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

Annual
CCR Impoundment and
Landfill Inspection Report

2018

GENERATION ENGINEERING
Design Engineering
P.O. BOX 53999
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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, the Upper Retention Sump, 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) including; 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 Upper Retention Sump collects water from drains located on the Plant site and receives CCR in storm water, process water, and Plant washdown from several sources within the Plant. 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 five coal combustion waste Units are the subject of this inspection report.

The field inspection was conducted on Wednesday, October 24, 2018 and Thursday, October 25, 2018. Conditions were mild (44-65 degrees Fahrenheit) with cloudy skies on Wednesday morning and partly cloudy to mostly sunny skies Wednesday afternoon and Thursday. Winds were moderate on Wednesday afternoon and lighter on Thursday. Approximately 3.56 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 2018).

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 Survey (GPS) System. 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 5274.2 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 5206.8 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, and is approximately 32 feet high (maximum). The embankment is approximately 1,800 feet long and 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 UPPER RETENTION SUMP

The Upper Retention Sump (URS) is represented on Figure 4 – Upper Retention Sump.

The URS is an approximately 1.09-acre, unlined surge pond associated with operation of the flue gas desulfurization (FGD) systems for treatment of flue gas from Units 4 and 5. The URS is not regulated by NMOSE. Lime slurry is transferred from the URS into various FGD absorber vessels as needed to operate and maintain the overall FGD system.

In Spring 2018, APS started alternative management for storage of the CCR to permit the decommissioning of the existing URS and replace it with the new Upper Retention Sump Tank, a reinforced concrete tank designed to comply with regulations in 40 CFR Part 257 (EPA 2015). Upon completion, the new Upper Retention Sump Tank will replace the function of the existing Upper Retention Sump and the pipes draining into the existing Upper Retention Sump will be rerouted to the new Upper Retention Sump Tank. The existing Upper Retention Sump will then be removed from service and no longer function as a CCR unit. The Upper Retention Sump Tank will not be subject to annual inspections under the CCR Rule (EPA 2015). APS intends to refer to the new Upper Retention Sump Tank as the "Upper Retention Sump" in the future.

3.5 DRY FLY ASH DISPOSAL AREA (DFADA)

The DFADA is represented on Figure 5 – 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 2017 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), the Upper Retention Sump (Section 4.4), and the DFADA (Section 4.5).

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>Purpose: Fly ash and FGD sludge disposal</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 11, 2019</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 25, 2018</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 8, 2019</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,280</td><td colspan="2">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="2">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="2">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>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 colspan="2" rowspan="2">Dam Crest Width (ft): 30 (West Embankment)
20 (South Embankment)</td><td>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="2">Reservoir Storage (ac-ft): 5,346 (high water line)
5,986 (maximum)</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 5274.2</td><td rowspan="2">Photos: Yes</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): ~ EL 5275</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: **October 2019**								

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 2018 (for 2017)**	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?		**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?	**Yes. See comment i.**			**X**		**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?	**See comment iv.**			**X**	**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?			**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_1415).**						
b	Internal drains flowing?	**APS is currently pumping water out of the Southwest Corner and into the Drop Inlet Structure.**			**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. During the inspection, four rectangular holes in the geomembrane liner were observed along the South Embankment below the impounded water level (Photos IMG_1227 and IMG_1386). The straight edges along each hole suggests the holes were cut intentionally (compare Photo IMG_1229 and IMG_1235 in Appendix A of this Inspection Report with Photo IMG_5216 and IMG_5228 in Appendix A of the 2017 Inspection Report). One of the holes appeared to be draining water from underneath the geomembrane liner at the time of the inspection, but the three other holes appeared to be allowing the upstream clay blanket to erode into the impoundment. All of the holes in the geomembrane liner should be repaired as soon as it can be safely done and the purpose for creating the holes should be investigated. The LAI embankment was designed to be stable without the geomembrane liner (URS Corporation 2012); however, the upstream slope and the toe drain along the South Embankment should be monitored for evidence of internal erosion. Evidence could include benching along the upstream slope due to the erosive action of water against the clay and cloudy seepage flowing out of the toe drain. The South Embankment toe drain was dry on the date of this inspection (photo IMG_1415). APS does not believe that the presence of water beneath the liner, nor the damage to the liner itself presents a safety concern since the LAI was designed to be stable without the presence of the liner.

ii. A depression (Photo IMG_1233) and two bulges (Photo IMG_1244) were observed along the upstream slope in the Southwest Corner of the impoundment. These features are near the holes, trapped water, and erosion described in comment i and may be related. The causes of the depression and bulges should be investigated and these features should be repaired.

iii. Recent upgrades to the selective catalytic reduction system in the Plant adversely affected the FGD system chemistry and required APS to use more water than normal. This additional water was eventually sent to the LAI, where it flowed to the Southwest Corner of the impoundment. APS is currently pumping this water from the LAI to the LDWP to reuse in the Plant the FGD system chemistry. The water is being pumped from the Southwest Corner to the Drop Inlet Structure via a single-walled HDPE pipe placed along the crest of the West Embankment (Photo IMG_1256). The HDPE pipe should be moved to the inside of the impoundment and placed on top of the liner. In the meantime, APS's CCR hauling contractor who operates this pump is instructed to run the pump on the daylight shift only and monitor the HDPE pipe.

iv. The downstream slopes of the West Embankment and the Northwest Embankment have minor erosion rills (Photos IMG_1269, IMG_1017, and IMG_1338). Continue monitoring erosion features and repair them if the erosion depth exceeds 1 foot.

v. There are small tears and holes in the liner along the crest of the East Embankment (Photos IMG_1358, IMG_1373, and IMG_1375). The tears should be repaired to prevent stormwater or other runoff from entering the space beneath the liner.

vi. 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_1294). The NTB appeared to be in good condition during the inspection. The NTB foundation instruments indicate normal, expected foundation conditions.

vii. The primary outlet from the LAI is an 8-foot diameter vertical, perforated HDPE riser connected at the bottom to 16-inch and 8-inch diameter HDPE gravity pipe outlets that drain into the LDWP.

viii. The weekly inspection reports for the period between October 1, 2017 and September 30, 2018 indicate the following:

   a. Signs of erosion requiring repair were observed on the dam crest and downstream slope on October 5, 2017. APS proceeded to repair the affected areas.

ix. The weekly inspection reports 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="3">State Identification Number (SID): D-635</td></tr>
<tr><td>SID: D-635</td><td>Dam Name: Lined Decant Water Pond (LDWP)</td><td colspan="2">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="3">Report Date: January 11, 2019</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="3">Inspection Date: October 25, 2018</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 9, 2019</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,216</td><td colspan="3">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="3">Measured Total Freeboard (ft): 9.2</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 16</td><td colspan="3">Structural Height (ft): 16</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 5,488</td><td colspan="2">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 colspan="2">Lat: 36° 41' 00" (per NMOSE permit)</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td colspan="2">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="3">Reservoir Storage (ac-ft): 435 (normal operating capacity)</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 5206.8</td><td colspan="2" 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>

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

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? **No**		Describe and list required action:		**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: **October 2019**								

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 2018 (for 2017)**		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?			**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 West and North Embankments.**			**X**	**X**		
b	Inadequate ground cover?	**The LDWP West and South 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?	**Yes. See comment ii.**			**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:	**All pumps and pumping systems appeared to be functioning at the time of the inspection.**		**X**				
b	Internal drains flowing?				**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 iii.**			**X**			

Additional comments and recommendations for the LDWP:

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

ii. Two shallow sloughs were observed on the lowermost bench of the West Embankment (Photos IMG_1435 and IMG_1438). The sloughs are laterally extensive and should be repaired.

iii. The LDWP interstitial geomembrane leak detection and evacuation pump was operating at the time of the inspection (Photos IMG_1463 and IMG_1471). Because of the water chemistry in the LDWP, the commercially available, submersible pumps break down on a regular basis. 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 continue to monitor the system for signs the pump has or is about to break down.

iv. There were several dents, holes, and tears in the liner along the South, North, and East Embankments (Photos IMG_1521, IMG_1529, IMG_1530, IMG_1571, and IMG_1572). Some of the damaged areas were also observed during the 2017 inspection. Damage to the liner should be repaired and the liner should be monitored for additional tears and cuts.

v. The liner was observed to be pulling out of the anchor trench in isolated areas along the West and East Embankments (Photos IMG_1510 and IMG_1564). The liner was observed to be pulling out of the anchor trench in this area during the 2017 inspection as well.

vi. The 7-day inspection reports for the period between October 1, 2017 and September 30, 2018 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.

4.3 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>Type: Earth</td><td>Purpose: CCR-transport surface water collection</td><td rowspan="15">Not Applicable
No
Yes
Monitor
Repair
Investigate</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 11, 2019</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 24, 2018</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 9, 2019</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,335</td><td colspan="2">Design Spillway Crest Elevation (ft): 5,328.77</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 7</td><td colspan="2">Measured Total Freeboard (ft): Not measured</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 32 (max), 22.81 (avg)</td><td colspan="2">Structural Height (ft): 32 (max), 22.81 (avg)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 1,800</td><td>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>Lat: 34° 41′ 29.19″N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>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="2">Reservoir Storage (ac-ft): 137 (27 additional ac-ft for stormwater storage)</td></tr>
<tr><td colspan="4">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 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>

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:	**October 2019**							

	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 2018 (for 2017)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			

	DAM EMBANKMENT CHECKLIST							
3	***DAM CREST***							
a	Settlements, slides, depressions?	**The crest appeared to be flat (with a slight grade to the upstream side) and in good condition.**		**X**				
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?			**X**				
d	Animal burrows?	**None observed. The road is graded regularly. Continue to monitor.**		**X**		**X**		
e	Adverse vegetation?	**None observed. The road is graded regularly.**		**X**				
f	Erosion?	**Two shallow erosion holes were observed on the upstream shoulder (Photo IMG_0931). Repair and monitor the area.**			**X**	**X**		
4	***UPSTREAM SLOPE***							
a	Erosion?	**See comment i.**			**X**	**X**		
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?	**Vegetation on the upstream slope generally consists of tall grasses in the middle and eastern portion of the embankment.**		**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 (Photo IMG_0961).**			**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?	**Isolated instances of adverse vegetation (Photos IMG_0909, IMG_0914, and IMG_0921).**			**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?	**See comments iii and iv.**			**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_0961) appeared to be unchanged compared to previous inspections. Continue to monitor the area.

