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

Annual
CCR Impoundment and
Landfill Inspection Report

2021

GENERATION ENGINEERING
Design Engineering
P.O. BOX 53999
PHOENIX, ARIZONA 85072

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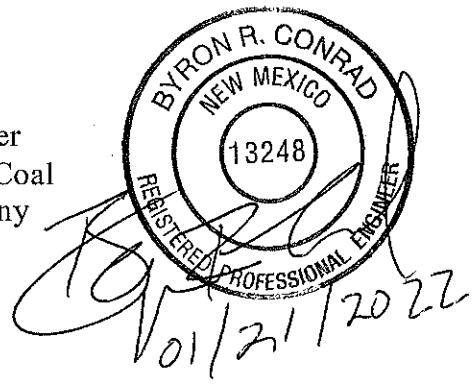
1.0 INTRODUCTION

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 Dry Fly Ash Disposal Area, and the Return Water Pond. The Lined Ash Impoundment and Lined Decant Water Pond are instrumented with piezometers, inclinometers, settlement monuments, and settlement rods.

Inspection Conducted by

Byron R. Conrad, P.E.
Consulting Geological Engineer
APS Generation, Fossil Projects Coal
Arizona Public Service Company



Lee M. Wright, P.E.
Geotechnical Engineer
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7720 North 16th Street, Suite 100
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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. Unit 4 was running at the time of the inspection.

The coal combustion process produces Coal Combustion Residuals (CCR) consisting of bottom ash (silty sand, Unified Soil Classification System SM), fly ash (low plasticity silt, Unified Soil Classification System ML), and flue gas desulfurization (FGD) sludge. The Plant is operated as a low volume water usage system. The Dry Fly Ash Disposal Area (DFADA) is a CCR landfill used to dispose of dry CCR from Units 4 and 5. The Return Water Pond (RWP) is an impoundment facility for temporary storage of Lined Ash Impoundment (LAI) and Lined Decant Water Pond (LDWP) and Pond 3 pump house discharges; it consists of two cells – the Return Water Pond cell and the FGD Pond cell, collectively designated as the "RWP." The LAI was used for CCR disposal, and the LDWP is used to store water drained from the LAI. The Combined Waste Treatment Pond (CWTP) is a former settling pond for bottom ash sluice water and various storm water, process water, and Plant washdown streams. The LAI, LDWP and CWTP stopped receiving CCR flows and closure of the ponds has started. These five coal combustion waste units are the subject of this inspection report.

The field inspection was conducted on Wednesday, October 27, 2021 and Thursday, October 28, 2021. Conditions were cool (35-65 degrees Fahrenheit) with clear skies. Winds were moderate on Wednesday, averaging 21 miles per hour (mph) with gusts up to 47 mph. Winds were lighter on Thursday, averaging 10 mph with gusts up to 40 mph. Approximately 5.28 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 2021).

Instrumentation at the LAI and LDWP consists of open standpipe PVC piezometers, vibrating wire piezometers, inclinometers, settlement monuments, and settlement rods. 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 are manually gathered and processed by Plant personnel. The settlement monuments and settlement rods are measured using a Global Positioning System (GPS) survey. Data for the settlement monuments and settlement rods are gathered and processed by a third-party Professional Surveyor under contract with APS. APS Plant personnel review the third-party survey data.

The benchmarks for the elevations reported for GPS surveys of the settlement monuments at the Four Corners Power Plant are based on 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) (attached).

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) design 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 5264 feet during the inspection.

APS stopped discharging to the LAI on April 2, 2021. At the time of the October inspection, APS was pumping impounded water from the LAI to the LDWP as part of closure of the LAI.

During this inspection, the impounded ash level in the LAI was observed to be higher than previous inspections, including being at or near the crest elevation along the Northwest and East Embankments (also observed during the 2020 inspection) and within approximately 2 feet of the Northwest Embankment crest. In addition, APS performed a topographic survey of the LAI and LDWP in 2021, which indicated that the West Embankment has settled and is approximately one foot lower than the design value of EL 5280 feet. In northern portions of the pond, the ash impounded against the West Embankment is as high as EL 5277.67 feet, providing only 1.3 feet of freeboard, as compared to the design freeboard of 4.8 feet, of which 2.0 feet was designated for the probable maximum flood (PMF) and the remaining 2.8 feet was designated for wave run-up.

During the final years of deposition, the impounded solids filled the LAI at a steeper slope than projected in design, meaning that the north end is higher and the south end is lower than projected. As a result, the LAI does not currently have sufficient capacity to retain the 72-hour PMP with 2.8 feet of residual freeboard as designed, although the LAI does currently have capacity to retain the 1,000-year, 72-hour IDF required for "significant hazard potential" CCR surface impoundments in 40 CFR § 257.74(d)(1)(v)(B), with 2.8 feet of residual freeboard in the southern portion of the pond where water is impounded. APS intends to restore capacity to retain the significantly larger 72-hour PMP by raising the West Embankment crest to its design elevation and excavating a ditch around the perimeter of the embankment to divert stormwater to the Southwest Corner so as to prevent stormwater from overtopping the crest in the areas where little to no storage capacity is available and ponding will not occur.

3.2 LINED DECANT WATER POND (LDWP)

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

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 5205.2 feet during the inspection.

3.3 COMBINED WASTE TREATMENT POND (CWTP)

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

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 and has a maximum storage capacity of 137 acre-feet. The embankment is approximately 32 feet high (maximum) and approximately 1,800 feet long. The embankment is classified under the NMAC as "small" size and "low" hazard. Until 2020, the CWTP was 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. Ash and other sediment settled in separate earthen settling basins within the CWTP footprint prior to the water overflowing into the main CWTP.

APS constructed the Bottom Ash Sluice Water Recycle (BASWR) Tank to replace the CWTP in 2020. The BASWR Tank is a concrete sedimentation tank constructed above grade that provides water quality treatment of bottom ash sluice water and low volume waste flows from the Plant before discharge through a dedicated NPDES outfall to the cooling water canal. The BASWR Tank is not a CCR unit under 40 CFR § 257.53 and is not a part of this inspection.

APS ceased discharging to the CWTP by November 23, 2020. To maintain the current phreatic regime in the embankment between the reservoir and the canal, and to continue providing water to the Navajo Mine, APS added a dual-walled 18-inch pressure pipe to pump water from the discharge canal into the CWTP reservoir. The pump system has level controls to keep the reservoir consistent. Based on the 2021 IDF update (AECOM 2021), the normal operating level is now at EL 5329.5 feet (NAVD88; EL 5326.488 feet NGVD29). The water in the CWTP was observed to be at EL 5328.07 feet (NGVD29) during the inspection, corresponding to 1′-5″ below the top of the stop logs at the spillway.

3.4 DRY FLY ASH DISPOSAL AREA (DFADA)

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

The DFADA is a lined landfill and dry fly ash disposal facility. The four DFADA cells have a maximum capacity of 8,028 acre-feet and an ultimate maximum height of approximately 105 feet. The DFADA currently consists of four conjoined cells: Cells 1, 2, 3, and 4. Construction at the four Cells has been ongoing since 2007. Cell 1 is constructed with an HDPE geomembrane overlying a compacted clay subgrade. Cells 2 and 3 are constructed with a geosynthetic clay liner (GCL) overlain by an HDPE geomembrane selected for general compliance with the EPA's *Guide for Industrial Waste Management* (EPA 2003). A drainage layer was installed over the HDPE geomembrane in all three cells as recommended in the EPA guidance. Construction of Cell 4 was completed in 2021. Cell 4 is underlain with an alternative composite liner that meets the requirements of 40 CFR § 257.70(c) and a leachate collection and removal system that meets the

requirements of 40 CFR § 257.70(d). 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. At the time of the inspection, APS had not yet placed ash in Cell 4.

3.5 RETURN WATER POND (RWP)

The RWP is represented on Figure 5 – Return Water Pond (RWP) (attached).

The RWP is an approximately 5.13-acre lined impoundment facility for the temporary storage of LAI/LDWP and Pond 3 pump house discharges. The RWP was constructed in 2019 and was placed into service as a CCR unit on October 20, 2020. It has a maximum storage capacity of 38.6 acre-feet (at EL 5379 feet). The embankment is incised on the southwest and part of the southeast sides, while the remaining portion consists of a dike. The maximum free-standing embankment height is approximately 12 feet (in the north corner). The crest width is 20 feet and the crest length is approximately 2,067 feet. The embankment does not meet the criteria of a "jurisdictional dam" under 19.25.12.7D.(1) of the NMAC and is not regulated by NMOSE, but is classified as a "Low Hazard Potential CCR Surface Impoundment" under 40 CFR § 257.53. Inflow to the RWP is managed by four distinct pumping stations, which are manually operated by Plant personnel. Outflow from the RWP is managed by a dedicated pumping station, which is also manually operated by Plant personnel. Water in the RWP is pumped back to the Plant and used as process make up water.

4.0 FIELD INSPECTIONS

This section contains the 2021 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 DFADA (Section 4.4), and the RWP (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="16">Not Applicable
No
Yes
Monitor
Repair
Investigate</td></tr>
<tr><td>SID: D-634</td><td>Dam Name: Lined Ash Impoundment (LAI)</td><td>Type: Zoned earth and ash fill with geomembrane</td><td colspan="2">Purpose: Fly ash and FGD sludge disposal</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="3">Report Date: January 21, 2022</td></tr>
<tr><td colspan="2">Inspected by: Byron Conrad, P.E. (APS), Dennis Carlson (APS), Lee Wright, P.E. (AECOM)</td><td colspan="3">Inspection Date: October 27, 2021</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 15, 2022</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,280 (West Embankment; currently at 5,279 ft)</td><td colspan="3">Design Spillway Crest Elevation (ft): 5,277.84 (rim of 8-foot-diameter riser; no spillway)</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 4.8 (West Embankment)</td><td colspan="3">Measured Total Freeboard (ft):
16 (in the Southwest Corner)
1.33 (on the north end of the West Embankment)
0 (along parts of the Northwest and East Embankments)</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 107 (South Embankment)</td><td colspan="3">Structural Height (ft): 107 (South Embankment)</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Length (ft): 6,600</td><td>Upstream Slope:
3:1 (West Embankment)
2:1 (South Embankment)</td><td colspan="2">Downstream Slope:
3:1 (West Embankment)
2:1 (South Embankment)</td></tr>
<tr><td rowspan="2">Lat: 36° 41' 05" (per NMOSE permit)
Long: 108° 30' 26" (per NMOSE permit)</td><td colspan="2" rowspan="2">Water Rights: N/A</td></tr>
<tr><td colspan="2">Dam Crest Width (ft): 30 (West Embankment)
20 (South Embankment)</td></tr>
<tr><td colspan="3">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="5">Inflow Design Flood/Safe Flood-Passing Capacity: PMF – fully contained</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~ EL 5264 (in the Southwest Corner)</td><td rowspan="2">Photos: Yes. See Appendix A.</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): ~ EL 5266 (Southwest Corner)
~ EL 5288.21 (north V-ditch)
~ EL 5295 (old V-ditch)</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?	**Yes**	Describe and list required action: **See comment i.**			**X**		**X**	
f	Safe storage level on License:	**5,275.2 feet**	Should level be revised:		**X**				
g	Any License violations?	**Yes**	Describe and list required action: **See comment i.**			**X**		**X**	
h	Date of current License:	**October 27, 2015**	Should new License be issued?		**X**				
i	Date of last Emergency Action Plan revision: **1/2020**		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 2022**								

