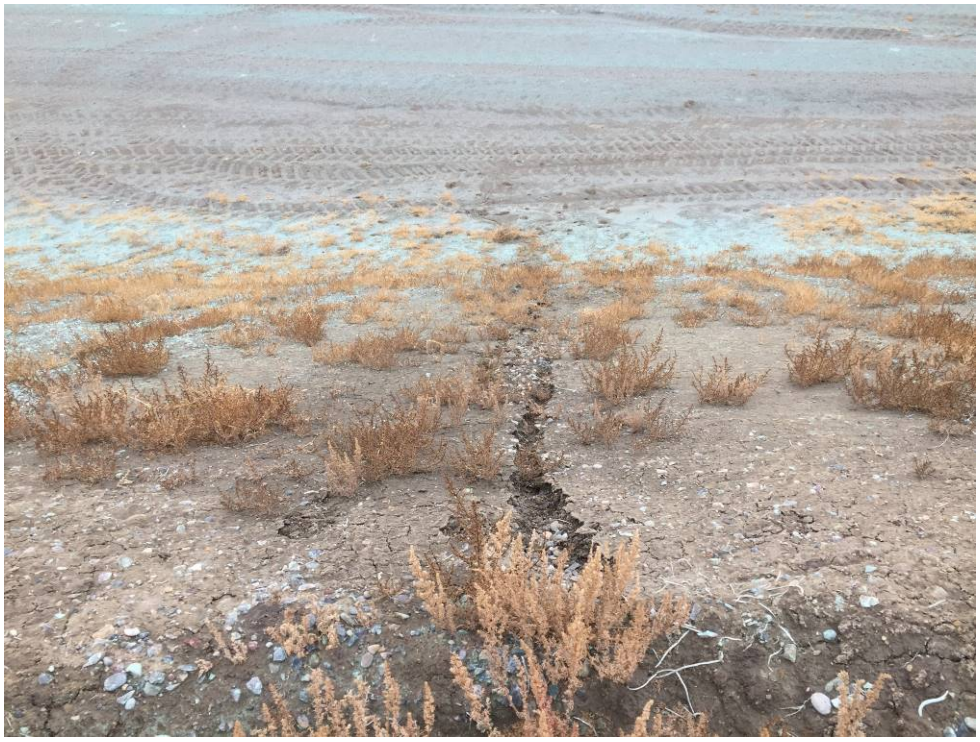


20191120 – IMG_6462
The North Embankment of the LDWP, facing west from the crest of the LAI.

20191120 – IMG_6490
The South Embankment of the LDWP, facing west from the crest of the LAI.

20191120 – IMG_6643
Incipient erosion on the downstream slope in the northwest corner marked for repair.

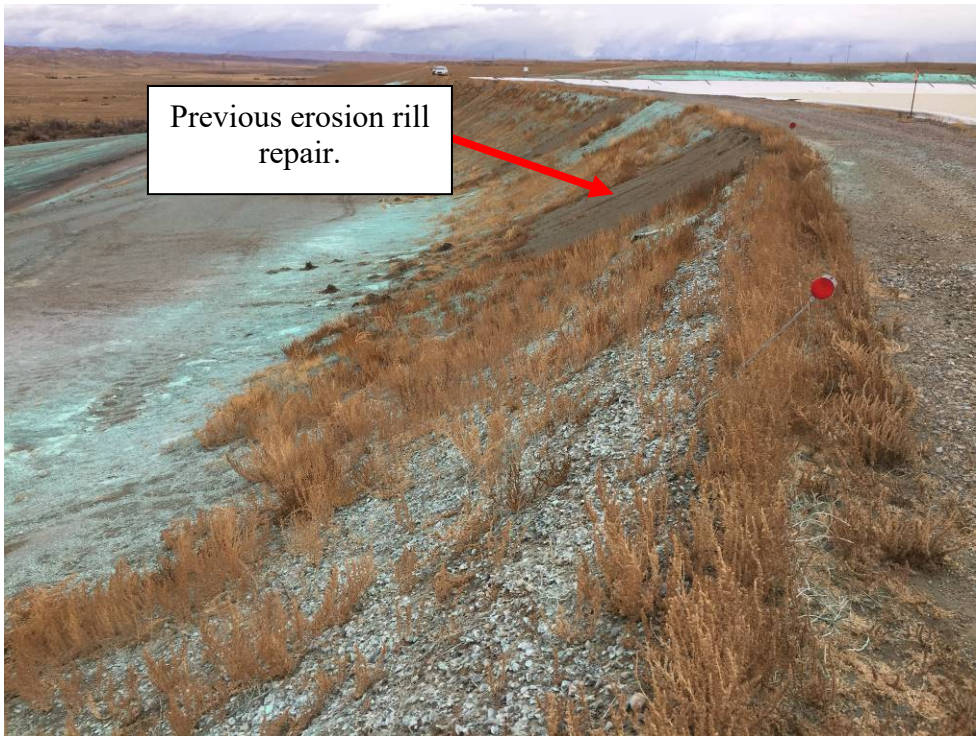
20191120 – IMG_6647
The upstream slope of the West Embankment, facing south.