ii. Minor vegetation (grass, small trees, and shrubs) was observed on the slopes during this inspection (photos IMG_0909, IMG_0914, and IMG_0921). Continue monitoring vegetation in accordance with the NMOSE vegetation maintenance guidelines "*Vegetation Management on Dams*" (2011). The woody vegetation on the upstream slope (Photo IMG_0952) should be repaired if needed using the NMOSE vegetation management guidelines (NMOSE 2011).

iii. Several instances of minor erosion were observed on the downstream slope above the riprap (Photos IMG_0913 and IMG_0927). These areas should be monitored and repaired if the erosion depth exceeds one foot.

iv. A series of incipient longitudinal cracks was observed along the downstream slope above the riprap and water line (Photo IMG_0933). It was not clear during the inspection if the cracks would result in a shallow slough or deeper-seated failure. The area should be monitored and repaired if the cracks expand in depth or extent.

v. APS installed additional riprap on the downstream slope of the embankment in August 2017 to prevent wave erosion along the slope (photo IMG_0915). 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 HDPE pipe observed laying across the upstream slope during previous inspections was not observed during this inspection.

viii. The 7-day inspection reports for the period between October 1, 2017 and September 30, 2018 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 – UPPER RETENTION SUMP

<table>
<tr><td colspan="2">Upper Retention Sump</td><td colspan="3">State Identification Number (SID): N/A</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: N/A</td><td>Dam Name: Upper Retention Sump</td><td>Type: Incised</td><td>Purpose: CCR-transport surface water collection</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 11, 2019</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 24, 2018</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 9, 2019</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,350.5</td><td colspan="2">Design Spillway Crest Elevation: None</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 6.5</td><td colspan="2">Measured Total Freeboard (ft): ~11.25</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 0 (incised)</td><td colspan="2">Structural Height (ft): 0 (incised)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 900 (approx.)</td><td>Upstream Slope: 2:1</td><td>Downstream Slope: N/A</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): Varies</td><td>Lat: 36°41'14.26"N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108°28'37.91"W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 1.09 (nominal – see comment i)</td><td colspan="2">Reservoir Storage (ac-ft): 10.7 (nominal – see comment i)</td></tr>
<tr><td colspan="4">Inflow Design Flood/Safe Flood-Passing Capacity: Not Calculated</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~ EL 5339.25</td><td rowspan="2">Photos: Yes</td><td rowspan="2">Pages: 4</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): ~ EL 5339.25</td></tr>
</table>

Upper Retention Sump			SID: **N/A**	N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST									
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard:	**Very 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:	**See comment i.**							

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe:	**There are no instruments or other monitoring devices for this structure due to its small size.**							
b	Any repair or replacement required? **N/A**		Describe: **N/A**		**X**				
c	Date of last monitoring report:	**January 2018 (for 2017)**	Should new readings be taken and new report provided? **N/A**		**X**				

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions?			**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 remaining active portion of the Upper Retention Sump is lined with soil cement.**		**X**				
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?			**X**				
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap?			**X**				
f	Stone deterioration?	**Most of the soil cement facing has been removed due to construction.**		**X**				
g	Settlements, slides, depressions, bulges?			**X**				
h	Animal burrows?			**X**				

Upper Retention Sump		SID: **N/A**	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**There is no downstream slope.**	**X**					
b	Inadequate ground cover?		**X**					
c	Adverse vegetation?		**X**					
d	Longitudinal/Transverse cracking?		**X**					
e	Inadequate riprap?		**X**					
f	Stone deterioration?		**X**					
g	Settlements, slides, depressions, bulges?		**X**					
h	Soft spots or boggy areas?		**X**					
i	Movement at or beyond toe?		**X**					
j	Animal burrows?		**X**					
6	***ABUTMENT CONTACTS***							
a	Erosion?	**There are no abutments for the incised CCR Unit.**	**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:	**None.**						
b	Internal drains flowing?		**X**					
c	Seepage at or beyond toe?	**There is no downstream 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?	**See comment iii.**			**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?	**Yes. There is an evacuation pump system, pump chamber, and at least two reinforced concrete inlet pipes. The evacuation pump system discharges to above-ground lines.**			**X**			

Additional comments and recommendations for the Upper Retention Sump:

i. In Spring 2018, APS began alternative management for storage of the CCR, to permit the decommissioning of the existing Upper Retention Sump and replacing it with the new Upper Retention Sump Tank to comply with regulations in 40 CFR Part 257 (EPA 2015). At the time of the inspection, construction of the new Upper Retention Sump Tank was nearly complete and the active portion of the existing Upper Retention Sump had been reduced to a fraction of its previous capacity (Photos IMG_0850, IMG_0866A, IMG_0862, and IMG_0867). Upon completion of the new Upper Retention Sump Tank construction, the existing Upper Retention Sump will be removed from service and no longer function as a CCR unit.

ii. All of the discharge pipes at various locations around the perimeter of the Upper Retention Sump have been rerouted to the south end of the site footprint. In addition, a wall has been constructed along the south end of the Upper Retention Sump to minimize the active portion of the site footprint and separate it from the new Upper Retention Sump Tank construction (Photos IMG_0866A, IMG_0861, and IMG_0862).

iii. APS has significantly decreased the volume of water and solids stored in the remaining portion of the existing Upper Retention Sump due to ongoing construction of the new Upper Retention Sump Tank.

iv. The 7-day inspection reports for the period between October 1, 2017 and September 30, 2018 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.

4.5 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 11, 2019</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 24-25, 2018</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 9, 2019</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 5295 feet (July 2018)
Cell 2 is ~ EL 5273 feet (September 2018)
Cell 3 is ~ EL 5268 feet (July 2018)</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 2018 (for 2017)**	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 stability?				**X**				
b	Cracking?				**X**				
c	Run on control?					**X**	**X**	**X**	
d	Run off control?					**X**			
e	Erosion?	**See comment ii.**			**X**		**X**		
f	Dust control issues?	**See comment vii.**				**X**	**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_1429). The affected area appears to be relatively unchanged compared to the 2015, 2016, and 2017 observations. Sediment is accumulating in the adjacent detention basin.

ii. Erosion observed along the western toe of Cell 3 during the 2017 inspection has been repaired (Photo IMG_0933), but there has also been additional, less significant erosion in the same place (Photo IMG_0937). Continue to monitor this area and repair erosion channels/gullies when they exceed a depth of one foot.

iii. Ash placement and compaction at the DFADA is in approximate 6-inch thick lifts using end dumps and with compaction applied by a tractor-pulled, smooth, static drum. CCR solids placed for landfilling appeared to be placed in accordance with the contract specifications for density control.

iv. Run on control – The run on control system consists of a detention basin and diversion ditch to direct storm water around the DFADA. In addition to the head-cutting at the inlet, there was also significant (approximately 5 feet deep) erosion at the outlet south of Cell 1 (Photo IMG_1422) and sediment accumulation upstream of the outlet (Photo IMG_1423). The run on control system otherwise appears to be in good condition and the absence of excessive erosion at the toe of Cells 1 and 2 indicates that the run on control system is functioning as intended.

v. 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_1246). 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.

vi. Several plants were observed to have taken root through holes in the Pyramat geosynthetic covering along the west side of Cell 1 (Photos IMG_1136 and IMG_1157).

These do not currently appear to affect the stability of the landfill, but could ultimately affect the integrity of the Pyramat.

vii. During the inspection, there were no indications that the site was experiencing dust control issues due to wind blowing away ash placed in the landfill. However, vacuum trucks contracted to remove ash from the Plant area were observed to be allowing ash to blow across the site as it was being dumped from the truck (Photo IMG_1130). Vacuum trucks should take more care to minimize dust when unloading ash at the site.

viii. The 7-day inspection reports for the period between October 1, 2017 and September 30, 2018 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 2017.

5.1.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the LAI are shown on Figure 6 – Lined Ash Impoundment (LAI) Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2017 – September 30, 2018 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
LAI Piezometers (10/1/17 to 9/30/18)			
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	5200.90	5201.82	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]	5176.56	elevation head
[1] Porewater pressure measurements are negative (draining condition)			

Instrument Name	Minimum	Maximum	Unit
NTB Piezometers (10/1/17 to 9/30/18)			
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]	5185.93[1]	elevation head
P-101.2	5183.13	5184.20	elevation head
P-101.3	5171.25	5173.18	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	5167.69	5168.90	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]	5160.91	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]	5184.88	elevation head
P-105.2	5174.16[1]	5174.16[1]	elevation head
P-105.3	5162.16[1]	5162.71	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	5160.46	5160.91	elevation head
P-107.1	5197.27[1]	5197.42	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	5172.32	5173.86	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]	5165.07	elevation head
P-110.1	5184.28[1]	5184.61	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	5160.34	5160.56	elevation head
[1] Porewater pressure measurements are negative (draining condition)			

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/17 to 3/8/18)			
SM7	5215.911	5215.957	EL (ft)
SM9	5217.089	5217.151	EL (ft)
Settlement Rods (10/1/17 to 3/8/18)			
SR-7	5250.791	5250.869	EL (ft)
SR-8	5256.226	5256.313	EL (ft)
SR-9	5248.651	5248.691	EL (ft)
SR-10	5248.879	5248.948	EL (ft)
SR-100	5222.279	5222.321	EL (ft)
SR-101	5205.501	5205.538	EL (ft)
SR-102	5205.314	5205.411	EL (ft)
SR-104	5219.336	5219.379	EL (ft)
SR-105	5205.008	5205.079	EL (ft)
SR-106	5205.321	5205.391	EL (ft)
SR-109	5206.549	5206.620	EL (ft)
SR-110	5205.831	5205.921	EL (ft)
Inclinometers (10/1/17 to 9/30/18)			
I-1	0	0.1380	in
I-2	0	0.1422	in
I-103	0	0.1668	in
I-107	0	0.1206	in
I-111	0	0.0672	in
Open Standpipe Piezometers (10/1/17 to 9/30/18)			
P-23	5157.00	5157.09	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

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 indicate no significant elevation changes or negative trends related to the performance of the dam. No survey data is available after March 8, 2018.