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 2021 (for 2020)**	Should new readings be taken and new report provided? **Monthly measurement and annual reporting are required.**			**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions?	**See comment ii.**			**X**		**X**	
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?	**Small holes (1-2 inches in diameter) along the crest were observed in various locations (Photos IMG_7653, IMG_7567, IMG_7757, IMG_7768, and IMG_7776). Mud cracks observed on the East Embankment during the 2020 inspection were still present, but not as prominent during this inspection.**			**X**	**X**		
d	Animal burrows?			**X**				
e	Adverse vegetation?			**X**				
f	Erosion?			**X**				

Lined Ash Impoundment (LAI)		SID: **D-634**	N/A	No	Yes	Mon	Rep	Inv
4	***UPSTREAM SLOPE***							
a	Erosion?			**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	Liner damage?	**See comment iii.**			**X**	**X**		
g	Settlements, slides, depressions, bulges?	**See comment iii.**			**X**	**X**		
h	Animal burrows?			**X**				
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**Erosion on the West and Northwest Embankments was observed (see Appendix A). Repair all erosion that extends deeper than 1 foot.**			**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?	**See comment iv.**		**X**				
h	Soft spots or boggy areas?			**X**				
i	Movement at or beyond toe?	**The DFADA Cell 3 lateral expansion is within 20 feet of the South Embankment crest (See IMG_7691, IMG_7719, and IMG_7724 in Appendix D).**		**X**				
j	Animal burrows?			**X**				
6	***ABUTMENT CONTACTS***							
a	Erosion?	**There is an erosion rill at the junction of the Northwest Embankment and the West Embankment (Photo IMG_7909).**			**X**		**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:	**A French drain, now buried, captured seepage from beneath the south toe. Except when bottom ash was being placed as the South Embankment was being raised, the French drain has rarely produced any measurable flow. There was no flow from the outlet at the time of inspection (Photo IMG_7581).**						
b	Internal drains flowing?	**See comment viii.**			**X**			
c	Seepage at or beyond toe?			**X**				
d	If so, does seepage contain fines?		**X**					
e	Evidence of sand boils at or beyond toe?			**X**				

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

Additional comments and recommendations for the LAI:

i. The LAI does not have sufficient capacity to retain the 72-hour PMP with 2.8 feet of residual freeboard as designed, although the LAI does currently have capacity to retain the 1,000-year, 72-hour IDF. Survey data from 2021 indicated that the West Embankment crest settled and is approximately one foot lower than the design value of EL 5280 feet. In northern portions of the pond, the ash impounded against the West Embankment is as high as EL 5277.67 feet, providing only 1.3 feet of freeboard, as compared to the design freeboard of 4.8 feet, of which 2.0 feet was designated for the probable maximum flood (PMF) and the remaining 2.8 feet was designated for wave run-up.

   APS intends to address the combination of low design crest and inadequate freeboard by restoring the West Embankment crest to its design elevation and excavating a ditch around the perimeter of the embankment to divert stormwater to the Southwest Corner so as to prevent stormwater from overtopping the crest in the areas where little to no storage capacity is available. APS has pumped the free-standing water in the Southwest Corner of the LAI down to allow sufficient capacity to retain the 72-hour PMP, and continues to monitor the Southwest Corner.

ii. Ruts were observed on the downstream side of the South Embankment crest (Photo IMG_7698) and the downstream side of the East Embankment crest (Photo IMG_7656). These did not appear to be affecting the structural integrity of the dam, but drivers should be instructed to avoid driving through these areas and such depressions should be repaired.

iii. The uneven depressions and bulges along the South Embankment observed during previous inspections were present during this inspection (Photos IMG_7688 and IMG_7709). Several of these depressions and bulges are in the vicinity of previously observed holes in the upstream liner that were later patched and may be due to the presence of water trapped underneath the liner. The presence and actual causes of the bulges should be recorded, and the geotechnical engineer should be consulted. Repair documentation should be maintained with the operating record.

   There are tears in the exposed liner at the cenosphere mining area in the Southwest Corner (Photo IMG_7730). The working area for the cenosphere mining operation is built into the reservoir area and the liner damage is not affecting the integrity of the embankment. The area should be monitored.

   Two protrusions were observed beneath the liner on the upstream slope near the midpoint of the South Embankment (Photo IMG_7700). There did not appear to be any damage to the liner in this area. The liner appeared to be tighter, possibly as a result of the lower water level in the reservoir and presumed settlement of the impounded solids. The protrusions should be monitored and the liner should be repaired if it tears.

iv. The 8-inch diameter hole at the toe of the West Embankment first observed during the 2019 inspection was not present during this inspection (Photo IMG_7898). There were no signs of instability in the area observed during this inspection. The hole was observed to be filled with loose ash during the 2020 inspection and may have been further filled via erosion throughout the previous year.

v. The North Toe Buttress (NTB) was constructed as part of the 5280 Lift of the LAI to provide additional stability in the northern portion of the West Embankment (Photo

IMG_7787). The NTB appeared to be in good condition during the inspection. The NTB foundation instruments are discussed in Section 5.1.

vi. FGD, process water, and other CCR waste had been deposited into the LAI via a V-ditch on the north side of the CCR unit (Photo IMG_7605). APS ceased deposition in 2021 and has been draining the LAI by pumping water from the Southwest Corner (Photos IMG_7738 and IMG_7742) to the Drop Inlet Structure (Photo IMG_7775), which discharges the water into the LDWP. At the time of the inspection, the ash level along the Northwest Embankment was at the crest elevation (Photos IMG_7789, IMG_7802, IMG_7805, IMG_7807, IMG_7814, IMG_7823, IMG_7827, and IMG_7836).

vii. The primary outlet from the LAI is an 8-foot diameter vertical, perforated HDPE riser, referred to as the Drop Inlet Structure (Photo IMG_7775), connected at the bottom to 16-inch and 8-inch diameter HDPE gravity pipe outlets that drain into the LDWP. The Deadpool Sump, an 8-inch diameter HDPE perforated drain pipe, penetrates the Southwest Corner of the LAI embankment and discharges into the southeast corner of the LDWP.

viii. Water was observed discharging into the LDWP from the LAI via the 8-inch pipe (Appendix B – LDWP Photo IMG_7996).

ix. The weekly inspection reports for the period between October 1, 2020 and September 30, 2021 were reviewed and indicate the following:

   a. Beginning with the September 7, 2021 inspection, APS indicated that there were signs of erosion on the downstream slope that required monitoring. The weekly inspections attributed the erosion to recent rainstorms. During the annual inspection, APS personnel reported that there was a storm event in September that resulted in areas of new erosion throughout the Plant site.

   b. No weekly CCR inspection was performed between 4/19/21 and 4/29/21.

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

<table>
<tr><td colspan="3">Lined Decant Water Pond (LDWP)</td><td colspan="2">State Identification Number (SID): D-635</td><td rowspan="16">Not Applicable</td><td rowspan="16">No</td><td rowspan="16">Yes</td><td rowspan="16">Monitor</td><td rowspan="16">Repair</td><td rowspan="16">Investigate</td></tr>
<tr><td>SID: D-635</td><td>Dam Name: Lined Decant Water Pond (LDWP)</td><td>Type: Zoned earth and ash fill with double-liner geomembrane and leak detection</td><td>Purpose: Store recycled LAI decant water and collected groundwater</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="2">Report Date: January 21, 2022</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 27, 2021</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="2">Review Date: January 15, 2022</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,216</td><td colspan="2">Design Spillway Crest Elevation: No spillway</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 2.8 (above the maximum surcharge level, EL 5213.2)</td><td colspan="2">Measured Total Freeboard (ft): 10.8</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 16</td><td colspan="2">Structural Height (ft): 16</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 5,488</td><td>Upstream Slope: 3:1</td><td>Downstream Slope: 2:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 30 feet (North, East Embankments)
20 feet (West, South Embankments)</td><td>Lat: 36° 41' 00" (per NMOSE permit)</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108° 30' 45" (per NMOSE permit)</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 45.4 (at EL 5213.2 ft) per APS drawing 150793.2.1</td><td colspan="2">Reservoir Storage (ac-ft): 435 (normal operating capacity)</td></tr>
<tr><td colspan="4">Inflow Design Flood/Safe Flood-Passing Capacity: PMF – fully contained</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~ EL 5205.2</td><td rowspan="2">Photos: Yes. See Appendix B.</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 solids)</td></tr>
</table>

Lined Decant Water Pond (LDWP)		SID: **D-635**	N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST								
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***							
a	Recorded downstream hazard: **Significant**	Should hazard be revised?		**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **N/A**	Is there a significant increase since the last inspection?		**X**				
c	Recorded size: **Intermediate**	Should size be revised?		**X**				
d	Any safety deficiencies? **No**	Describe:		**X**				
e	Any statute or rule violations? **No**	Describe and list required action:		**X**				
f	Safe storage level on License: **5,213.2 feet**	Should level be revised:		**X**				
g	Any License violations? **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: **1/2020**	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 2022**							

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 2021 (for 2020)**	Should new readings be taken and new report provided? **Monthly measurement and annual reporting are required.**			**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions? **See comments i and ii.**				**X**		**X**	
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?			**X**				
d	Animal burrows?			**X**				
e	Adverse vegetation?			**X**				
f	Erosion? **Erosion was observed on the East Embankment crest near the suction intake lines (Photo IMG_8001).**				**X**		**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	Liner damage? **See comment iii.**				**X**		**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?	**Erosion was observed on downstream slopes of the North, South, and West Embankments (Photos IMG_7866, IMG_7868, IMG_7881, IMG_7921, IMG_7922, IMG_7968, and IMG_3691). These should be repaired when they exceed 1 foot in depth.**			**X**	**X**	**X**	
b	Inadequate ground cover?	**The downstream 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:	**The 8-inch inflow pipe through the East Embankment was conveying water from the LAI to the LDWP at the time of the inspection. Water was not flowing in the 16-inch pipe or the Deadpool Sump pipe at the time of the inspection.**			**X**	**X**		
b	Internal drains flowing?	**The leakage collection and evacuation system Interstitial Evacuation Pump was out of service during the inspection (Photo IMG_7937). The pump is susceptible to corrosion due to the chemical makeup of the impounded water; the auxiliary operators monitor this pump as part of their daily inspection and replace it when necessary.**			**X**	**X**		
c	Seepage at or beyond toe?			**X**				
d	If so, does seepage contain fines?		**X**					
e	Evidence of sand boils at or beyond toe?			**X**				

RESERVOIR CHECKLIST								
8	***RESERVOIR***							
a	High water marks?			**X**				
b	Erosion/slides into pool area?			**X**				
c	Sediment accumulation?	**Minor amounts of suspended FGD solids and fly ash settle in the impoundment.**			**X**			
d	Floating debris present?	**Two whalebacks were observed on the north side of the reservoir (Photos IMG_7984 and IMG_7991).**			**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 iv.**			**X**			

Additional comments and recommendations for the LDWP:

i. The 8-inch diameter hole on the crest of the East Embankment first observed during the 2019 inspection was not present during this inspection (Photo IMG_7898). There were no signs of instability in the area observed during this inspection. The hole was observed to be filled with loose ash during the 2020 inspection and may have been further filled via erosion throughout the previous year.

ii. A rut was observed on the upstream half of the South Embankment crest (Photo IMG_7918). The liner was not exposed as it was during the 2020 inspection, but the area should be repaired before the liner is damaged or the rut extends further.

iii. The two sheets of liner observed to be separated along the North Embankment during the 2020 inspection (2020 Photo IMG_3619) were present during this inspection. In addition, the hole in the liner observed during the 2019 inspection is still present (Photo IMG_7975).