20191120 – IMG_6648
An incipient erosion rill on the downstream slope of the West Embankment.

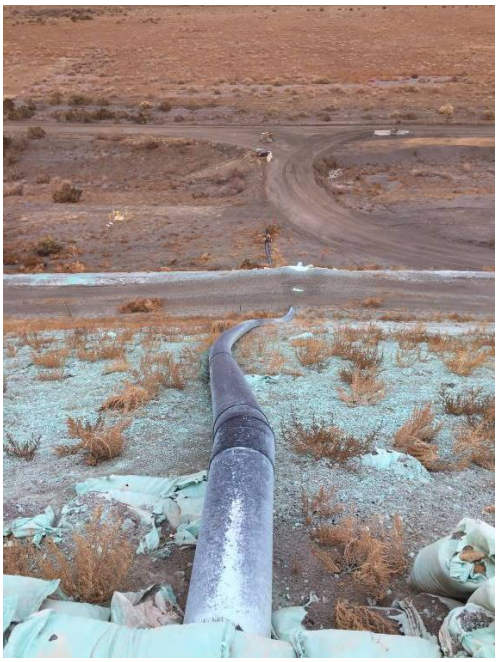
20191120 – IMG_6650
The northwest corner of the LDWP, facing north from the West Embankment.

20191120 – IMG_6652
The liner pulling out of the anchor trench in the northern portion of the West Embankment.



20191120 – IMG_6656
The downstream slope of the West Embankment an area of erosion rill repair, facing north.

20191120 – IMG_6659
The upstream slope of the West Embankment, facing south toward the Pond 3 Pump House discharge pipe.



20191120 – IMG_6661
The double-walled discharge pipe from the Pond 3 Pump House, facing west and downslope from the crest.

20191120 – IMG_6671
Water ponding on the crest near the Interstitial Evacuation Pump.

20191120 – IMG_6674
Erosion rills on the downstream slope at the southwest corner of the LDWP.

20191120 – IMG_6675
The West Embankment of the LDWP, facing north from the southwest corner.

20191120 – IMG_6678
The upstream slope of the West Embankment, facing north from the southwest corner.

20191120 – IMG_6679
The upstream slope of the South Embankment, facing east from the West Embankment.

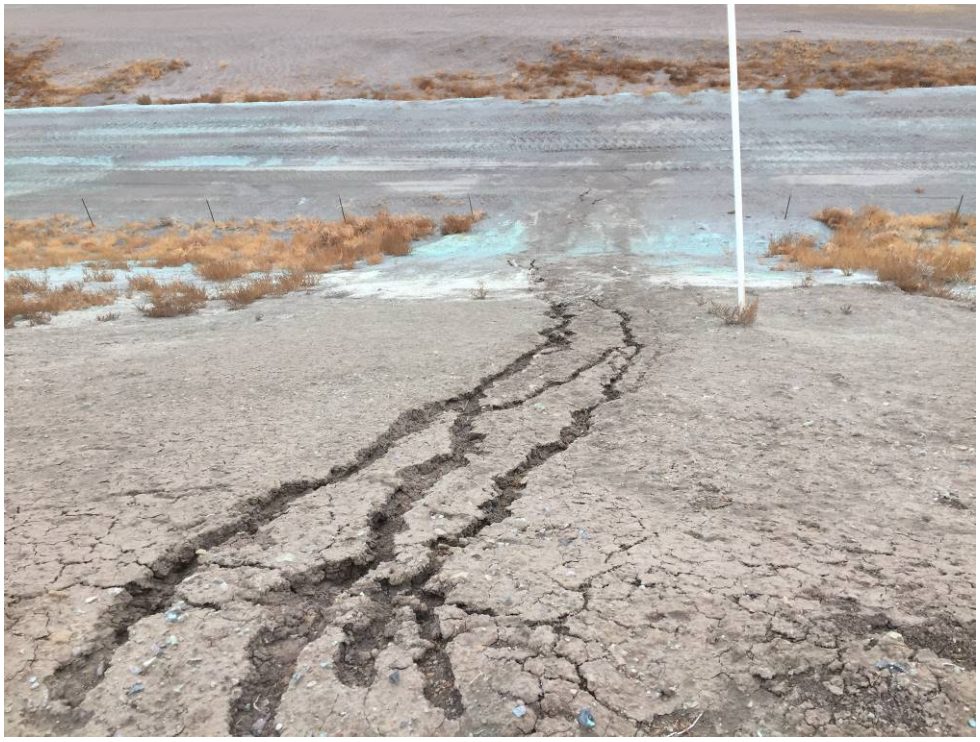
20191120 – IMG_6680
The Interstitial Evacuation Pump (not in place).