The data for the inclinometers over the current review period indicate no significant elevation 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)	Water Elevation (ft)	Measurement Location
Minimum	N/A	N/A	N/A
Maximum	N/A	N/A	N/A
Present (this inspection)	4.7	5274.2	Southwest Corner (STA 36+00)
CCR	**Depth of CCR (ft)**	**CCR Elevation (ft)**	**Measurement Location**
Minimum	12.47	5286.47	Emergency Ladder on the north end of the LAI (STA 87+04)
Maximum	70	5275	Emergency Ladder on the West Embankment near the Drop Inlet Structure
Present (this inspection)	70	5275	Emergency Ladder on the West Embankment near the Drop Inlet Structure

APS does not normally record the water level in the LAI. The present depth of water (4.7 feet) assumes ash up to 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.

5.1.4 Storage Capacity

The estimated remaining maximum storage capacity of the LAI at the time of the inspection was 633.84 acre-feet (ac-ft).

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 5,352.16 ac-ft.

5.1.6 Structural Weakness or Operational Change/Disruption

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

Holes appeared to have been cut in the geomembrane liner along the western portion of the South Embankment in the area where water was trapped underneath the liner during the 2017 inspection. Three of the holes appeared to be allowing the upstream clay blanket to erode into the impoundment. It was not clear during the inspection how long the clay had been eroding or how much volume had been lost. A fourth hole was leaking water during the inspection and it was not clear if any clay had previously eroded or if clay would erode in the future. In addition, a depression and two bulges were observed along the upstream slope in the same area. These features, combined with the increased water flowing to the LAI from the Plant, have the potential to disrupt the normal operation of the LAI; however, the LAI was designed to be stable without the presence of the geosynthetic HDPE liner.

There are no significant changes to the structural integrity or operation of the dam since the 2017 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 2017.

5.2.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the LDWP are shown on Figure 7 – Lined Decant Water Pond (LDWP) Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2017 – September 30, 2018 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/17 to 3/8/18)			
SM7	5215.911	5215.957	EL (ft)
SM9	5217.089	5217.151	EL (ft)
Open Standpipe Piezometers (10/1/17 to 9/30/18)			
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	5157.00	5157.09	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

The data for the survey monuments over the current review period indicate no significant elevation changes or trends 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)	Water Elevation (ft)	Measurement Location
Minimum	1.0	5206.0	Staff gauge near the East Embankment
Maximum	4.6	5209.6	Staff gauge near the East Embankment
Present (this inspection)	1.8	5206.8	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.

5.2.4 Storage Capacity

The estimated maximum remaining storage capacity of the LDWP at the time of the inspection was approximately 362 ac-ft.

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 155 ac-ft.

5.2.6 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 or operation of the dam since the 2017 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 2017.

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)	Water Elevation (ft)	Measurement Location
Minimum	N/A	N/A	APS does not regularly record the water elevation.
Maximum	N/A	N/A	
Present (this inspection)	~10	5329 (NGVD29)	Spillway Crest
CCR	**Depth of CCR (ft)**	**CCR Elevation (ft)**	**Measurement Location**
Minimum	N/A	N/A	N/A
Maximum	N/A	N/A	N/A
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 maximum remaining storage capacity of the CWTP reservoir at the time of the inspection was 27 ac-ft based on historic topography and bathymetry.

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.

5.3.6 Structural Weakness or Operational Change/Disruption

The inspection identified longitudinal cracks forming along the downstream slope of the eastern CWTP embankment above the water line. 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 2017 inspection.

5.4 UPPER RETENTION SUMP

5.4.1 Geometry Changes Since Last Inspection

APS is in the process of replacing the existing Upper Retention Sump with a concrete tank and will remove the existing Upper Retention Sump from service when construction is complete. To make room for the construction activities, the existing Upper Retention Sump has been significantly reduced in size since the previous annual inspection in 2017 (Appendix D). The southern portion of the CCR unit's footprint, as delineated by a block wall faced with geomembrane (to prevent leaks), is the only remaining section being utilized. The volume available to store CCR solids and CCR- transport water is approximately 0.643 acre-feet.

5.4.2 Instrumentation

There are no instruments associated with the Upper Retention Sump.

5.4.3 CCR and Water Elevations

The current CCR elevation is approximately 5339.25 feet. The current water elevation is approximately 5339.25 feet. The current CCR and water elevations represent approximately 3 inches of impounded depth.

5.4.4 Storage Capacity

The estimated maximum remaining storage capacity of the Upper Retention Sump at the time of the inspection was approximately 0.643 ac-ft.

5.4.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water and CCR solids in the Upper Retention Sump at the time of the inspection was less than 0.01 ac-ft.

5.4.6 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.

To maintain a safe working area for construction activities, the Upper Retention Sump has been significantly dewatered since the previous annual inspection in 2017 (Appendix D). A negligible volume of CCR solids and CCR-transport water was impounded at the time of the inspection.

5.5 DRY FLY ASH DISPOSAL AREA

5.5.1 Geometry Changes Since Last Inspection

Site 3 continued to receive ash loading after the 2017 inspection. Site 3 is divided into approximately three sequential sections from the east to the west. APS places ash in these sections from east to west to maintain a grade that will allow stormwater to drain off the west side of Site 3 to the lined leachate cell collection ponds.

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 4,642 ac-ft based on the July 2018 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 or operation of the landfill since the 2017 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) Water and clay were observed to be leaking out of four holes cut in the geomembrane liner along western portion of the South Embankment.	Repair the holes, investigate the approximate loss of clay, and repair the portion of clay that was lost. Determine why and how the liner was cut. Implement rules to prevent future damage to the liner and upstream clay blanket.
2) There are two bulges and a depression along the upstream slope in the Southwest Corner of the LAI.	The bulges and depression should be investigated and repaired. Bulges appear to be clay liner material eroded and deposited from tears in the liner repaired earlier (2017). Investigate depression and repair with clay material as needed.
3) There is a single-walled HDPE pipe along the West Embankment crest being used to pump water from the Southwest Corner to the Drop Inlet Structure.	The pipe should be moved inside the impoundment.
4) The downstream slopes of the West Embankment and the Northwest Embankment have minor erosion rills.	Continue ongoing repair program for repairing rills if the erosion depth exceeds 1 foot.
5) There are small tears and holes in the liner on the crest of the East Embankment.	Repair the tears.

6.2 LINED DECANT WATER POND

Observed Condition	Action Item
1) Two sloughs were observed on the lowermost bench of the West Embankment.	Repair the areas and monitor the slope.
2) The liner in the anchor trench in the central portion of the West Embankment appeared to be pulling out of the trench.	Investigate the cause of the damage and repair the liner as necessary.
3) Minor erosion rilling was observed on the North and West 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.
4) There are small holes and tears in the liner along the North and East Embankments.	Repair the tears and holes.

6.3 COMBINED WASTE TREATMENT POND

Observed Condition	Action Item
1) 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.	This is an ongoing maintenance requirement.
2) Several instances of minor erosion were observed on the downstream slope above the riprap.	Continue ongoing repair program for repairing erosion if the erosion depth exceeds 1 foot.
3) Longitudinal cracks along the downstream slope above the riprap.	Monitor the area and repair the slope if the cracks expand, deepen, or result in a slough/slide.
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) Shallow erosion holes in the crest.	Monitor the erosion holes and repair them if they exceed 1 foot deep or if additional erosion holes are observed.
6) Continue to monitor the embankment for animal burrows.	This is an ongoing maintenance requirement. Repair animal burrows as needed.

6.4 UPPER RETENTION SUMP

Observed Condition	Action Item
No deficient conditions were observed during the inspection.	N/A

6.5 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) Vacuum truck operators were allowing ash to be blown across the site while it was being unloaded.	Monitor contractor activities and enforce dust control plan.

7.0 REFERENCES

Arizona Public Service Corporation and AECOM. 2016. *Four Corners Power Plant Lined Ash Impoundment, Lined Decant Water Pond, Combined Waste Treatment Pond, Upper Retention Sump, and Dry Fly Ash Disposal Area – Annual CCR Impoundment and Landfill Inspection Report – 2015*. January.

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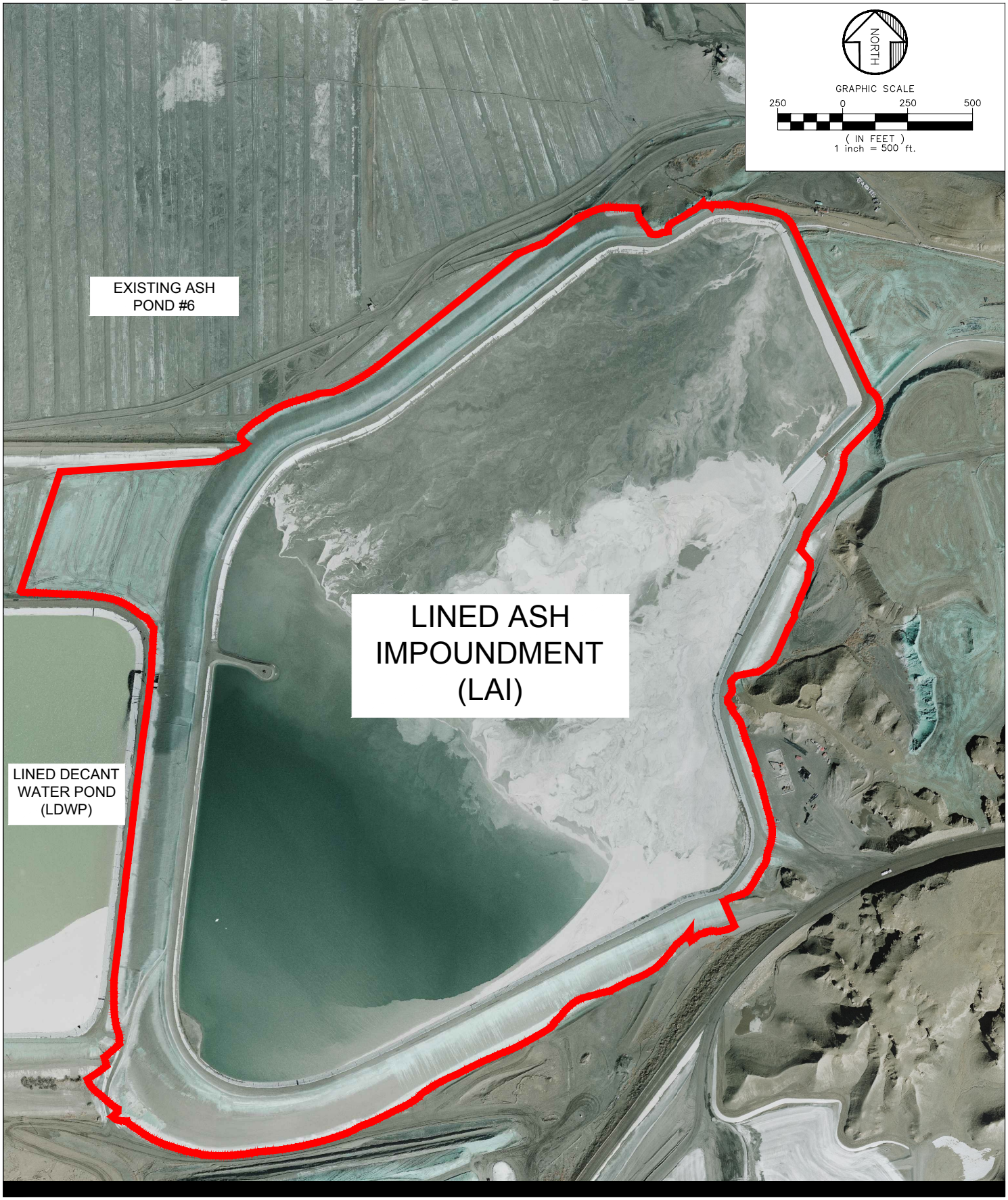
FIGURES