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

v. The liner was observed to be pulling out of the anchor trench in isolated areas along the West and East Embankments (Photo IMG_7954). The magnitude of pullout does not appear to have changed compared to the 2017, 2018, 2019, and 2020 inspections. Continue to monitor.

vi. Portions of the outer pipes for the siphon lines are exposed along the East Embankment crest (Photo IMG_8005) and the edge of the liner is exposed at the edge of the anchor trench near the midpoint of the East Embankment (Photo IMG_8009). Additional fill should be placed and compacted in these areas to prevent damage to the pipes.

vii. With the RWP now operational, APS has primarily used the LDWP to store and evaporate water decanted from the LAI throughout the current review period. Since the LAI no longer receives inflow from the Plant, the reservoir level in the LDWP was relatively lower during the October 1, 2020 and September 30, 2021 timeframe compared to previous years.

viii. The weekly inspection reports for the period between October 1, 2020 and September 30, 2021 were reviewed and indicate the following:

   a. Beginning with the September 3, 2021 inspection, APS indicated that there were signs of erosion on the downstream slope that required monitoring. The weekly inspections attributed the erosion to recent rainstorms. During the annual inspection, APS personnel reported that there was a storm event in September that resulted in areas of new erosion throughout the Plant site.

   b. No weekly CCR inspection was performed between 4/19/21 and 4/29/21.

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><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: N/A</td><td>Dam Name: Combined Waste Treatment Pond (CWTP)</td><td colspan="2">Type: Earth</td><td>Purpose: CCR-transport surface water collection</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="3">Report Date: January 21, 2022</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 28, 2021</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 15, 2022</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,335</td><td colspan="3">Design Spillway Crest Elevation (ft): 5,328.77</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 7</td><td colspan="3">Measured Total Freeboard (ft): 7.65</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 32 (max), 22.81 (avg)</td><td colspan="3">Structural Height (ft): 32 (max), 22.81 (avg)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 1,800</td><td colspan="2">Upstream Slope: 2:1</td><td>Downstream Slope: 1.5:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 24-30</td><td colspan="2">Lat: 34° 41′ 29.19″N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td colspan="2">Long: 108° 28′ 28.73″W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 13.4 (7.5 acres for reservoir, 5.9 acres for decant cells)</td><td colspan="3">Reservoir Storage (ac-ft): 137 (27 additional ac-ft for stormwater storage)</td></tr>
<tr><td colspan="5">Inflow Design Flood/Safe Flood-Passing Capacity: Not Calculated</td></tr>
<tr><td colspan="2">Reservoir Level During Inspection (ft): ~EL 5328.07 (currently level-controlled)</td><td colspan="2" rowspan="2">Photos: Yes. See Appendix C.</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): Variable (below EL 5328.07). 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? **Yes**	Describe and list required action: **See comment i.**			**X**		**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 2022**							

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 2021 (for 2020)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions? **See comment ii.**				**X**		**X**	**X**
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?			**X**				
d	Animal burrows? **Ant hills were observed (example Photos IMG_8353 and IMG_8431).**				**X**	**X**		
e	Adverse vegetation?			**X**				
f	Erosion? **A 7-inch deep erosion hole (Photo IMG_8359) and two additional small erosion holes (Photo IMG_8375) were observed on the downstream shoulder of the East Embankment crest in separate locations.**				**X**	**X**		
4	***UPSTREAM SLOPE***							
a	Erosion? **See comment iii.**				**X**	**X**		
b	Inadequate ground cover?			**X**				
c	Adverse vegetation? **See comment iv.**				**X**		**X**	
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap? **No riprap was observed above the water line on the upstream slope.**				**X**			
f	Stone deterioration?		**X**					
g	Settlements, slides, depressions, bulges? **Portions of the slope are steeper than others.**				**X**	**X**		
h	Animal burrows? **None observed. Continue to monitor.**			**X**		**X**		

Combined Waste Treatment Pond (CWTP)			SID: N/A	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***								
a	Erosion?	**See comment v.**				**X**	**X**		
b	Inadequate ground cover?				**X**				
c	Adverse vegetation?	**See comment iv.**				**X**	**X**		
d	Longitudinal/Transverse cracking?	**See comment vi.**				**X**	**X**	**X**	**X**
e	Inadequate riprap?	**See comment vii.**			**X**				
f	Stone deterioration?				**X**				
g	Settlements, slides, depressions, bulges?	**Portions of the downstream slope are uneven (Photos IMG_8413, IMG_8433).**				**X**	**X**		
h	Soft spots or boggy areas?	**There is water on both sides of the embankment.**		**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 viii.**				**X**			
d	Floating debris present?				**X**				
e	Depressions, sinkholes, or vortices?				**X**				
f	Low ridges/saddles allowing overflow?	**A weir allowed 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. As part of the 2021 IDF update (AECOM 2021), the normal operating level was revised and is now at EL 5329.5 feet (NAVD88; EL 5326.488 feet NGVD29). The water in the CWTP was observed to be at EL 5328.07 feet (NGVD29) during the inspection, approximately 1.57 feet above the new normal operating level (the top of the stop logs is at EL 5332.5 feet NAVD88, equivalent to EL 5329.488 feet NGVD29). The purpose of reducing the normal operating level was to prevent discharge from the CWTP through the NPDES discharge point without the stop logs in place. No water was observed to be discharging through the NPDES outlet during the inspection, but the reservoir elevation should be lowered to comply with the revised IDF (AECOM 2021).

ii. The upstream edge of the crest near where the tension crack observed during the 2020 inspection appeared to be loose and weak over a distance of approximately 4 feet (Photo IMG_8358); however, the crack was not present during this inspection (Photo IMG_8366). Investigate the cause of the weak soil on the crest and repair this section of the crest.

A set of shallow depressions was observed on the downstream shoulder of the North Embankment near the 18-inch pipe that transfers water from the canal to the CWTP (Photo IMG_8448). These should be monitored and repaired if they are observed to expand.

iii. The irregular erosion along the upstream slope observed during previous inspections was present during this inspection. In addition, erosion rills and gullies were observed at various locations along the upstream slope (example Photo IMG_8389). Continue to monitor the slope and repair erosion if it exceeds 1 foot in depth.

iv. Vegetation (grass, small trees, and shrubs) was observed on portions of the upstream (Photos IMG_8403 and IMG_8414) and downstream (Photos IMG_8401, IMG_8406, IMG_8407, IMG_8409, IMG_8411, IMG_8439, and IMG_8440) slopes during this inspection. These grasses have grown substantially over the last few years and the upstream slope is obscured in these areas. The grasses should be cut. The woody vegetation on the upstream slope should be removed using the NMOSE vegetation management guidelines (NMOSE 2011); roots should be removed in their entirety and the area should be backfilled with compacted structural fill under the supervision of a geotechnical engineer.

v. Instances of minor erosion were observed on the downstream slope (Photos IMG_8338, IMG_8383, IMG_8393, IMG_8409, IMG_8410, and IMG_8439). Continue to monitor these areas and repair erosion if it exceeds 1 foot in depth.

vi. The two locations with longitudinal cracks observed during the 2020 inspection were revisited during this inspection. The longitudinal crack associated with a flat piece of 6-foot long riprap from original embankment construction that was sliding down the embankment slope (Photo IMG_8386) appeared to be slightly wider during this inspection compared to the 2020 inspection and several stalks of grassy vegetation are present in the crack.

The 11.5-foot long crack first observed on the downstream slope during the 2018 and 2020 inspections (2018 Photo IMG_0933; 2020 Photo IMG_3272) was not observed during this inspection (Photo IMG_8366). The area in the vicinity of where the crack was generally less vegetated compared to 2020, indicating that the surficial material may have sloughed into the canal.

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

viii. The facility includes seven decant cells and one forebay cell in the western half of the CWTP. When the CWTP was in use, flow from the collection distribution vault was directed to the selected cells. Settled solids were periodically removed and decanted water flowed to the CWTP free water pond. Suspended sediment and CCR settled in the decant cells in the western half of the impoundment.

ix. In 2020, APS installed a new 18-inch dual-wall pressure pipe to pump water from the discharge canal to the CWTP. The pipe allows APS to maintain the phreatic level in the embankment and reservoir as the CWTP no longer receives inflow from the Plant, but some water from the reservoir is provided to the nearby Navajo Mine. The pipe is located on the downstream edge of the embankment and is buried where it crosses the crest and enters the reservoir (Photos IMG_8454 and IMG_8458). The pipe is surrounded with controlled low strength material (CLSM) flowable fill where it is buried in the embankment.

x. The weekly inspection reports for the period between October 1, 2020 and September 30, 2021 were reviewed and indicate the following:

   a. The September 24, 2021 and September 28, 2021 inspections indicated that there were signs of erosion on the downstream slope that required monitoring. During the annual inspection, APS personnel reported that there was a storm event in September that resulted in areas of new erosion throughout the Plant site.

   b. No weekly CCR inspection was performed between 4/19/21 and 4/29/21.

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

<table>
<tr><td colspan="3">Dry Fly Ash Disposal Area (DFADA)</td><td colspan="3">State Identification Number (SID): N/A</td><td rowspan="13">Not Applicable</td><td rowspan="13">No</td><td rowspan="13">Yes</td><td rowspan="13">Monitor</td><td rowspan="13">Repair</td><td rowspan="13">Investigate</td></tr>
<tr><td>SID: N/A</td><td>Landfill Name: Dry Fly Ash Disposal Area (Cells 1, 2, 3, and 4)</td><td>Type: Lined Landfill</td><td colspan="2">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="3">Report Date: January 21, 2022</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 27, 2021</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 15, 2022</td></tr>
<tr><td colspan="2">Design Maximum Ash Elevation (ft): 5,295</td><td colspan="3">Current Maximum Ash Elevation (ft):
Based on survey data from FHI:
Cell 1 is ~ EL 5291 feet (October 2021)
Cell 2 is ~ EL 5263 feet (October 2021)
Cell 3 is ~ EL 5281 feet (October 2021)
Cell 4 is ~ EL 5177 feet (October 2021)</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Length (ft): Not applicable</td><td rowspan="2">Design Side Slope:
Varies. 4:1 on final outside slopes, 2:1 on internal slopes.</td><td rowspan="2">Observed Side Slope:
Varies. 4:1 on final outside slopes, 2:1 on internal slopes.</td></tr>
<tr></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="3">Landfill Area (acres): 135 (Current, Cells 1, 2, 3, and 4)</td><td colspan="2">Landfill Capacity (ac-ft): 8,028 for Cells 1, 2, 3, and 4</td></tr>
<tr><td colspan="5">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="3">Photos: Yes. See Appendix D.</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 2021 (for 2020)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			
2	***CONDITION SUMMARY***								
a	Waste placed in good practices?	**See comment i.**				**X**			
3	***LANDFILL CONFIGURATION***								
a	Settlements, slides, slope instability?				**X**				
b	Cracking?				**X**				
c	Run on control?	**See comments ii and iii.**				**X**	**X**	**X**	
d	Run off control?					**X**			
e	Erosion?	**See comment iii.**				**X**	**X**		
f	Dust control issues?				**X**				

Additional comments and recommendations for the DFADA:

i. Filter bags and other CCR-related debris are disposed of in Cell 2 (Photo IMG_7497). Non-ash material should be separated from ash material as best as possible and placed in a designated location within the CCR unit.