20191120 – IMG_6684
The HDPE pipes associated with the Interstitial Evacuation Pump.

20191120 – IMG_6688
The upstream slope of the South Embankment, facing west from the southwest corner.

20191120 – IMG_6689
The Interstitial Evacuation Pump control panel.

20191120 – IMG_6700
Erosion rills forming in an area of prior repair on the upper half of the South Embankment.



20191120 – IMG_6702
Erosion rills forming in an area of prior repair on the upper half of the South Embankment.

20191120 – IMG_6708
The downstream slope of the South Embankment, facing west.

20191120 – IMG_6711
Water pumped into the LDWP from the LAI through the Deadpool Pump pipe system.

20191120 – IMG_6718
The upstream slope of the East Embankment, facing north from the south end.

20191120 – IMG_6723
A settlement monument pin on the East Embankment crest.

20191120 – IMG_6732
A hole in the crest of the East Embankment near the toe of the West Embankment of the LAI.

20191120 – IMG_6742
The LDWP pump station in the northeast corner of the perimeter embankment.

20191120 – IMG_6743
The 8-inch and 16-inch HDPE outlet pipes conveying decant water from the LAI.

20191120 – IMG_6748
The surface monuments for piezometers P-23, P-24, and P-25.

20191120 – IMG_6751
The upstream slope of the North Embankment, facing west from the East Embankment.

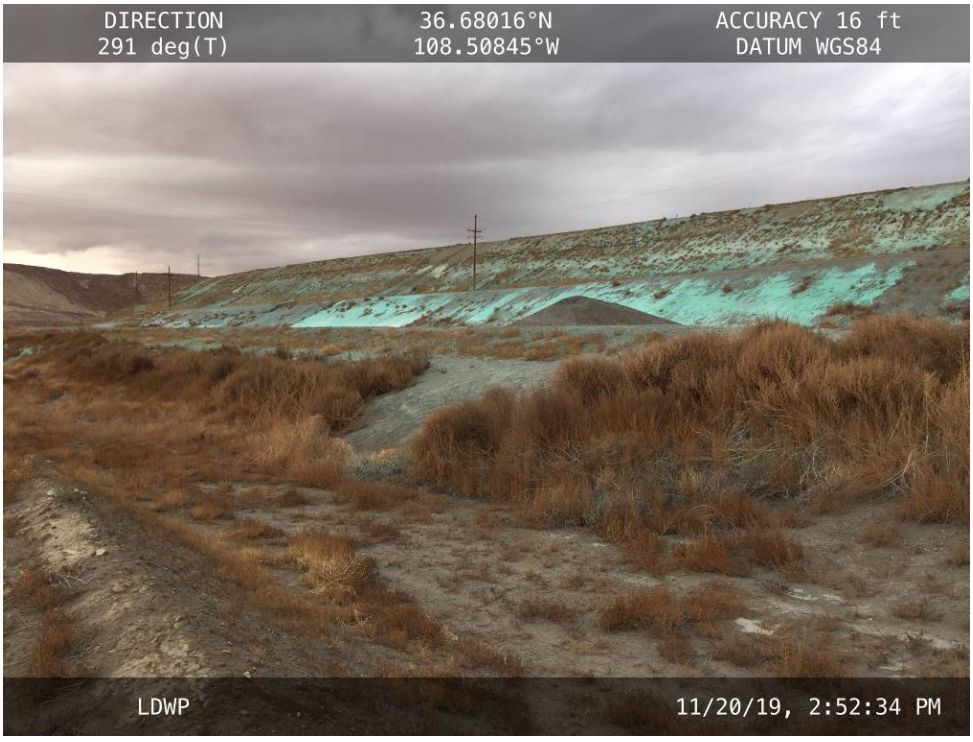
20191120 – IMG_6762
The downstream slope of the North Embankment, facing west.