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

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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
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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"

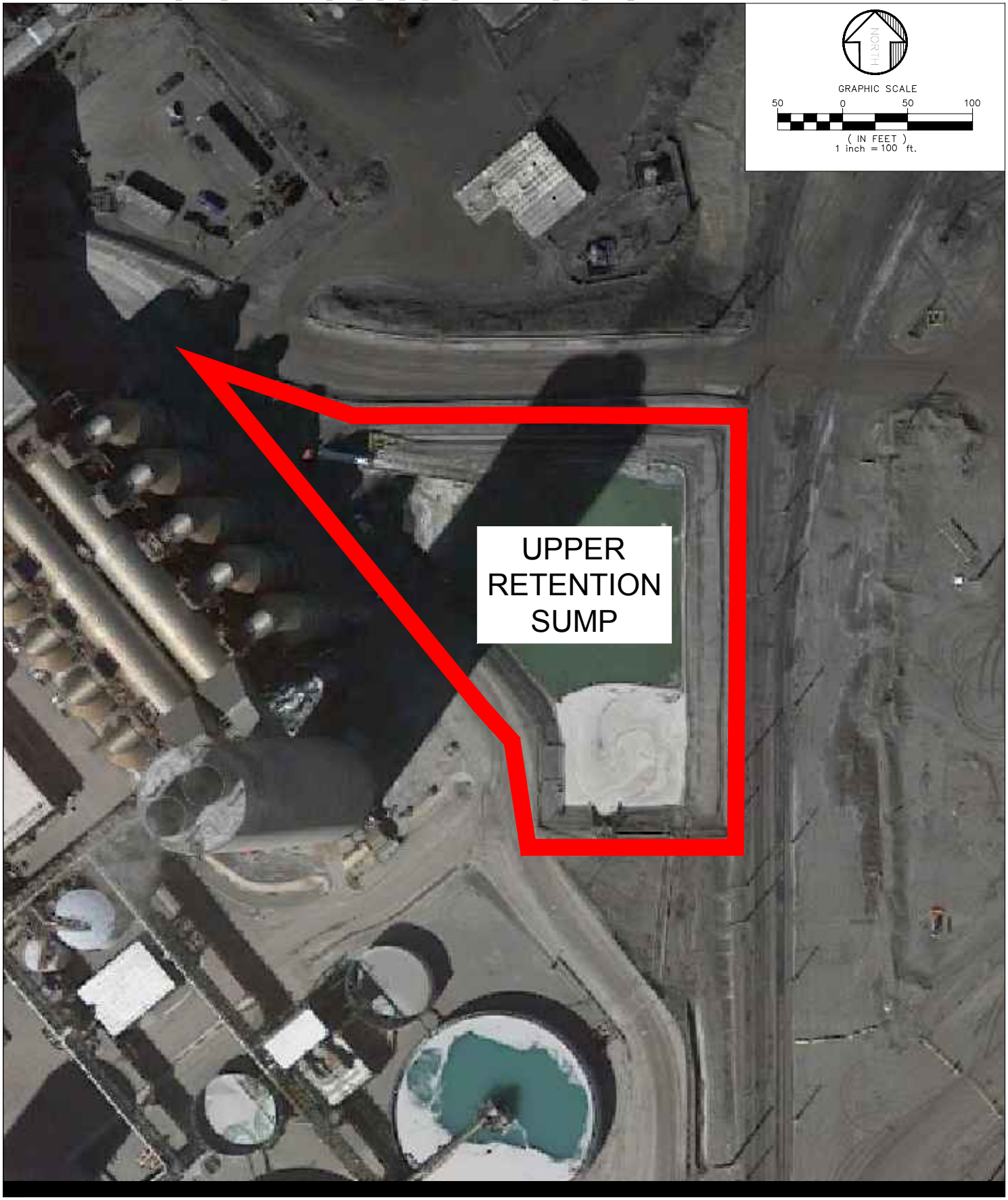
FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

COMBINED WASTE TREATMENT POND (CWTP)

AECOM

FIGURE 3

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03 ANSI A 8.5" x 11"
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 4 - UPPER RETENTION SUMP.DWG



FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
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UPPER
RETENTION SUMP

AECOM

FIGURE 4

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 5 - DFADA.DWG
ANSI A 8.5" x 11"

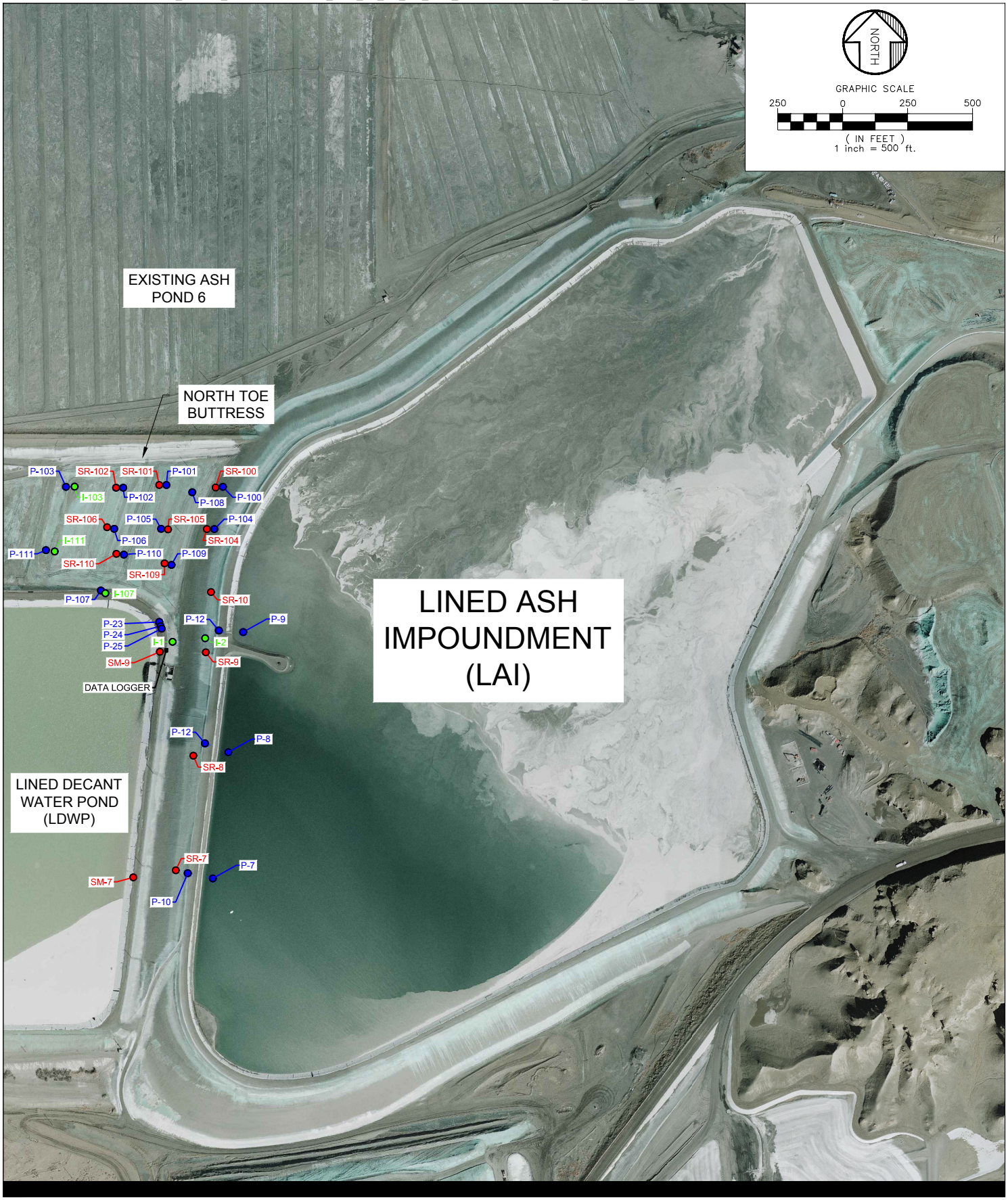
FOUR CORNERS POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

DRY FLY ASH
DISPOSAL AREA
(DFADA)

AECOM

FIGURE 5

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03 ANSI A 8.5" x 11"
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 6 - 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 6

Last saved by: LEE.WRIGHT(2018-12-03) Last Plotted: 2018-12-03 ANSI A 8.5" x 11"
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60589229_2018_FC_CH_MD_CCR_INSPECTIONS\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 7 - 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 7