ii. There is erosion in the Stormwater Diversion Channel extension constructed as part of the Cell 4 expansion where the previous alignment terminated (Photo IMG_7533). This area should be monitored and repaired as needed before sediment builds up in the new stilling basin (Photo IMG_7536).

iii. Areas of erosion and erosion repair were observed at the groin between the LAI and Cell 3 (Photos IMG_7591 and IMG_7594). Continue repairing erosion gullies when they exceed 1 foot in depth.

iv. APS has brought the height of Cell 3 within 20 feet of the South Embankment of the LAI and Cell 1 (Photos IMG_7691, IMG_7692, IMG_7696, IMG_7719, and IMG_7724) on the western 2/3 of the cell. This has been the primary placement location for ash since the 2020 inspection. APS places CCR in the cell, spreads it into thin lifts, and compacts it using a smooth-drum roller pulled behind a tractor.

v. There are no external runoff collection ditches. Internal drain systems report to one of three separate lined leachate collection ponds for Cells 1, 2, and 4 (Photo IMG_7724). Cell 3 drains to the Cell 1 collection pond. The water levels in these three ponds are maintained by the ash haul contractor by use of a mobile suction pump. This water is used for dust control on site.

vi. Reeds have colonized the DFADA Cell 1 leachate collection pond (Photo IMG_7569) and the western toe of Cell 1 (Photos IMG_7571 and IMG_7572). The leachate collection ponds are designed to contain the 25-year, 24-hour design storm event (URS 2015). The reeds should be monitored and removed if they are judged to be reducing the available retention volume.

vii. The weekly inspection reports for the period between October 1, 2020 and September 30, 2021 were reviewed and indicate the following:

   a. Wind dispersion of landfilled CCR was first noted as requiring repair and monitoring in June 2021. APS's waste handling contractor applied more dust suppressant and subsequent observations of waste handling were satisfactory.

   b. No weekly CCR inspection was performed between 4/19/21 and 4/29/21.

4.5 APS FIELD INSPECTION – RETURN WATER POND (RWP)

<table>
<tr><td colspan="3">Return Water Pond (RWP)</td><td colspan="2">State Identification Number (SID): N/A</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: N/A</td><td>Dam Name: Return Water Pond (RWP)</td><td colspan="2">Type: Earth</td><td>Purpose: Temporary water storage</td></tr>
<tr><td colspan="2">Contact(s): Byron Conrad, P.E. (APS)</td><td colspan="3">Report Date: January 21, 2022</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 27, 2021</td></tr>
<tr><td colspan="2">Reviewed by: Byron Conrad, P.E. (APS)</td><td colspan="3">Review Date: January 15, 2022</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,381.1</td><td colspan="3">Design Spillway Crest Elevation (ft): None</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 2.1</td><td colspan="3">Measured Total Freeboard (ft): 2.85 feet (RWP cell); 2.1 feet (FGD cell)</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 12 (max)</td><td colspan="3">Structural Height (ft): 12 (max, north side)</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 2,067</td><td>Upstream Slope: 3:1</td><td>Downstream Slope: 3:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 20</td><td>Lat: 36° 41′ 04.35″N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 108° 29′ 30.09″W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 5.13</td><td colspan="2">Reservoir Storage (ac-ft): 38.6 (maximum storage capacity at EL 5379 feet)</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 5378.25 (RWP cell); EL 5379.0 (FGD cell)</td><td rowspan="2">Photos: Yes. See Appendix E.</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): The RWP is designed to impound water and does not specifically receive solid waste streams.</td></tr>
</table>

Return Water Pond (RWP)			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:	**Non-Jurisdictional**	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 2022**							

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe:	**There are three monitoring wells on the northern side of 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 2021 (for 2020)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			

DAM EMBANKMENT CHECKLIST								
3	***DAM CREST***							
a	Settlements, slides, depressions?			**X**				
b	Misalignment?			**X**				
c	Longitudinal/Transverse cracking?			**X**				
d	Animal burrows?			**X**				
e	Adverse vegetation?	**Some vegetation is beginning to grow in the anchor trenches and near bollards. Continue to monitor.**		**X**		**X**		
f	Erosion?	**Several shallow holes were observed in the anchor trench, mostly along the Northeast Embankment (Photo IMG_8037). Continue to monitor and repair the holes if they exceed 1 foot in depth.**			**X**	**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?			**X**				
e	Inadequate riprap?			**X**				
f	Liner damage?			**X**				
g	Settlements, slides, depressions, bulges?	**The liner was observed to be pulling out of the anchor trench along the Northeast Embankment (Photo IMG_8040). Continue to monitor this area and repair the liner/trench if pullout begins to affect the embankment.**			**X**	**X**		
h	Animal burrows?			**X**				

Return Water Pond (RWP)		SID: N/A	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?			**X**				
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?	**Some vegetation is beginning to grow on the slope. Continue to monitor.**		**X**		**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?	**Tension cracks were observed on the slope of the incised drainage ditch along the western corner of the pond, downstream of the FGD cell (Photo IMG_8078). The cracks are not in the RWP embankment, but this area should be monitored for sloughs that could impede the drainage characteristics in the western corner.**			**X**	**X**		
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?			**X**				
f	Animal burrows?			**X**				
7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**The RWP features a leachate collection and recovery system (LCRS) between the primary and secondary 60 mil HDPE liners designed to collect impounded water that leaks through the primary HDPE liner before it leaks through the secondary HDPE liner and into the ground. The LCRS riser pipes are positioned at the lowest points of the RWP and FGD cells. RWP Pump 003 was not on and RWP Pump 004 was set to "Auto," but was not running during the inspection.**						
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?	**The majority of sediment in the pond appears to consist of organic debris blown into the cells by the wind.**			**X**			
d	Floating debris present?			**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?	**An overflow weir at EL 5379 feet along the crest of the Internal Embankment connects the RWP cell to the FGD cell.**			**X**			
g	Structures below dam crest elevation?			**X**				

Additional comments and recommendations for the RWP:

i. The RWP was constructed in 2019 to replace the function of the LDWP and was placed into service on October 20, 2020. The CCR unit consists of two cells – the RWP cell, which will be used as a storage facility for water pumped from the LDWP and Pond 3 Pump House, and the FGD cell, which will be used to store small or emergency discharges from the Plant FGD system. The two cells are connected by an overflow weir in the Internal Embankment. The two cells are collectively referred to as the "RWP."

ii. The bottom of the RWP and FGD cells is below the original ground surface. The RWP consists of a homogenous, rectangular, diked embankment constructed using weathered shale and sandstone excavated from the site's footprint and broken down into sand and clay.

iii. The RWP liner system consists of a primary 60-mil HDPE geomembrane liner, a drainage geonet, a secondary 60-mil HDPE geomembrane liner, a geosynthetic clay liner (GCL), and a prepared subgrade that was scarified, proof-rolled, and compacted prior to construction (AECOM 2020).

iv. The RWP is sized to contain the 100-year, 24-hour rain event. It has 4.6 acre-feet of deadpool storage to EL 5370.55 feet and 28.1 acre-feet of operational and outage storage to EL 5379.00 feet. The remaining 2.1 feet (to the crest at EL 5381.10 feet) is reserved for storage of the 100-year, 24-hour rainfall event. There are no water bodies directly downstream of the RWP (AECOM 2020).

v. The RWP has three downgradient monitoring wells along the Northeast Embankment used to monitor and characterize the groundwater within the uppermost aquifer underlying the CCR unit.

vi. The two Flowserve horizontal base-mounted pumps at the downstream toe of the Northwest Embankment were both subject to work requests at the time of the inspection. The seals around RWP Pump 001 had been leaking (Photos IMG_8020 and IMG_8021). RWP Pump 002 had been exhibiting low discharge pressure and cavitation. APS is in the process of repairing the two pumps.

vii. The hinge for the access gate at the southern entrance to the RWP is broken (Photo IMG_8077). The gate should be repaired and remain locked to prevent unauthorized access to the CCR unit.

viii. The RWP and FGD cells were near full capacity during this inspection. The impounded water level in both cells should be reduced below EL 5372.2 feet to provide sufficient volume for outage storage up to EL 5379 feet as designed. If the impounded water level cannot be reduced due to pump availability, the reservoir levels in both cells should be monitored on a daily basis. The daily reservoir elevations should be provided to the APS geotechnical engineer for tracking.

ix. The current review period for this Annual Inspection report began on October 1, 2020 and ended on September 30, 2021. APS did not begin weekly inspections of the RWP until October 19, 2020, prior to placing it in service. The weekly inspection reports for the period between October 19, 2020 and September 30, 2021 were reviewed and indicate the following:

a. The FGD Pond was observed to be at "full capacity" during the December 23, 2020 inspection and continued to be elevated until the January 4, 2021 inspection. Inflow to the RWP is controlled by the Plant and water was pumped to the LAI via the V-ditch to draw down the reservoir. The condition abated after the January 7, 2021 inspection.

b. The September 24, 2021 inspection indicated that there were signs of erosion on the downstream slope that required monitoring. During the annual inspection, APS personnel reported that there was a storm event in September that resulted in areas of new erosion throughout the Plant site.

c. No weekly CCR inspection was performed between 4/19/21 and 4/29/21.

5.0 DATA REVIEW

5.1 LINED ASH IMPOUNDMENT

5.1.1 Geometry Changes Since Last Inspection

During this inspection, the impounded ash level in the LAI was observed to be higher than previous inspections, including being at or near the crest elevation along the Northwest and East Embankments and within approximately 2 feet of the West Embankment crest. In addition, APS performed a topographic survey of the LAI and LDWP in 2021, which indicated that the West Embankment has settled and is approximately one foot lower than the design value of EL 5280 feet.

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, 2020 – September 30, 2021 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
LAI Piezometers (10/1/20 to 9/30/21)			
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	5200.88	5201.84	elevation head
P-11.2	5189.65[1]	5189.65[1]	elevation head
P-11.3	5174.65[1]	5174.65[1]	elevation head
P-12.1	5202.54[1]	5202.54[1]	elevation head
P-12.2	5186.54[1]	5186.54[1]	elevation head
P-12.3	5176.54[1]	5176.54[1]	elevation head
[1] Porewater pressure measurements are negative (draining condition). The reported elevation is for the tip of the instrument.			