20191120 – IMG_6766
Small tears in the liner along the North Embankment repaired since the 2018 inspection.

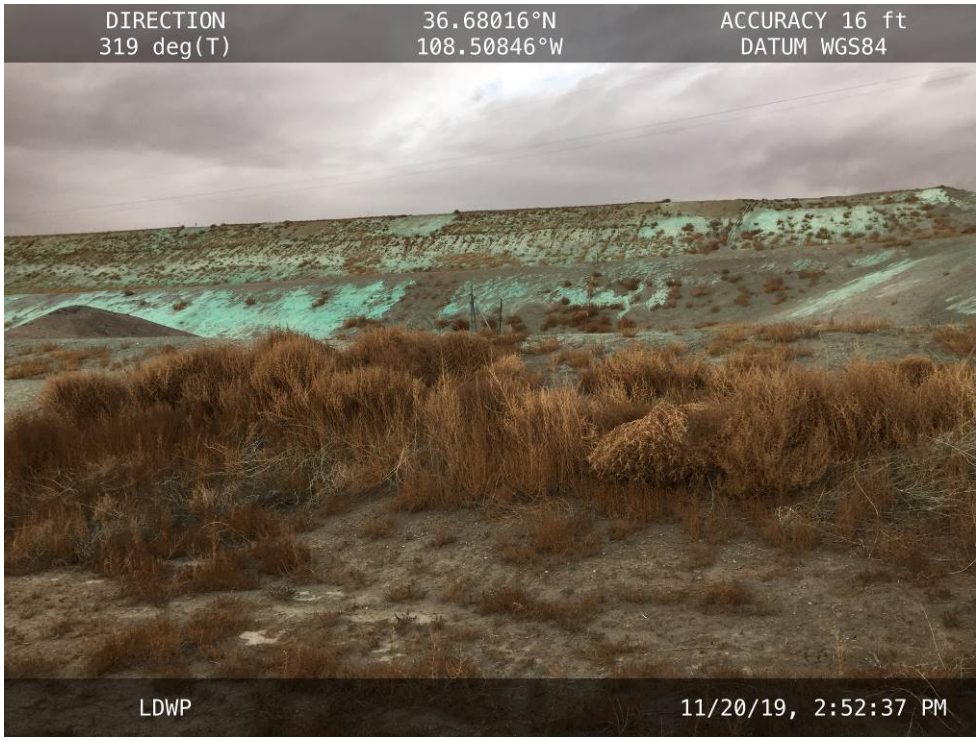
20191120 – IMG_6768
A hole in the liner along the North Embankment marked with a pin flag.

20191120 – IMG_6772
Repair of surface slough observed during the 2018 inspection (2018 IMG_1435).

20191120 – IMG_6774
Repair of surface slough observed during the 2018 inspection (2018 IMG_1438).



20191120 – IMG_6793
The South Embankment of the LDWP and Ash Pond 3, facing northwest from the toe.



20191120 – IMG_6794
The South Embankment of the LDWP and Ash Pond 3, facing north from the toe.

APPENDIX C

COMBINED WASTE TREATMENT POND (CWTP) PHOTO LOG

20191119 – IMG_6242
The downstream slope along the northern portion of the embankment, facing east near the West Abutment.

20191119 – IMG_6248
The upstream slope along the northern portion of the embankment, facing east near the West Abutment.

20191119 – IMG_6255
Erosion on the upstream slope along the northern portion of the embankment.

20191119 – IMG_6257
Woody vegetation on the downstream slope along the northern portion of the embankment.

20191119 – IMG_6258
The crest along the northern portion of the embankment, facing west.

20191119 – IMG_6259
The upstream slope along the northern portion of the embankment, facing east.

20191119 – IMG_6260
Erosion on the downstream slope along the northern portion of the embankment.