APPENDIX A

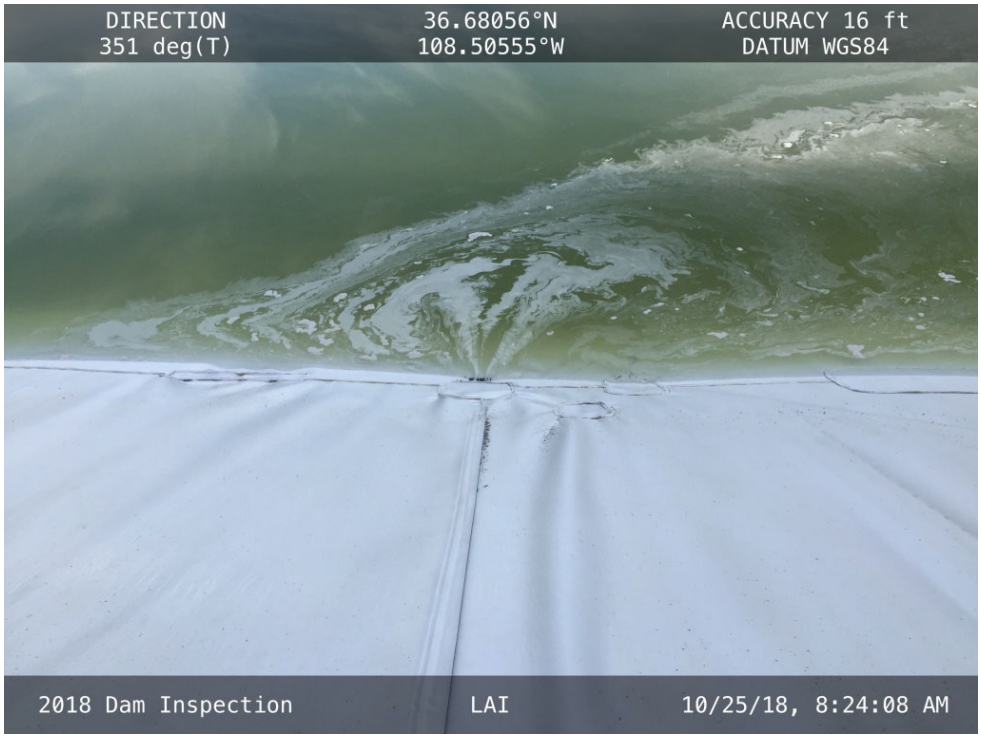
LINED ASH IMPOUNDMENT (LAI) PHOTO LOG

20181025 – IMG_0950
Woody vegetation growing on the downstream slope of the South Embankment.

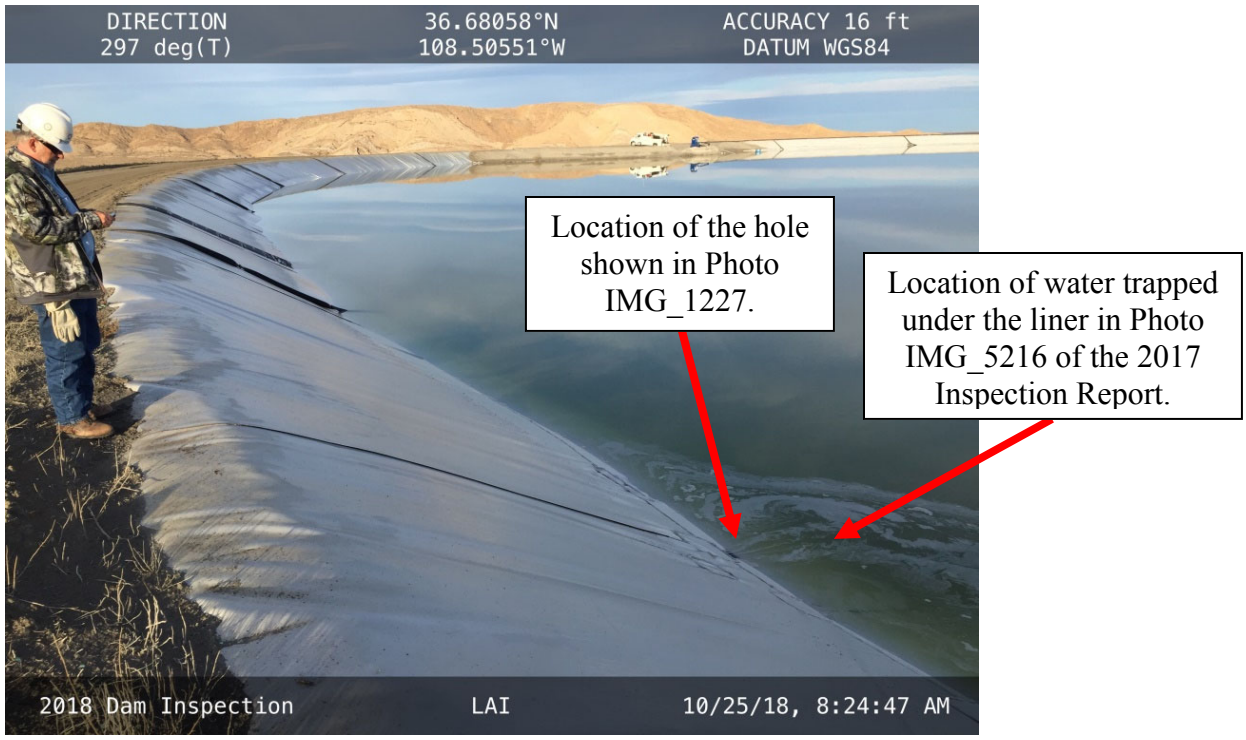
20181025 – IMG_1204
The crest of the South Embankment, facing west.

20181025 – IMG_1205
The downstream slope of the South Embankment, facing west.

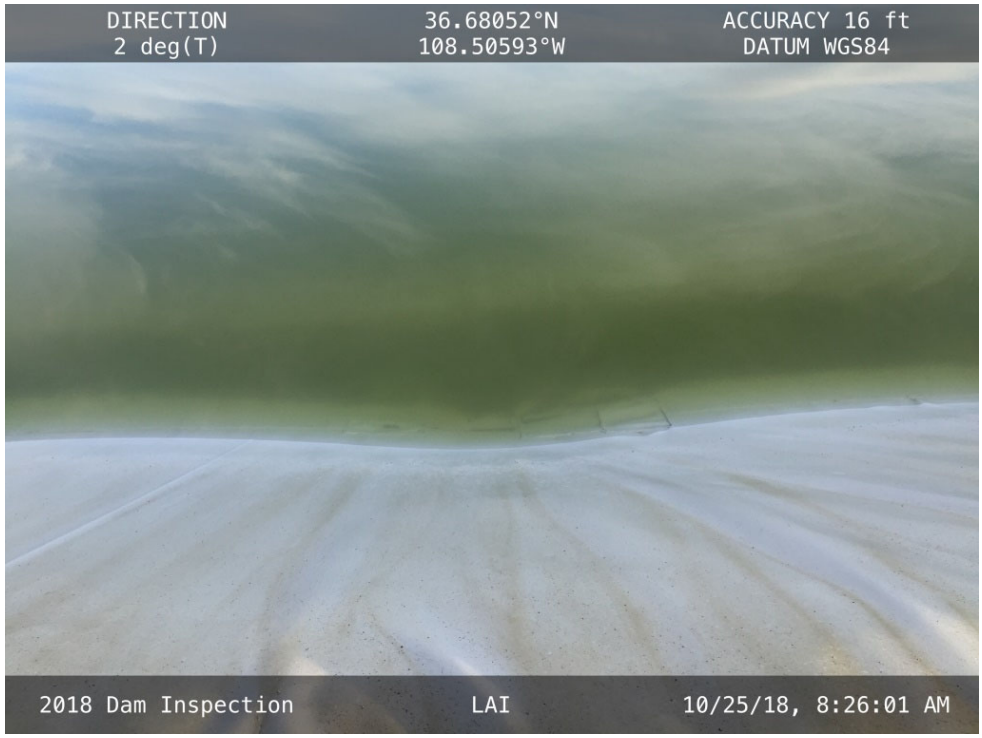
20181025 – IMG_1206
The upstream slope of the South Embankment, facing west.



20181025 – IMG_1227
Water flowing back into the LAI through a hole cut in the geomembrane liner along the South Embankment.

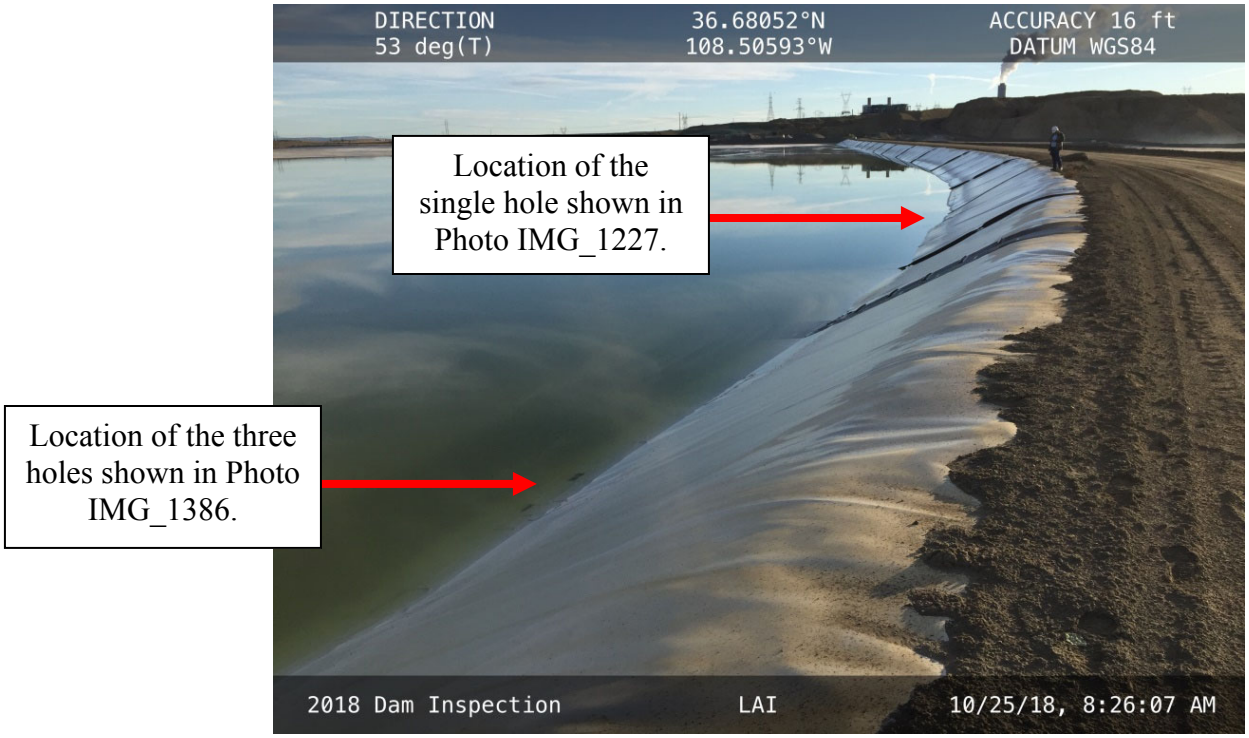


20181025 – IMG_1229
The upstream slope in the Southwest Corner, facing west.