Instrument Name	Minimum	Maximum	Unit
NTB Piezometers (10/1/20 to 9/30/21)			
P-100.1	5202.06[1]	5202.06[1]	elevation head
P-100.2	5190.06[1]	5190.06[1]	elevation head
P-100.3	5183.23[1]	5183.23[1]	elevation head
P-101.1	5185.93[1]	5186.14	elevation head
P-101.2	5179.36	5180.52	elevation head
P-101.3	5167.62	5169.00	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	5168.42	5169.25	elevation head
P-103.1	5185.91[1]	5185.91[1]	elevation head
P-103.2	5170.91[1]	5170.91[1]	elevation head
P-103.3	5160.24[1]	5160.24[1]	elevation head
P-104.1	5198.72[1]	5198.72[1]	elevation head
P-104.2	5185.47[1]	5185.47[1]	elevation head
P-104.3	5178.47[1]	5178.47[1]	elevation head
P-105.1	5184.82[1]	5184.82[1]	elevation head
P-105.2	5174.16[1]	5174.16[1]	elevation head
P-105.3	5162.16[1]	5162.16[1]	elevation head
P-106.1	5186.09[1]	5186.09[1]	elevation head
P-106.2	5165.51[1]	5165.51[1]	elevation head
P-106.3	5159.11	5159.46	elevation head
P-107.1	5197.27[1]	5197.27[1]	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	5173.06	5174.06	elevation head
P-109.1	5188.76[1]	5188.76[1]	elevation head
P-109.2	5172.51[1]	5172.51[1]	elevation head
P-109.3	5164.93[1]	5164.93[1]	elevation head
P-110.1	5184.28[1]	5184.64	elevation head
P-110.2	5171.86[1]	5171.86[1]	elevation head
P-110.3	5163.44[1]	5163.44[1]	elevation head
P-111.1	5187.29[1]	5187.29[1]	elevation head
P-111.2	5172.33[1]	5173.12	elevation head
P-111.3	5160.07	5160.12	elevation head

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

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/20 to 9/30/21)			
SM7[2]	5215.699	5215.812	EL (ft)
SM9[2]	5216.956	5217.089	EL (ft)
Settlement Rods (10/1/20 to 9/30/21)			
SR-7[2]	5250.557	5250.663	EL (ft)
SR-8[2]	5255.955	5256.122	EL (ft)
SR-9[2]	5248.489	5248.552	EL (ft)
SR-10[2]	5248.782	5248.838	EL (ft)
SR-100[2]	5222.106	5222.153	EL (ft)
SR-101[2]	5205.336	5205.422	EL (ft)
SR-102[2]	5205.065	5205.184	EL (ft)
SR-104[2]	5219.195	5219.295	EL (ft)
SR-105[2]	5204.876	5204.923	EL (ft)
SR-106[2]	5205.257	5205.317	EL (ft)
SR-109[2]	5206.405	5206.457	EL (ft)
SR-110[2]	5205.734	5205.805	EL (ft)
Inclinometers (10/1/20 to 9/30/21)			
I-1	0	0.1158	in
I-2	0	0.0198	in
I-103	0	0.1692	in
I-107	0	0.0870	in
I-111	0	0.0666	in
Open Standpipe Piezometers (10/1/20 to 9/30/21)			
P-23	5156.66	5156.94	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

2) Starting in March 2019, a third-party surveyor began collecting the monthly survey monument and settlement rod data instead of APS personnel. The third-party surveyor uses a different post-processing technique than APS personnel, resulting in relatively more variability between measurements than in previous years.

At the end of April 2021, the multiplexer board to which piezometers P-107.3, P-108.1/.2/.3, P-109.1/.2/.3, P-110.1/.2/.3, and P-111.1/.2/.3 are attached failed. APS was able to replace the multiplexer and resumed recording data after June 24, 2021. The data for all of the piezometers over the current review period, including the data trends before and after the multiplexer board failure, indicate no significant elevation changes or adverse trends related to the performance of the dam.

After several years of consistent, declining phreatic level readings, piezometer P-102.3 began increasing at a rate of 0.08 feet of head per month starting in mid-2019. The trend has continued throughout the current review period, reaching approximately 1 foot of pressure head by

September 30, 2020 and approximately 1.8 feet of head by September 30, 2021. Piezometer P-102.3 is the deepest instrument in the P-102 cluster. If the phreatic level indicated by P-102.3 begins to increase more rapidly, the cause of the increase should be investigated and the data download frequency should increase to twice per month.

Following several years of consistent, negative phreatic level readings, piezometer P-111.2 began increasing at a rate of 0.028 feet of head per month starting in May 2020 after displaying approximately 10 months of barometric variability. The increase at P-111.2 did not coincide with a similar increase at P-111.3, located approximately 12.29 feet deeper at the same location, nor did it coincide with a discernable change in tilt at inclinometer I-111. The variability of the P-111.2 data indicate the instrument is responding to changes in barometric pressure and is not submerged below the phreatic surface. Most of the middle piezometers in each cluster (i.e. P-###.2) were installed near the interface of the phreatic zone and the capillary fringe and they have not historically responded to instantaneous changes in barometric pressure. The middle piezometers typically indicate draining conditions and P-111.2 may either be re-saturating, partially saturated, or salt buildup could be affecting the accuracy of the instrument. The piezometric head indicated by this instrument reached approximately 0.5 feet in late 2020 and has appeared to remain relatively constant between 0 feet and 0.79 feet of piezometric head since. APS will continue to monitor this instrument and the nearby instruments for changes in the phreatic level. The data for the remaining vibrating wire piezometers indicates the phreatic level at these instruments is either declining, stabilizing, or remains negative (a draining condition).

The data for the survey monuments and settlement rods during the current review period were recorded by a third-party Professional Surveyor. The third-party survey data typically indicates a wider range of settlement values over the course of the year compared to the APS survey data collected prior to 2019, but do not suggest a significant change or a negative trend related to the performance of the dam.

The data for inclinometer I-103 indicate the instrument has exhibited minimal lateral movement between depths of approximately 10 feet to 24 feet in the downslope direction (0.34 inches) and toward the north (0.55 inches) since the baseline survey on August 31, 2013. This movement has not accelerated in the last 7 years and does not appear to be related to an adverse condition in the embankment. The data for the remaining inclinometers over the current review period indicate no significant changes or trends related to the performance of the dam.

5.1.3 CCR and Water Elevations

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

Water in LAI	Depth of Water (ft) (calculated)	Water Elevation (ft) (estimated)	Measurement Location
Minimum	Not available	Not available	Not available
Maximum	Not available	Not available	Not available
Present (this inspection)	12	5264	Southwest Corner (STA 36+00)
CCR	**Depth of CCR (ft) (calculated)**	**CCR Elevation (ft) (measured)**	**Measurement Location**
Minimum (North Corner)	14.21	5288.21	V-ditch inlet on the north end of the LAI (STA 87+04)
Maximum (West Embankment)	73	5278	The West Embankment near the Drop Inlet Structure (STA 57+00)
Present (this inspection)	73	5278	The West Embankment near the Drop Inlet Structure (STA 57+00)

1) At the time of the 2021 inspection, the CCR elevation along the Northwest Embankment was at the crest elevation. This elevation does not include the dry-stacked CCR pushed into berms to contain the inflow.

APS does not normally record the water level in the LAI. The present depth of water (3.25 feet) is estimated based on an assumed top of ash at EL 5252 feet in the Southwest Corner of the impoundment, a value estimated from the as-built drawing set for the 5280 Lift of the LAI (APS Drawing FC-C-16-ADS-161907 Sheet 2).

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

5.1.4 Storage Capacity

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

5.1.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded CCR in the LAI at the time of the inspection was 5,732 ac-ft based on the average impounded volume at EL 5278 feet from the 2012 EAC (URS 2012).

5.1.6 Structural Weakness or Operational Change/Disruption

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

APS stopped discharging to the LAI on April 2, 2021. APS closed the north V-ditch and is currently pumping impounded water from the LAI to the LDWP as part of the effort to close the LAI.

In northern portions of the pond, the ash impounded against the West Embankment is as high as EL 5277.67 feet, providing only 1.3 feet of freeboard, as compared to the design freeboard of 4.8 feet, of which 2.0 feet was designated for the probable maximum flood (PMF) and the remaining 2.8 feet was designated for wave run-up.

The LAI does not currently have sufficient capacity to retain the 72-hour PMP with 2.8 feet of residual freeboard as designed, although the LAI does currently have capacity to retain the 1,000-year, 72-hour IDF required for "significant hazard potential" CCR surface impoundments in 40 CFR § 257.74(d)(1)(v)(B), with 2.8 feet of residual freeboard in the southern portion of the pond where water is impounded. APS intends to restore capacity to retain the significantly larger 72-hour PMP by raising the West Embankment crest to its design elevation and excavating a ditch around the perimeter of the embankment to divert stormwater to the Southwest Corner so as to prevent stormwater from overtopping the crest in the areas where little to no storage capacity is available and ponding will not occur. APS has pumped down the free-standing water in the Southwest corner (area to which water drains) to increase retention capacity for the 72-hour PMP.

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 2020.

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, 2020 – September 30, 2021 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
Survey Monuments (10/1/20 to 9/30/21)			
SM7[1]	5215.699	5215.812	EL (ft)
SM9[1]	5216.956	5217.089	EL (ft)
Open Standpipe Piezometers (10/1/20 to 9/30/21)			
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	5156.66	5156.94	EL (ft)
P-24	Dry	Dry	EL (ft)
P-25	Dry	Dry	EL (ft)

2) Starting in March 2019, a third-party surveyor began collecting the monthly survey monument and settlement rod data instead of APS personnel. The third-party surveyor uses a different post-processing technique than APS personnel, resulting in relatively more variability between measurements than in previous years.

The data for the survey monuments during the current review period were recorded by a third-party Professional Surveyor. The third-party survey data typically indicates a wider range of settlement values over the course of the year compared to the APS survey data collected prior to 2019, but do not suggest a significant change or a negative trend related to the performance of the dam.

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

5.2.3 CCR and Water Elevations

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

Water in LDWP	Depth of Water (ft) (observed)	Water Elevation (ft) (measured)	Measurement Location
Minimum	2.4	5202.0	Staff gauge near the East Embankment
Maximum	5.4	5207.4	Staff gauge near the East Embankment
Present (this inspection)	3.2	5205.2	Staff gauge near the East Embankment
CCR	**Depth of CCR (ft)**	**CCR Elevation (ft)**	**Measurement Location**
Minimum	Not applicable	Not applicable	Not applicable
Maximum	Not applicable	Not applicable	Not applicable
Present (this inspection)	Not applicable	Not applicable	Not applicable

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

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

5.2.4 Storage Capacity

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

5.2.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water in the LDWP at the time of the inspection was 96 ac-ft.

5.2.6 Structural Weakness or Operational Change/Disruption

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

APS has been drawing down the reservoir level in the LDWP since 2019. A review of the operating record indicated the LDWP was operated as intended over the previous year.

There are no significant changes to the structural integrity of the dam since the 2020 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 2020.

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 in CWTP	Depth of Water (ft) (calculated)	Water Elevation (ft) (measured)	Measurement Location
Minimum	Not available	Not available	APS does not regularly record the water elevation.
Maximum	Not available	Not available	
Present (this inspection)	~9.07	5328.07 (NGVD29)	Spillway Crest
CCR	**Depth of CCR (ft) (estimated)**	**CCR Elevation (ft) (estimated)**	**Measurement Location**
Minimum	Not available	Not available	APS does not record the ash level.
Maximum	Not available	Not available	
Present (this inspection)	7.68	5319 (NGVD29)	Assumed from 2016 bathymetry*

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

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

APS does not regularly record or track the water elevation in the CWTP. With the construction of the BASWR Tank, the CWTP no longer receives inflow from the Plant. A water level transducer installed in the reservoir adjacent to the pipe that conveys inflow from the discharge canal to the CWTP keeps the reservoir level relatively constant (Photo IMG_8454).

5.3.4 Storage Capacity

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

5.3.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water and solids in the CWTP reservoir at the time of the inspection was 126.38 ac-ft based on the impounded water elevation.

5.3.6 Structural Weakness or Operational Change/Disruption

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

APS ceased discharging to the CWTP by November 23, 2020. The current water level is maintained by pumping water from the discharge canal into the reservoir as the Navajo Mine continues to use the CWTP as a water source for its ongoing operations. The CWTP reservoir elevation is currently level-controlled via automated sensors. At the time of this inspection the water level was EL 5328.07 feet (NGVD29) corresponding to 1′-5″ below the top of the stop logs at the spillway. This is above the new level assigned in the 2021 IDF update (AECOM 2021).