20191119 – IMG_6262
The upstream slope along the northern portion of the embankment, facing west.

20191119 – IMG_6266
Aligned holes and a possible tension crack on the downstream slope where the embankment transitions from west-east to northwest-southeast.

20191119 – IMG_6269
The crest of the CWTP embankment, facing east at the curve.

20191119 – IMG_6270
The crest of the CWTP embankment, facing northwest at the curve.

20191119 – IMG_6272
Erosion around the riprap on the downstream slope along the eastern portion of the embankment.

20191119 – IMG_6273
The crest of the CWTP embankment, facing southeast toward the Right Abutment.

20191119 – IMG_6274
The reservoir and vegetation along the upstream slope of the embankment, facing northwest.

20191119 – IMG_6280
The downstream slope along the eastern portion of the embankment, facing northwest.

20191119 – IMG_6281
The downstream slope along the eastern portion of the embankment, facing southeast.

20191119 – IMG_6287
The CWTP flow monitoring structure on the eastern portion of the embankment.

20191119 – IMG_6288
The outfall from the CWTP to the discharge canal.

20191119 – IMG_6293
Water flowing over the overflow weir to the outfall.

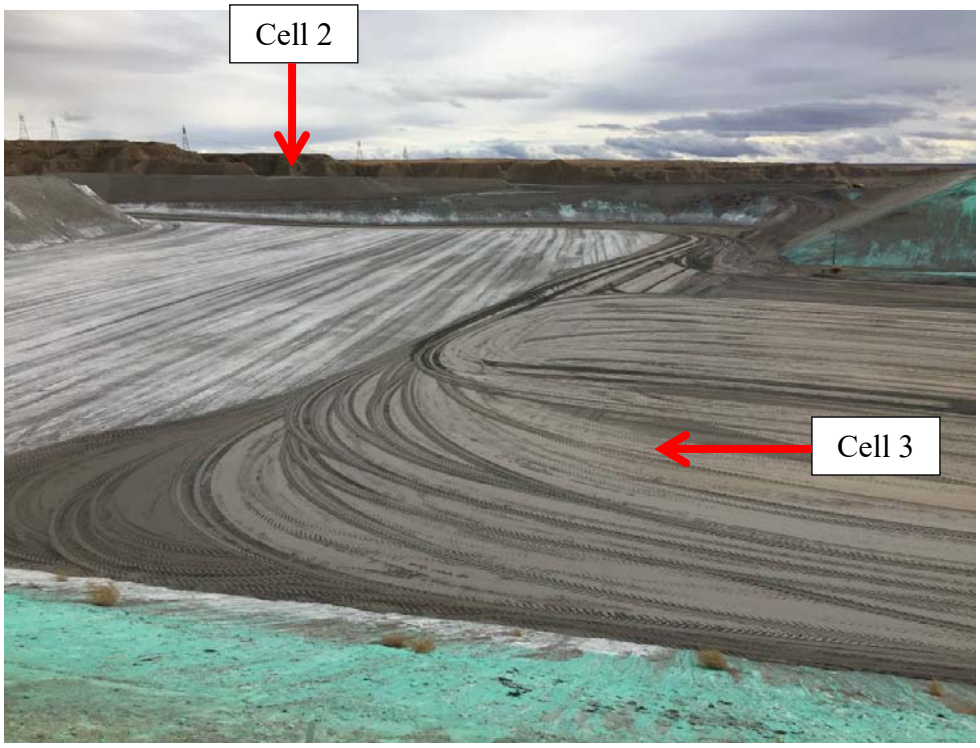
20191119 – IMG_6296
The crest of the CWTP embankment, looking northwest from the Right Abutment.