20181025 – IMG_1233
Depression along the upstream slope of the South Embankment between holes cut in the liner.

20181025 – IMG_1386
Clay eroding out of three holes cut in the liner along the upstream slope of the South Embankment.



20181025 – IMG_1235
The upstream slope along the South Embankment with holes in the liner annotated, facing east.

20181025 – IMG_1244
Bulges in the geomembrane liner in the Southwest Corner of the LAI.

20181025 – IMG_1250
The portable pump APS uses to pump water out of the LAI and into the Drop Inlet Structure.

20181025 – IMG_1254
The upstream slope of the West Embankment, facing north from the South Embankment.

20181025 – IMG_1255
The crest of the West Embankment, facing north from the Southwest Corner.

20181025 – IMG_1256
The HDPE pipe that conveys water from the pump in the Southwest Corner to the Drop Inlet Structure.

20181025 – IMG_1267
The downstream slope and crest of the West Embankment, facing north.

20181025 – IMG_1269
Minor erosion on the downstream slope of the West Embankment.

20181025 – IMG_1272
Water being pumped from the Southwest Corner of the LAI into the Drop Inlet Structure.

20181025 – IMG_1293
The upstream slope of the West Embankment, facing north from the emergency ladder next to the Drop Inlet Structure.

20181025 – IMG_1294
The North Toe Buttress, facing northwest from the crest of the West Embankment.

20181025 – IMG_1305
The crest of the West Embankment, facing north from the Northwest Corner.

20181025 – IMG_1306
The crest of the West Embankment, facing south from the Northwest Corner.

20181025 – IMG_1017
Minor erosion rills along the downstream slope of the West Embankment near the NTB.

20181025 – IMG_1308
The upstream slope of the Northwest Embankment, facing northeast from the Northwest Corner.

20181025 – IMG_1313
The downstream slope of the Northwest Embankment, facing northeast.

20181025 – IMG_1322
The crest of the Northwest Embankment, facing northeast.

20181025 – IMG_1333
The crest of the Northwest Embankment, facing northeast.

20181025 – IMG_1335
The downstream slope of the Northwest Embankment, facing west.

20181025 – IMG_1338
Shallow erosion rill in the groin of the Northwest Embankment along the north end of the LAI.

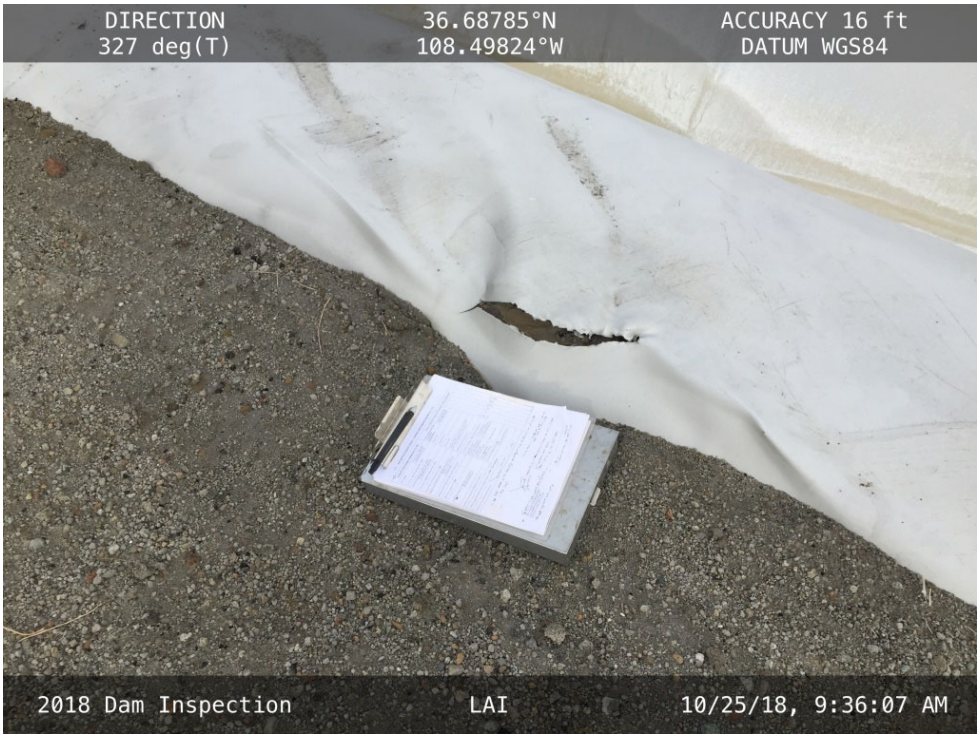
20181025 – IMG_1350
The upstream slope in the northernmost portion of the LAI, facing west.

20181025 – IMG_1356
The crest along the northern end of the East Embankment, facing southeast.

20181025 – IMG_1357
The crest and upstream slope of the East Embankment, facing southeast.

20181025 – IMG_1358
A small scratch and indentation in the liner along the East Embankment.

20181025 – IMG_1369
FGD sludge being deposited into the LAI from the V-ditch at the East Embankment.



20181025 – IMG_1373
A tear in the liner near the V-ditch at the East Embankment.

20181025 – IMG_1375
A small hole in the liner near the V-ditch at the East Embankment.

20181025 – IMG_1378
The upstream slope of the East Embankment near the abandoned V-ditch, facing southwest.

20181025 – IMG_1383
The downstream slope of the East Embankment, facing south.

20181025 – IMG_1388
The downstream slope of the West Embankment, facing north along the toe.

20181025 – IMG_1389
The downstream toe of the West Embankment, facing north.

20181025 – IMG_1415
The South Embankment toe drain in a dry condition.

APPENDIX B

LINED DECANT WATER POND (LDWP) PHOTO LOG

20181025 – IMG_1247
The South Embankment of the LDWP, facing west from the crest of the LAI.

20181025 – IMG_1413
The staff gauge and water elevation markings on the east side of the LDWP.

20181025 – IMG_1435
A shallow surface slough on the lowermost bench of the West Embankment.

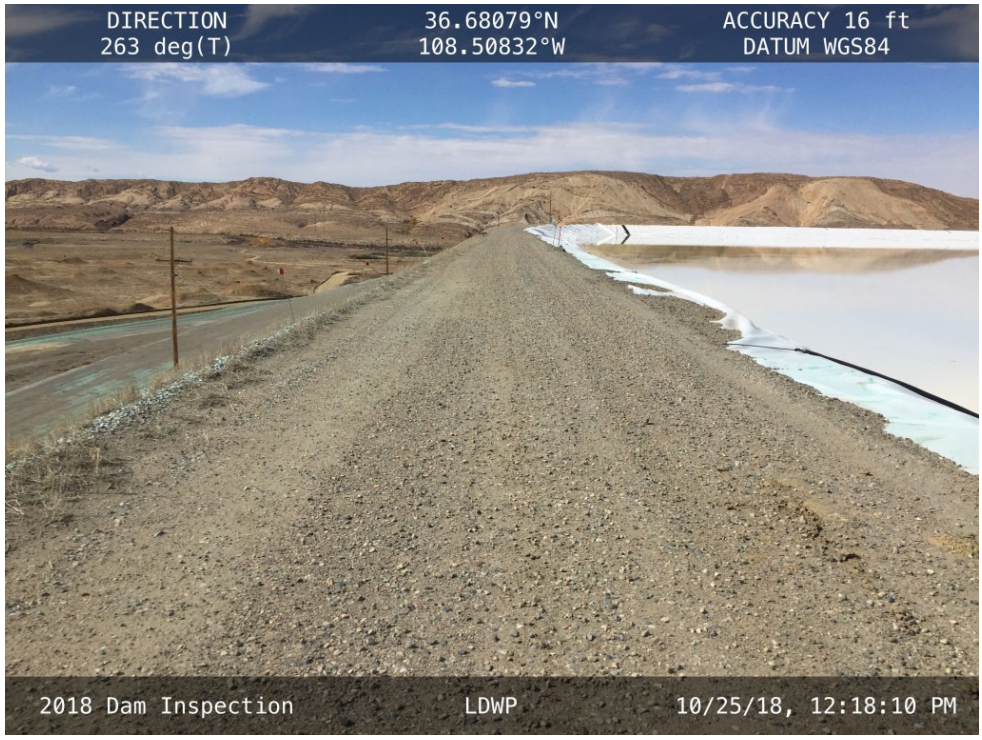
20181025 – IMG_1438
A second shallow surface slough on the lowermost bench of the West Embankment.

20181025 – IMG_1440
The toe and downstream slope of the South Embankment, facing east.

20181025 – IMG_1442
The South Embankment of the LDWP along the upper berm, facing west.

20181025 – IMG_1445
The Deadpool Sump control panels (no longer in use).

20181025 – IMG_1446
The upstream slope of the South Embankment, facing west.