5.4 DRY FLY ASH DISPOSAL AREA

5.4.1 Geometry Changes Since Last Inspection

Cell 3 continued to receive ash loading after the 2020 inspection. Cell 3 is divided into approximately three sequential sections from the east to the west. APS has been placing ash in the central and western sections since the easternmost section of Cell 3 has reached the same elevation as the South Embankment of the LAI.

APS placed Cell 4 into service since the last inspection; however, APS has not yet placed ash in Cell 4. Cell 4 has a dedicated leachate collection pond along its western toe.

5.4.2 Instrumentation

There are no instruments associated with the DFADA.

5.4.3 CCR Volume

The approximate volume of CCR in the DFADA at the time of the inspection was estimated to be 5,975 ac-ft based on the October 2021 survey performed by the ash placement contractor (FHI).

5.4.4 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.

During the summer of 2020, APS began to landfill a pugmill-blended mixture of thickened FGD slurry and dry fly ash. After October 31, 2020, all FGD produced by the Plant is blended by pugmill with fly ash, and then placed and compacted in the landfill. The strength of the compacted, pugmill-blended mixture is sufficiently similar to those of fly ash and bottom ash so as to not produce a structural weakness within the planned dimensions of the DFADA landfill.

5.5 RETURN WATER POND

5.5.1 Geometry Changes Since Last Inspection

APS constructed the RWP in 2019 and placed it in service on October 20, 2020. There have not been any significant changes to the geometry of the unit since the last inspection in 2020.

5.5.2 Instrumentation

There are no instruments associated with the RWP.

5.5.3 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 in RWP	Depth of Water (ft) (observed)	Water Elevation (ft) (measured)	Measurement Location
Minimum (RWP Cell)	6.75	5374.8	Southwest corner of the cell.
Minimum (FGD Cell)	9.55	5377.6	Northwest corner of the cell.
Maximum (RWP Cell)	10.2	5378.25	Southwest corner of the cell.
Maximum (FGD Cell)	10.95	5379	Northwest corner of the cell.
Present (this inspection, RWP Cell)	10.2	5378.25	Southwest corner of the cell.
Present (this inspection, FGD Cell)	10.95	5379	Northwest corner of the cell.
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

Based on as-built drawing FC45CM-C-65-WP-AP-200485-13 (APS 2019), the bottom of the RWP is at EL 5368.05 feet. Water depths are estimated relative to this value. The maximum and minimum water values are based on the water depths observed during the 2020 inspection and this inspection. APS does not regularly record the water level of the RWP.

The RWP was designed to provide temporary storage of LAI/LDWP and Pond 3 pumphouse (liquid) discharges, thus, it does not impound a significant quantity of solids. Therefore, the CCR depth is minimal and not normally measured.

5.5.4 Storage Capacity

The estimated storage capacity of the RWP is 38.6 ac-ft at EL 5379 feet.

5.5.5 Approximate Impounded Volume at Time of Inspection

The approximate impounded volume in the RWP cell at the time of the inspection was 30.5 ac-ft. The approximate impounded volume in the FGD cell at the time of the inspection was 5.6 ac-ft.

5.5.6 Structural Weakness or Operational Change/Disruption

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

The volume of water in the RWP at the time of the inspection was observed to be near the capacity of the CCR unit. The upper 2.1 feet of the RWP and FGD cells is designated for freeboard. The total impounded volume was estimated to be 36.1 ac-ft. The 38.6 ac-ft design storage capacity includes 4.6 ac-ft of dead pool storage, 4.9 ac-ft of operational storage, and 23.2 ac-ft for 30 days of outage storage. Impounded volumes in excess of the 9.5 ac-ft of dead pool and operational storage reduce the capacity available for outage storage.

6.0 OPERATION AND MAINTENANCE RECOMMENDATIONS

6.1 LINED ASH IMPOUNDMENT

6.1.1 Current Lined Ash Impoundment Action Items

The following items were noted during inspections as requiring attention.

Action Item	Action Status
1) Small holes along the crest were observed at various locations. Mud cracks observed in the East Embankment crest during the 2020 inspection were still present, but not as prominent during this inspection.	Monitor the holes and cracks. Repair any cracks in the embankment that extend deeper than 1 foot. Repair any cracks in the anchor trench that extend below the anchor trench excavation or begin to manifest in other parts of the crest.
2) There are bulges and depressions along the upstream slope in the Southwest Corner of the LAI.	The presence and identified causes of the bulges and depression should be recorded and the geotechnical engineer should be consulted. Repair documentation should be recorded.
3) Two protrusions were observed beneath the liner on the upstream slope near the midpoint of the South Embankment.	Monitor this area for weakness in the liner. If the liner tears due to the protrusions, remove the protrusions and repair the liner.
4) Erosion rills and gullies on the downstream slope of the West and Northwest Embankments, including an erosion rill at the junction of the Northwest Embankment and the West Embankment.	Continue ongoing repair program for repairing rills if the erosion depth exceeds 1 foot.
5) Ruts were observed on the downstream side of the South Embankment crest and the downstream side of the East Embankment crest.	Repair the ruts to prevent water from ponding on the crest and instruct operators to avoid driving through weaker areas.
6) The phreatic levels indicated by piezometers P-102.3 and P-111.2 have steadily increased.	Continue to monitor these piezometers and review the data for signs of increased phreatic levels at other piezometers in the P-102 and P-111 clusters. The APS geotechnical engineer should be consulted during these reviews.
7) There are tears in the exposed liner at the cenosphere mining area in the Southwest Corner.	The working area for the cenosphere mining operation is built into the reservoir area and the liner damage is not affecting the integrity of the embankment. The area should be monitored.

8) The LAI does not have sufficient capacity to retain the 72-hour PMP with 2.8 feet of residual freeboard as designed. The West Embankment crest is at approximate EL 5279 feet instead of the design value at EL 5280 feet. There is approximately 1.33 feet of freeboard at the West Embankment. In addition, the freeboard designated along the Northwest and East Embankments is not available due to the presence of ash up to the embankment crest.	Raise the West Embankment crest to its design elevation and excavate a ditch around the perimeter of the embankment to divert stormwater to the Southwest Corner. Pump the free-standing water in the Southwest Corner of the pond down to allow sufficient capacity to retain the 72-hour PMP.

6.1.2 Previous Lined Ash Impoundment Action Items

The following items were noted during previous inspections and have been addressed.

Action Item and First Instance of Observation	Resolution
1) There is a small hole in the crest of the LDWP along the toe of the LAI West Embankment (2019, 2020 inspections).	The hole appeared to be partially filled during the 2020 inspection and was not observed during the 2021 inspection.
2) Inflow from the northernmost leg of the V-ditch has nearly spilled onto the crest, resulting in the addition of temporary berms to control the flow path (2020 inspection).	APS construct temporary diversion berms to keep inflows to the LAI from reaching the crest. APS ultimately closed the V-ditch and stopped depositing CCR into the LAI in 2021.
3) Minor erosion rills on the downstream slope of the West Embankment (various locations observed during the 2015, 2017, 2018, and 2020 inspections).	The erosion rills were repaired.
4) Two holes were observed in the geomembrane liner along western portion of the South Embankment. These holes were near the area where previous holes were observed to have been cut in the liner. One of the new holes appears to be a cut and the other may be due to the liner separating at a seam from a previous repair (2019 inspection).	The liner was repaired.
5) The survey monument and settlement rod data indicate settlement of several inches over the course of the 1-year data gap when surveyors changed (2019 inspection).	The difference in values recorded between the surveys was a result of differences between post-processing techniques used for the data. The areas around the instruments did not exhibit indications of vertical movement commensurate with the implied settlement.

Action Item and First Instance of Observation	Resolution
6) Cracks were observed in the anchor trench in the Northwest Embankment (2019 inspection).	The cracks were not observed during subsequent inspections.

6.2 LINED DECANT WATER POND

6.2.1 Current Lined Decant Water Pond Action Items

The following items were noted during inspections as requiring attention.

Action Item	Action Status
1) The liner in the anchor trench in the central portion of the West Embankment appeared to be pulling out of the trench.	Continue to monitor the liner in the anchor trench. Re-anchor the liner if the liner continues to pull out of the trench.
2) Minor erosion rilling was observed on the North, West, and South downstream slopes of the LDWP at the time of the inspection.	Continue the ongoing repair program for repairing rills when the erosion depth exceeds 1 foot.
3) There is a small hole in the liner at the crest elevation along the North Embankment.	Repair the hole.
4) The seam connecting two adjacent sheets of liner has failed along approximately 10 inches at the North Embankment.	Repair the liner.
5) There is a rut along the upstream half of the South Embankment crest. Ponded rainwater was observed in the southwest corner near the Interstitial Evacuation Pump during the 2019 inspection and it appears there is still a low spot in this area.	Repair the ruts.
6) Portions of the outer pipes for the siphon lines are exposed along the East Embankment crest.	Place and compact additional fill in these areas to prevent damage to the pipes.

6.2.2 Previous Lined Decant Water Pond Action Items

The following items were noted during previous inspections and have been addressed.

Action Item and First Instance of Observation	Resolution
1) Minor erosion rilling was observed on the North, West, and South downstream slopes of the LDWP at the time of the inspection (2015, 2016, 2017, 2018, 2019, and 2020 inspections).	The erosion rills observed during the previous inspections were repaired after the inspection concluded and additional rainfall at the site created new rills. This is an ongoing maintenance requirement.
2) There is a small hole in the crest of the LDWP along the toe of the LAI West Embankment (2019 and 2020 inspections).	The hole was not observed during the 2021 inspection and may have been filled with ash via erosion.
3) An ant hill was observed in the crest (2020 inspection).	The ant hill was removed.
4) The impounded water level in the LDWP was at or above the safe storage level on the operating license and above the maximum operating elevation for several months during 2019 (2019 inspection).	APS reduced the impounded water elevation to a level below the safe storage level on the operating license.
5) The survey monument data indicate settlement of several inches over the course of the 1-year data gap when surveyors changed (2019 inspection).	The third-party surveyor who began collecting the survey data uses a different post-processing technique than APS personnel had, resulting in more data variability and perceived settlement when compared to the data collected by APS personnel.

6.3 COMBINED WASTE TREATMENT POND

6.3.1 Current Combined Waste Treatment Pond Action Items

The following items were noted during inspections as requiring attention.

Action Item	Action Status
1) Vegetation (grass, small trees, and shrubs) was observed on portions of the upstream and downstream slopes during this inspection.	This is an ongoing maintenance requirement. The grasses should be cut and vegetation removal along the upstream and downstream slopes should be performed in accordance with the NMOSE vegetation maintenance guidelines "*Vegetation Management on Dams*" (2011) reference.
2) Instances of minor erosion were observed along the upstream and downstream slopes.	Continue to monitor these areas and repair erosion if it exceeds 1 foot in depth.
3) The soil along the upstream edge of the crest was observed to be loose and weak over a distance of approximately 4 feet near the longitudinal crack observed in 2020.	Investigate the cause of the weak soil and repair the crest.
4) A 6-foot long longitudinal crack was observed on the downstream slope where a piece of riprap is separating from the soil.	Repair the crack to prevent the riprap from sliding down the slope.
5) 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).
6) Ant hills were observed along the embankment crest and animals have been known to burrow in the area.	This is an ongoing maintenance requirement. Repair ant hills and animal burrows as needed.
7) A 7-inch deep erosion hole and two additional small erosion holes were observed on the downstream shoulder of the East Embankment crest in separate locations.	Repair the holes.
8) A set of shallow depressions was observed on the downstream shoulder of the North Embankment near the 18-inch pipe that transfers water from the canal to the CWTP.	Monitor the depressions and repair them if they are observed to expand.