APPENDIX D

DRY FLY ASH DISPOSAL AREA (DFADA) PHOTO LOG

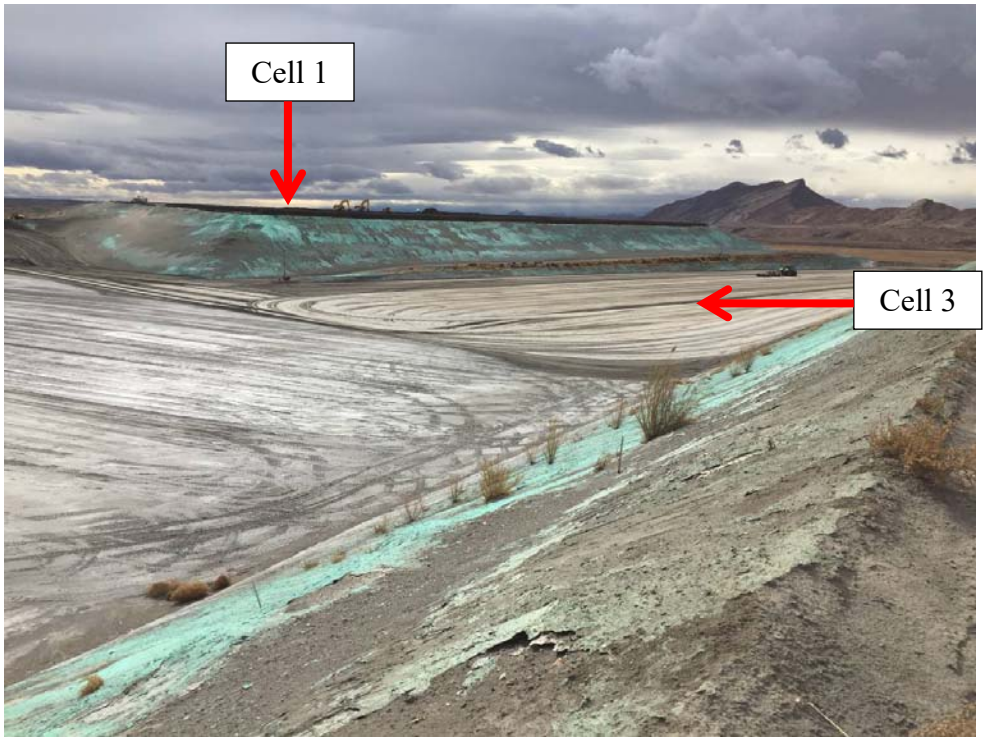
20191120 – IMG_6498
The leachate collection ponds and the western portion of DFADA Cells 1 and 3, facing south.

20191120 – IMG_6508
The easternmost portion of DFADA Cell 3 built up to the crest of the LAI, facing east. Cell 3 is part of the closure area that will receive an alternative final cover system.



20191120 – IMG_6510
DFADA Cell 2 (background) and the central portion of Cell 3 (foreground), facing south.

20191120 – IMG_6519
The western slope on the easternmost portion (the closure area) of Cell 3, facing south.



20191120 – IMG_6521
DFADA Cell 1 and the western portion of Cell 3, facing southwest.

20191120 – IMG_6523
The top of the easternmost portion (the closure area) of Cell 3 even with the LAI, facing east.

20191120 – IMG_6713
The downstream slope of DFADA Cells 1 and 3, facing south from the LDWP crest.

20191120 – IMG_6799
The downstream slope of DFADA Cells 1 and 3, facing north from the leachate collection ponds.

20191120 – IMG_6804
The leachate collection pond for DFADA Cell 1, facing south along the western berm.

20191120 – IMG_6808
The Pyramat in the southwest corner of Cell 1, facing northeast from the road along the toe.

20191120 – IMG_6811
The south slope of DFADA Cell 2, facing northeast from the road along the toe.

20191120 – IMG_6813
The southeastern slope of DFADA Cell 2, facing northeast from the road along the toe.

20191120 – IMG_6826
Construction equipment on top of Cell 1, facing west from the southeast corner.

20191120 – IMG_6832
The southern slope of Cell 1, facing southwest from the top of the cell.

20191120 – IMG_6838
The southern slope of Cells 1 and 2, facing east from the top of Cell 1.

20191120 – IMG_6839
Subgrade preparation in the footprint of the proposed DFADA Site 4, facing south from Cell 1.

20191120 – IMG_6842
The infiltration layer of the alternative final cover system placed on top of Cell 1.

20191120 – IMG_6848
DFADA Cells 1 and 3, facing north from the southeast corner of Cell 1 (LAI in the background).

20191120 – IMG_6849
DFADA Cells 3 and 2, facing north from the southeast corner of Cell 1 (LAI in the background).

20191120 – IMG_6850
The top of Cell 2, facing east from the southeast corner of Cell 1.

20191120 – IMG_6853
The north side of Cell 2, facing south from the inlet of the Stormwater Diversion Channel.

20191120 – IMG_6855
The inlet to the Stormwater Diversion Channel, facing east from the ash haul road.