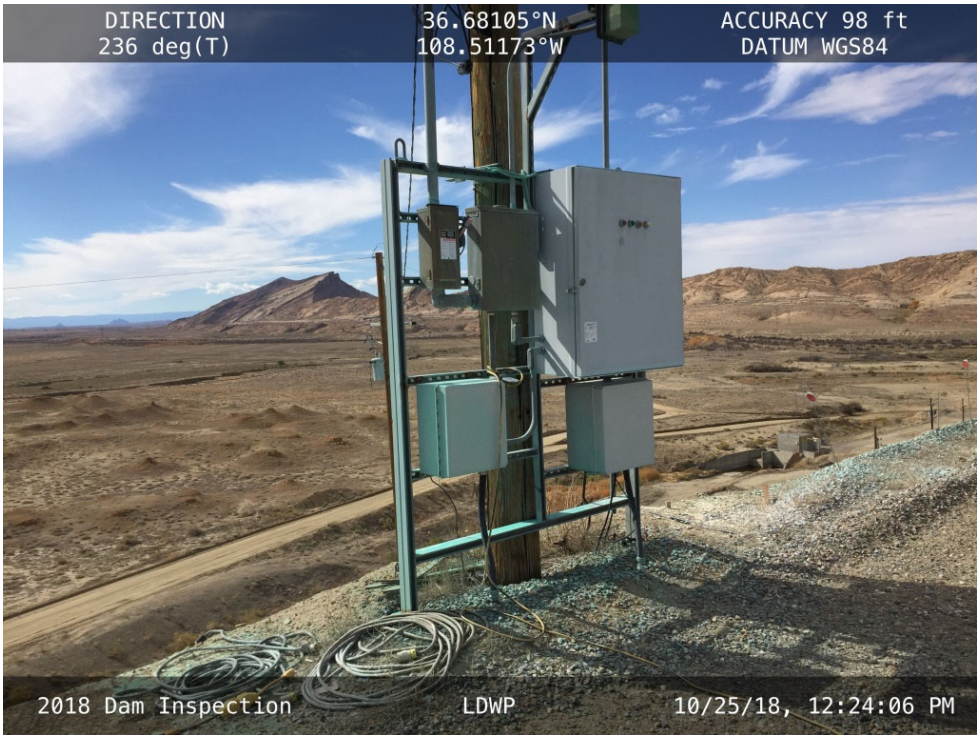


20181025 – IMG_1447
The crest of the South Embankment, facing west.

20181025 – IMG_1448
The downstream slope of the South Embankment, facing west.

20181025 – IMG_1452
The upstream slope of the East Embankment, facing northeast from the South Embankment.

20181025 – IMG_1459
The upstream slope of the West Embankment, facing northwest from the South Embankment.



20181025 – IMG_1463
The Interstitial Evacuation Pump control panel.

20181025 – IMG_1471
The HDPE pipes associated with the Interstitial Evacuation Pump.

20181025 – IMG_1479
The upstream slope of the West Embankment, facing north from the South Embankment.

20181025 – IMG_1480
The upstream slope of the South Embankment, facing east from the West Embankment.

20181025 – IMG_1481
The crest of the West Embankment, facing north.

20181025 – IMG_1489
The downstream slope of the West Embankment, facing north.

20181025 – IMG_1499
The discharge pipe from the Pond 3 Pump House along the West Embankment.

20181025 – IMG_1506
The downstream slope of the West Embankment, facing north.

20181025 – IMG_1510
The liner pulling out of the anchor trench in the northern portion of the West Embankment.

20181025 – IMG_1515
The northwest corner of the LDWP, facing north from the West Embankment.

20181025 – IMG_1521
A shallow dent in the liner in the northwest corner of the LDWP.

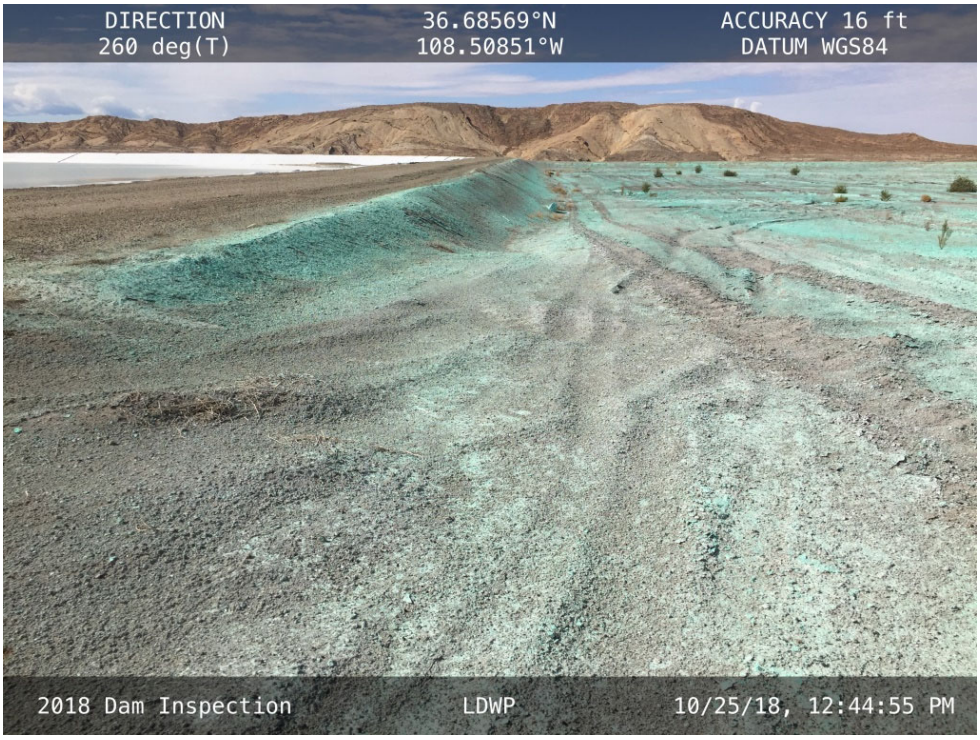
20181025 – IMG_1526
The crest of the North Embankment, facing east.

20181025 – IMG_1528
The downstream slope of the North Embankment, facing east.

20181025 – IMG_1529
A hole in the liner along the North Embankment already marked with a pin flag.

20181025 – IMG_1530
Small tears in the liner along the North Embankment already marked with a pin flag (these were also observed during the 2017 inspection).

20181025 – IMG_1531
The northeast corner of the LDWP, facing east from the North Embankment.



20181025 – IMG_1539
The downstream slope of the North Embankment, facing west.

20181025 – IMG_1540
The upstream slope of the East Embankment, facing south.

20181025 – IMG_1543
The surface monuments for piezometers P-23, P-24, and P-25.

20181025 – IMG_1547
The 8-inch and 16-inch HDPE outlet pipes conveying decant water from the LAI.

20181025 – IMG_1554
The LDWP pump station in the northeast corner of the perimeter embankment.

20181025 – IMG_1556
The LDWP pump station in the northeast corner of the perimeter embankment.

20181025 – IMG_1564
The liner pulling out of the anchor trench in the East Embankment.

20181025 – IMG_1566
The crest of the East Embankment, facing south.

20181025 – IMG_1571
A tear in the liner along the East Embankment (also observed during the 2017 inspection).

20181025 – IMG_1572
Shallow dents in the liner along the upstream slope of the East Embankment.

20181025 – IMG_1576
The upstream slope of the East and South Embankments, facing south.

20181025 – IMG_1580
The upstream slope of the East Embankment, facing north.

APPENDIX C

COMBINED WASTE TREATMENT POND (CWTP) PHOTO LOG

20181024 – IMG_0888
The outfall from the CWTP to the discharge canal.

20181024 – IMG_0907
The crest and upstream slope of the CWTP, facing east from the West Abutment.

20181024 – IMG_0908
The crest of the CWTP, facing east from the West Abutment.

20181024 – IMG_0909
The downstream slope of the CWTP, facing east from the West Abutment.

20181024 – IMG_0913
A shallow erosion rill on the downstream slope of the CWTP embankment.

20181024 – IMG_0914
Vegetation on the downstream slope of the CWTP embankment.

20181024 – IMG_0915
Vegetation and riprap along the waterline of the downstream slope.

20181024 – IMG_0920
The crest of the CWTP embankment, facing east.

20181024 – IMG_0921
Woody vegetation to be removed from the downstream slope.

20181024 – IMG_0923
The downstream slope of the CWTP embankment, facing east.

20181024 – IMG_0927
Erosion at the waterline along the downstream slope.

20181024 – IMG_0931
Erosion holes along the downstream shoulder of the crest.

20181024 – IMG_0933
Longitudinal cracks on the downstream slope of the CWTP embankment.

20181024 – IMG_0947
The crest of the CWTP embankment, facing northwest from the South Abutment.

20181024 – IMG_0950
The upstream slope and reservoir, facing northwest from the South Abutment.

20181024 – IMG_0952
Woody vegetation on the upstream slope near the South Abutment, facing north.

20181024 – IMG_0954
The upstream slope of the CWTP, facing west.

20181024 – IMG_0959
The crest of the CWTP embankment, facing west.

20181024 – IMG_0961
The upstream slope along the northern portion of the embankment, facing west.

20181024 – IMG_0964
The crest of the CWTP embankment, facing east.

20181024 – IMG_0969
The forebay pond on the west side of the CWTP.

APPENDIX D

UPPER RETENTION SUMP PHOTO LOG

20181024 – IMG_0842
Construction of the Upper Retention Sump (URS) Tank in the URS basin, facing north.

20181024 – IMG_0847
The south end of the Upper Retention Sump, facing southeast.

20181024 – IMG_0850
The south end of the Upper Retention Sump, facing the east cofferdam area.

20181024 – IMG_0866A
A temporary wall delineating the northern boundary of the Upper Retention Sump, facing north.

20181024 – IMG_0856
Temporary pumping equipment on the south side of the Upper Retention Sump.

20181024 – IMG_0861
Inlet pipes rerouted to the remaining footprint of the Upper Retention Sump, facing west.

20181024 – IMG_0862
Construction of the Upper Retention Sump Tank adjacent to the Upper Retention Sump.

20181024 – IMG_0864
The upstream slope along the east side of the Upper Retention Sump footprint, facing north.

20181024 – IMG_0866B
The south side of the Upper Retention Sump, facing west.

20181024 – IMG_0867
The south side of the Upper Retention Sump and Upper Retention Sump Tank, facing west.

20181024 – IMG_0869
Construction of the Upper Retention Sump Tank, facing west.

20181024 – IMG_0870
The upstream slope along the east side of the Upper Retention Sump footprint, facing south.

20181024 – IMG_0882
Construction of the Upper Retention Sump Tank, facing northwest.

20181024 – IMG_0886
The north side of the Upper Retention Sump footprint, facing west.