6.3.2 Previous Combined Waste Treatment Pond Action Items

The following items were noted during previous inspections and have been addressed.

Action Item and First Instance of Observation	Resolution
1) An 11.5-foot long longitudinal crack was observed on the downstream slope near the weak crest soil (2018 and 2020 inspections).	The crack was not observed during the 2021 inspection.
2) A series of aligned holes, up to 2 feet deep and across a length of approximately 4 feet, was observed on the downstream slope where the embankment transitions from west-east to northwest-southeast (2019 inspection).	The holes were not observed during subsequent inspections.

6.4 DRY FLY ASH DISPOSAL AREA

6.4.1 Current Dry Fly Ash Disposal Area Action Items

The following items were noted during inspections as requiring attention.

Action Item	Action Status
1) There is erosion at the Stormwater Diversion Channel inlet.	Monitor erosion and repair the area. Alternately, place additional sandstone riprap in the eroded area.
2) Several plants are growing through the Pyramat geosynthetic along the western toe of Cell 1.	Monitor the plant growth and remove the vegetation if it is determined to be damaging the primary geomembrane liner.
3) A colony of reeds is growing in the Cell 1 leachate collection pond.	The reeds should be monitored and removed if they are judged to be reducing the available retention volume.

6.4.1 Previous Dry Fly Ash Disposal Area Action Items

The following items were noted during previous inspections and have been addressed.

Action Item and First Instance of Observation	Resolution
1) There is erosion at the inlet and outlet of the Stormwater Diversion Channel (2015, 2016, 2017, 2018, and 2019 inspections).	The Stormwater Diversion Channel was extended as part of the Cell 4 construction; however, the erosion at the inlet remains (see Action Item 1 in the previous section).

6.5 RETURN WATER POND

6.5.1 Current Return Water Pond Action Items

The following items were noted during inspections as requiring attention.

Action Item	Action Status
1) Some vegetation is beginning to grow in the anchor trenches on the crest and the downstream slopes.	Vegetation removal should be performed in accordance with the NMOSE vegetation maintenance guidelines "*Vegetation Management on Dams*" (2011) reference.
2) Several shallow holes were observed in the anchor trench, mostly along the Northeast Embankment.	Monitor these areas and repair erosion if it exceeds 1 foot in depth.
3) The liner was observed to be pulling out of the anchor trench along the Northeast Embankment.	Monitor this area and repair the liner/trench if pullout begins to affect the embankment or the structural integrity of the CCR unit.
4) Tension cracks were observed on the slope of the incised drainage ditch along the western corner of the pond, downstream of the FGD cell.	This area should be monitored for sloughs that could impede the drainage characteristics in the western corner.
5) The two Flowserve horizontal base-mounted pumps at the downstream toe of the Northwest Embankment were both subject to work requests at the time of the inspection.	Repair the pumps.
6) The hinge for the access gate at the southern entrance to the RWP is broken.	The gate should be repaired and remain locked to prevent unauthorized access to the CCR unit.
7) The FGD Pond was observed to be at "full capacity" during a series of weekly inspections in December 2020 and January 2021. In addition, the RWP and FGD cells were near full capacity during the 2021 inspection.	Ensure the RWP is operated in such a manner that the water levels do not exceed the design water levels intended to account for Plant operations, freeboard, and required storage. If the impounded water level cannot be reduced due to pump availability, the reservoir levels in both cells should be monitored on a daily basis. The daily reservoir elevations should be provided to the APS geotechnical engineer for tracking.

6.5.2 Previous Return Water Pond Action Items

The RWP was placed into service in October 2020. Historic action items are not available for this CCR unit.

7.0 REFERENCES

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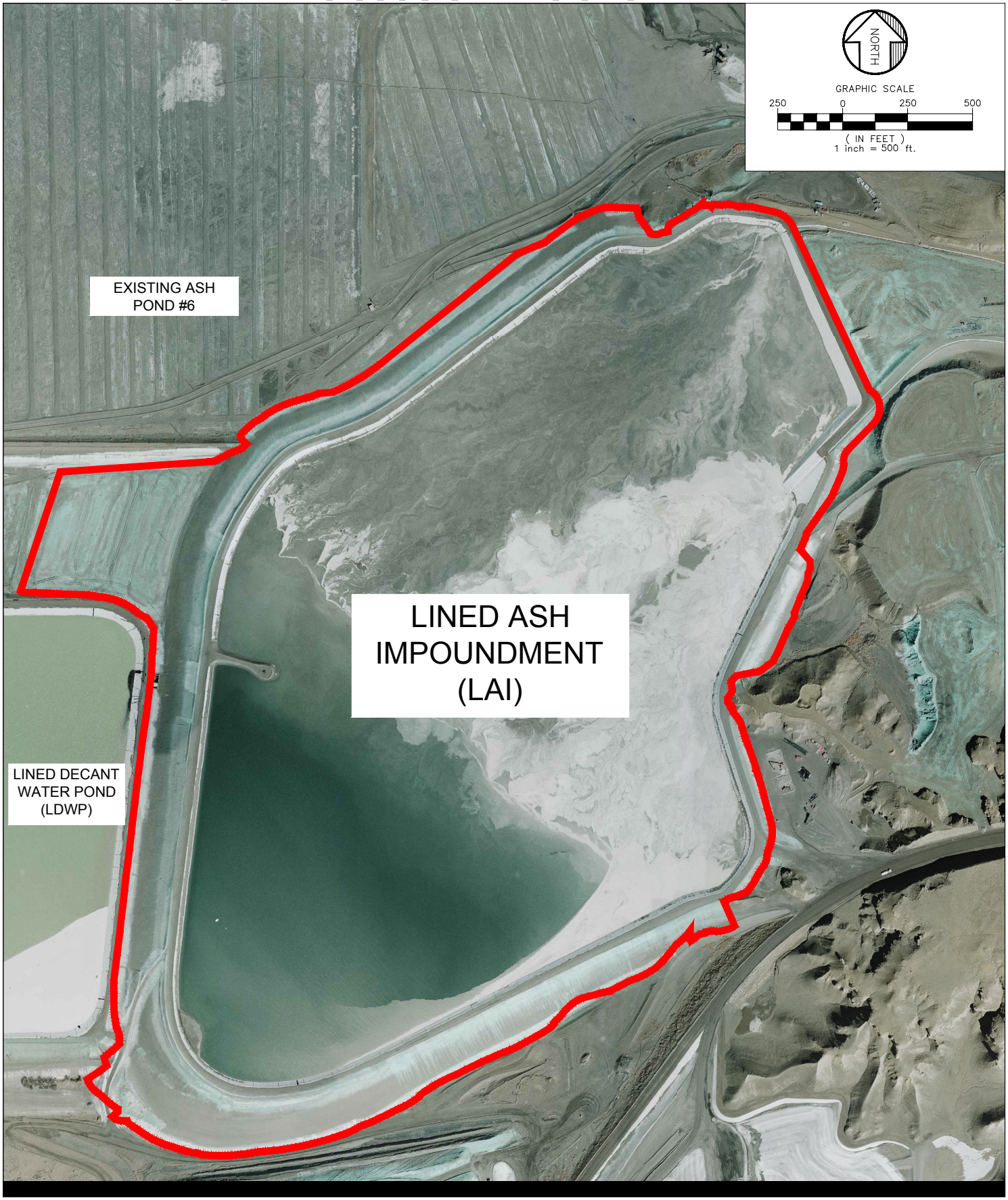
FIGURES

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



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

LINED ASH IMPOUNDMENT (LAI)

AECOM

FIGURE 1

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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
ARIZONA PUBLIC SERVICE

LINED DECANT WATER POND (LDWP)

AECOM

FIGURE 2

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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 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(2022-01-18) Last Plotted: 2022-01-18
Filename: L:\DCS\PROJECTS_WTR\60670439_APS_FCPP_2021_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 4 - DFADA.DWG

ANSI A 8.5" x 11"

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

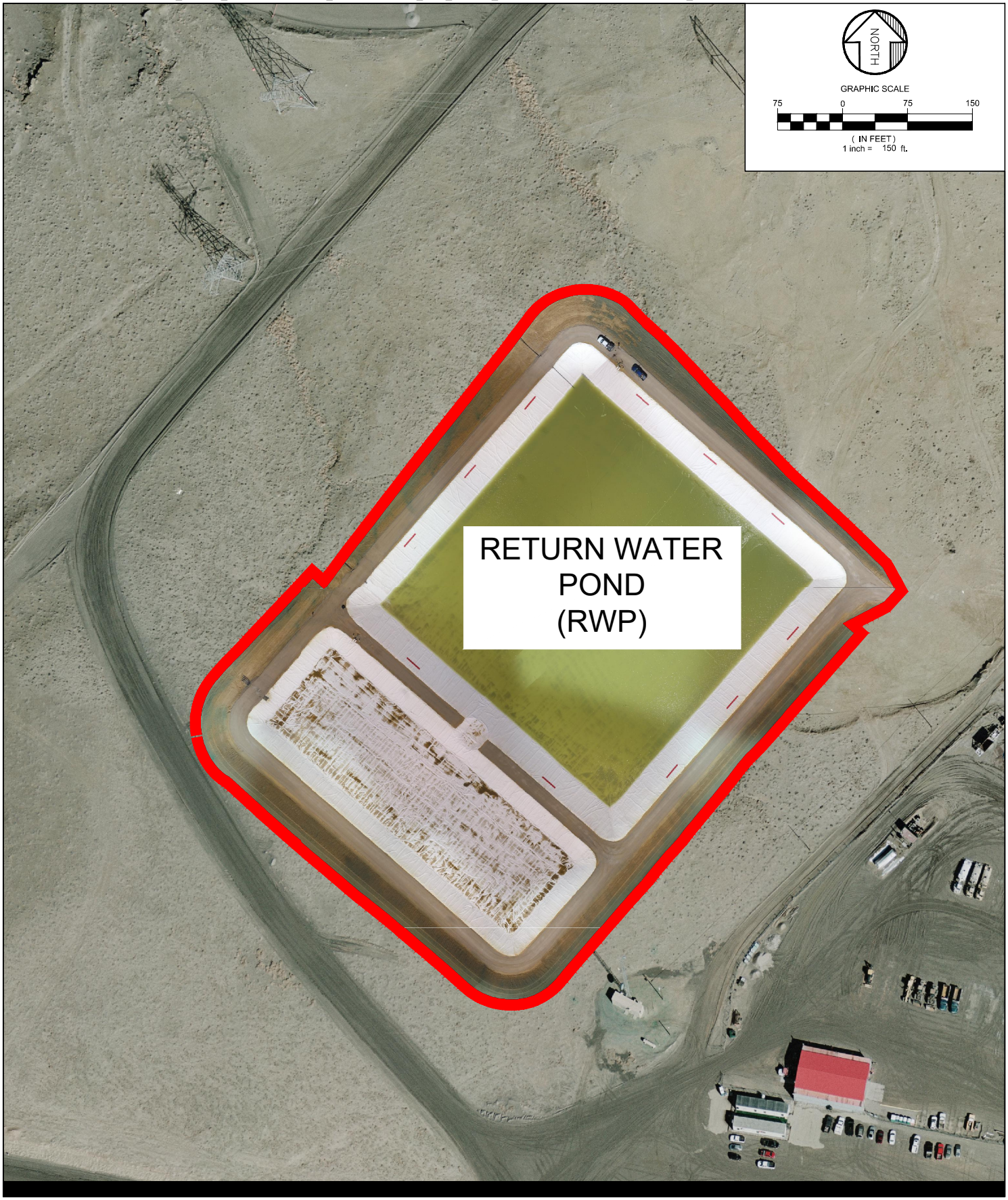
DRY FLY ASH
DISPOSAL AREA
(DFADA)