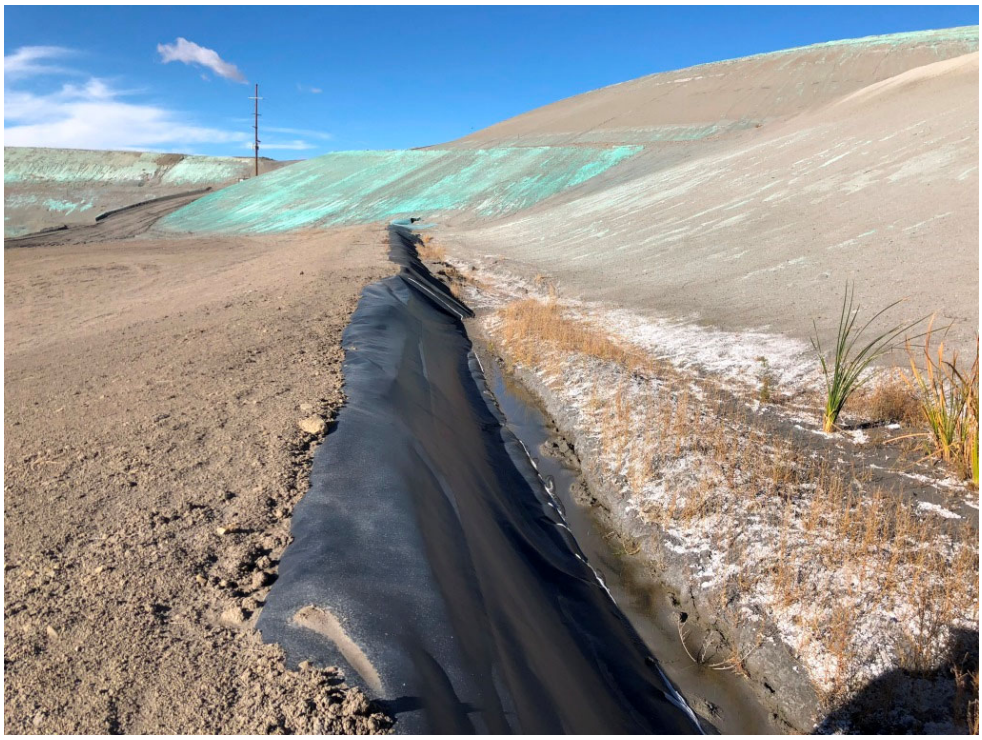
20181024 – IMG_0888
Construction of the Upper Retention Tank Sump in the URS footprint, facing south.

20181024 – IMG_0890
Construction of the Upper Retention Sump Tank in the URS footprint, facing south.

20181024 – IMG_0898
The north side of the Upper Retention Sump footprint, facing east.

APPENDIX E

DRY FLY ASH DISPOSAL AREA (DFADA) PHOTO LOG



20181024 – IMG_0933
Area of erosion repair along the western toe of Cell 3, facing north.

20181024 – IMG_0937
Area of additional erosion along the western toe of Cell 3 north of IMG_0933, facing north.

20181024 – IMG_1129
The east side of DFADA Cell 2, looking southwest from the ash haul road.

20181024 – IMG_1130
Dust generated by a vacuum truck along the southeast side of DFADA Cell 2.

20181024 – IMG_1131
The south slope of DFADA Cell 2, facing west along the toe.

20181024 – IMG_1134
The south slope of DFADA Cell 2, facing east along the toe.

20181024 – IMG_1135
The south slope of DFADA Cell 1, facing west along the toe.

20181024 – IMG_1136
Woody vegetation growing through the Pyramat in the southwest corner of Cell 1.

20181024 – IMG_1138
The leachate collection pond for DFADA Cell 2, facing north from the south berm.

20181024 – IMG_1140
The west side of DFADA Cell 1, facing north.

20181024 – IMG_1142
The leachate collection pond for DFADA Cell 1, facing northeast from the west side.

20181024 – IMG_1150
A repair in the DFADA Cell 1 leachate collection pond liner.

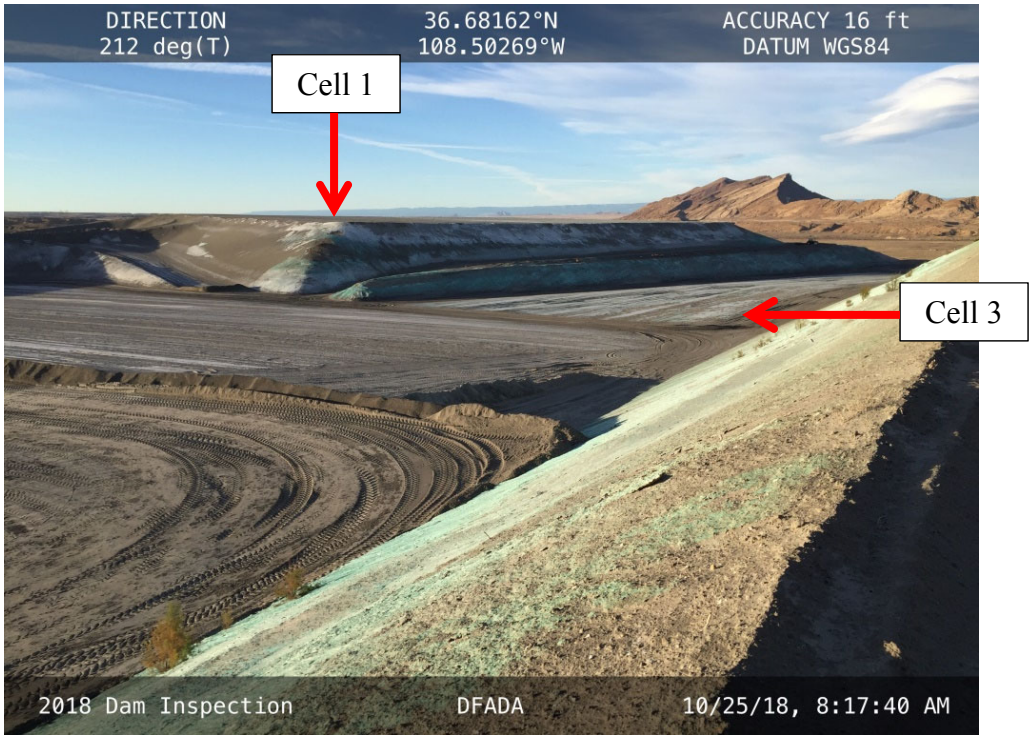
20181024 – IMG_1154
Vegetation growing in the drainage ditch and overflow channel of the leachate collection pond.

20181024 – IMG_1157
Woody vegetation growing through the Pyramat on the western toe of DFADA Cell 1.

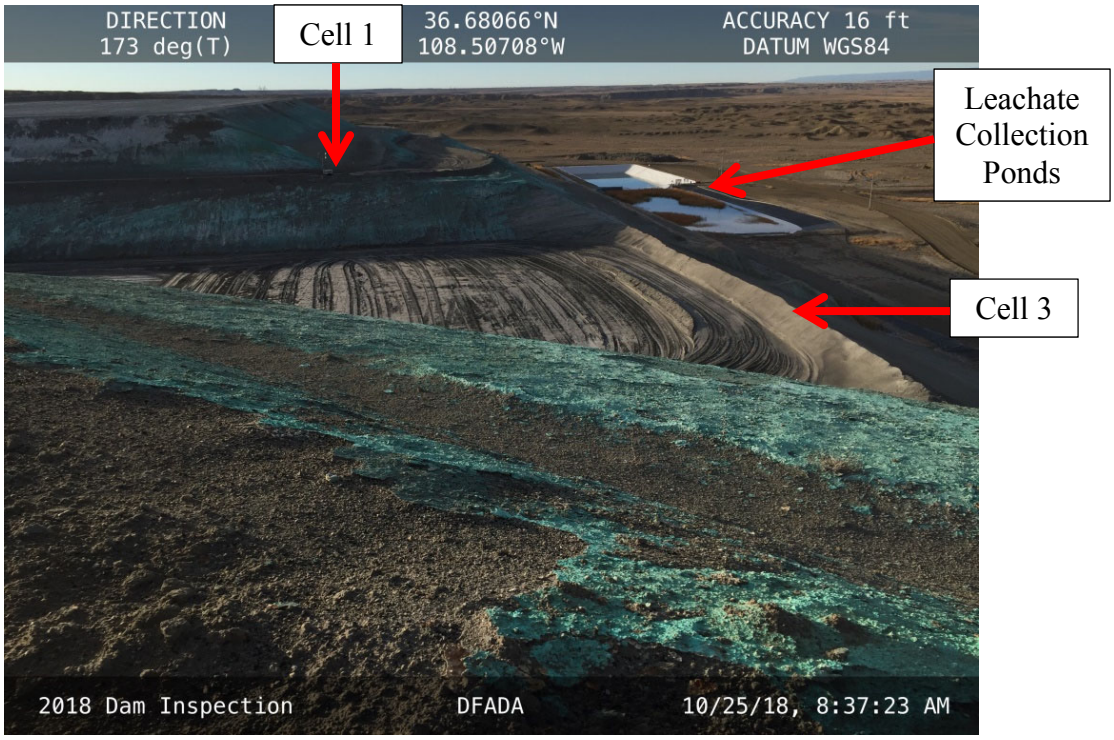
20181024 – IMG_1191
DFADA Cell 3, facing east from the South Embankment of the LAI.

20181024 – IMG_1202
The easternmost portion of DFADA Cell 3, facing east from the South Embankment of the LAI.

20181024 – IMG_1203
DFADA Cell 2 (background) and the central portion of Cell 3 (foreground), facing south.



20181025 – IMG_1224
DFADA Cell 1 and the western portion of Cell 3, facing southwest.



20181025 – IMG_1246
The leachate collection ponds and the western portions of DFADA Cells 1 and 3, facing south.

20181025 – IMG_1417
The Stormwater Diversion Channel around the eastern edge of DFADA Cell 2, facing east.

20181025 – IMG_1422
Erosion at the Stormwater Diversion Channel outlet, facing west.

20181025 – IMG_1423
Sediment in the Stormwater Diversion Channel near the outlet.

20181025 – IMG_1425
The south slope of DFADA Cell 1, facing northwest.

20181025 – IMG_1426
The south slope of DFADA Cells 1 and 2, facing north.

20181025 – IMG_1429
Inlet to the Stormwater Diversion Channel, facing east from the ash haul road.