AECOM

FIGURE 4

Last saved by: MIKE.BEASON(2020-12-18) Last Plotted: 2020-12-18
Filename: P:\PROJECTS\ARIZONA_PUBLIC_SERVICE\60647538_2020FCDAM\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 5 - RWP_MEB.DWG

ANSI A 8.5" x 11"



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

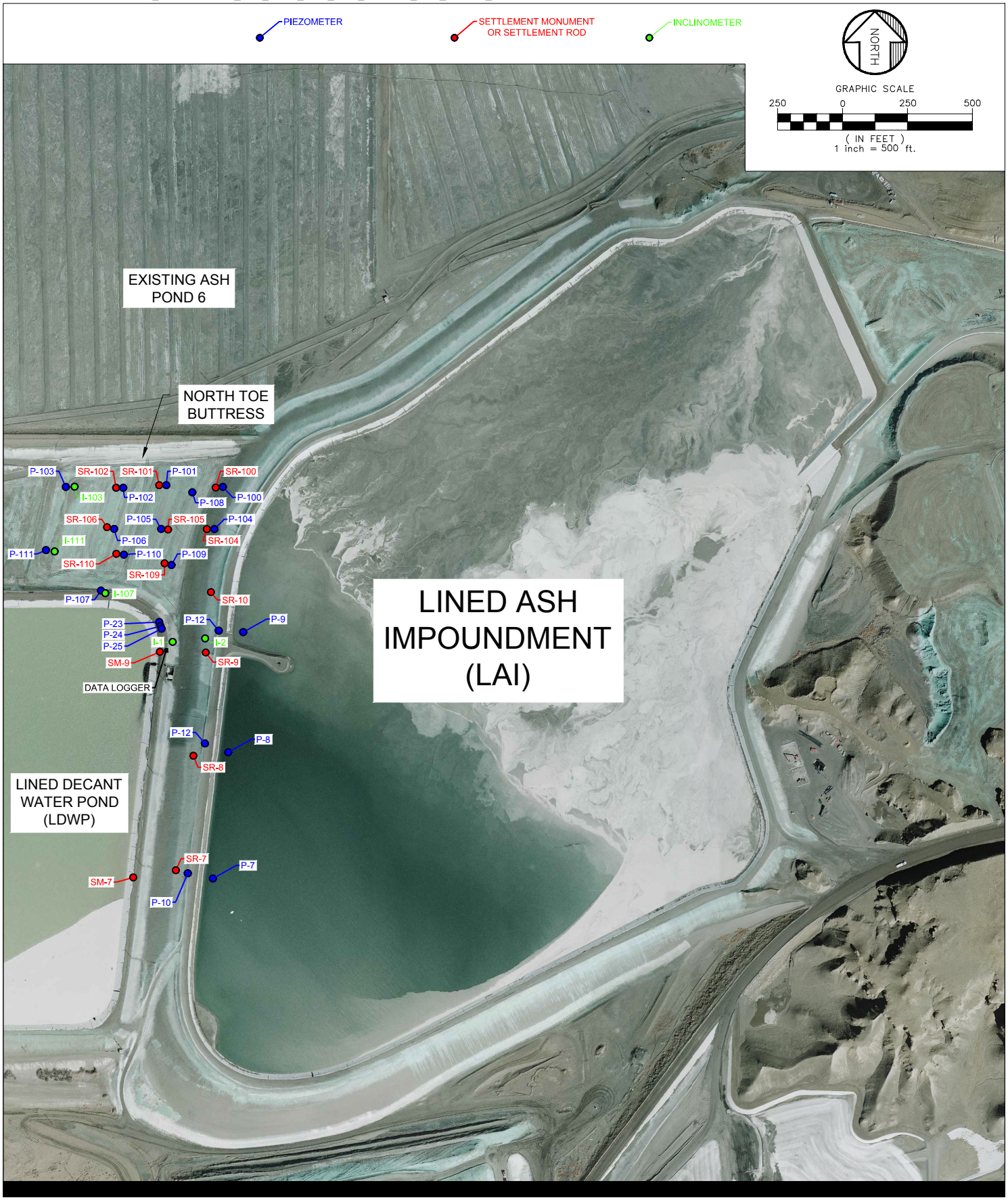
RETURN WATER POND
(RWP)

AECOM

FIGURE 5

Last saved by: LEE.WRIGHT(2021-12-31) Last Plotted: 2021-12-31
Filename: L:\DCS\PROJECTS_WTR\60670439_APS_FCPP_2021_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 6 - LAI INSTRUMENTATION MAP.DWG

ANSI A 8.5" x 11"



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(2021-12-31) Last Plotted: 2021-12-31
Filename: L:\DCS\PROJECTS_WTR\60670439_APS_FCPP_2021_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 7 - LDWP INSTRUMENTATION MAP.DWG
ANSI A 8.5" x 11"

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

LINED DECANT WATER POND (LDWP) INSTRUMENTATION MAP

AECOM

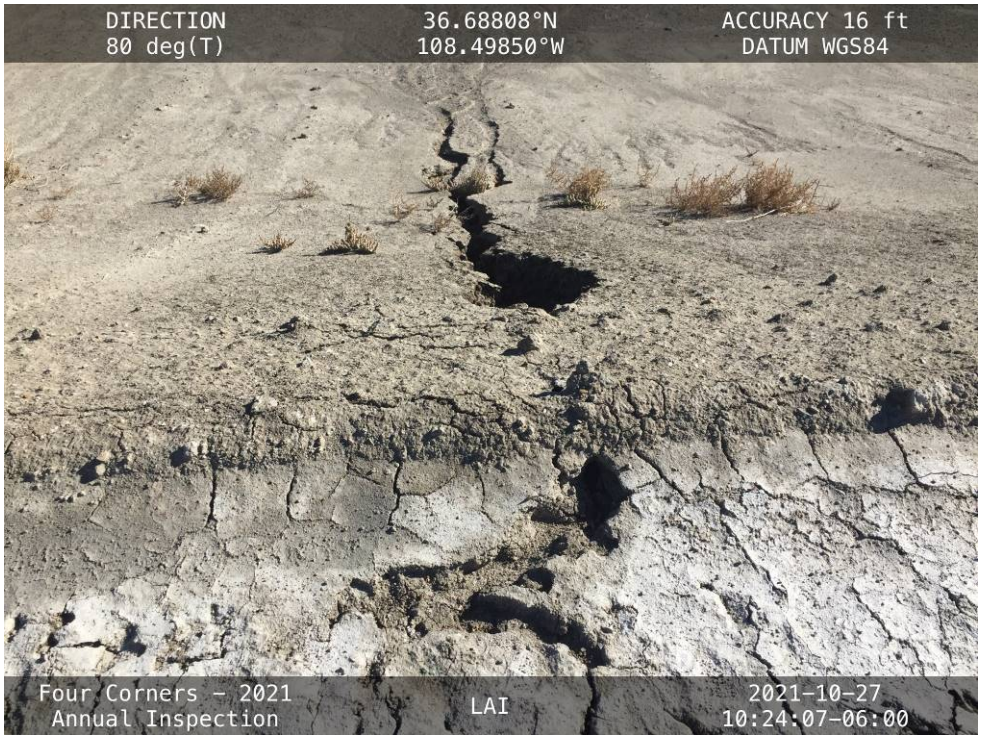
FIGURE 7

APPENDIX A

LINED ASH IMPOUNDMENT (LAI) PHOTO LOG

20211027 – IMG_7514
The downstream slope at the Southwest Corner of the LAI, facing north from DFADA 3.

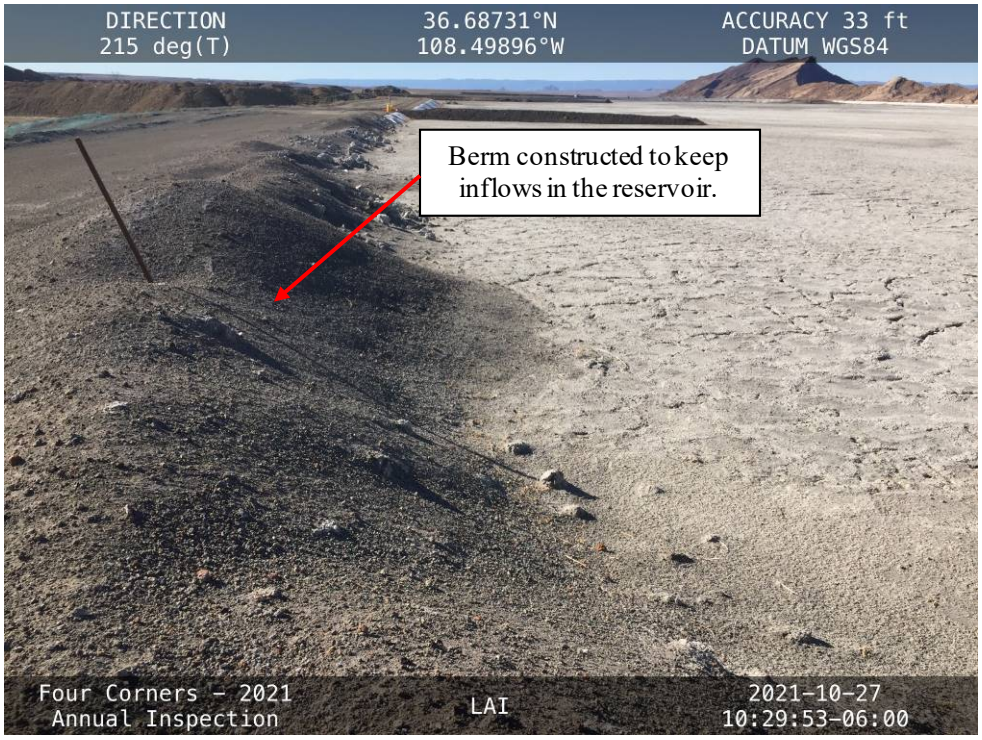
20211027 – IMG_7617
The crest of the East Embankment, facing southeast near the north V-ditch.



20211027 – IMG_7619
Minor erosion on the downstream slope of the East Embankment, near the north V-ditch.

20211027 – IMG_7623
Bottom ash built up on the north side of the old V-ditch to contain the reservoir inflow.

20211027 – IMG_7625
The East Embankment, regraded north of the old V-ditch, facing north.



20211027 – IMG_7632
Bottom ash built up near the old V-ditch to contain the reservoir inflow.

20211027 – IMG_7642
Access ramp at old V ditch Northeast area of LAI.

20211027 – IMG_7647
The downstream slope of the East Embankment, facing south from the middle section.

20211027 – IMG_7649
The upstream slope of the East Embankment, facing north from the middle section.

20211027 – IMG_7650
The upstream slope of the East Embankment, facing south from the middle section.

20211027 – IMG_7653
Holes in the East Embankment crest along the anchor trench, facing south.

20211027 – IMG_7656
Ruts in the East Embankment crest, facing south.

20211027 – IMG_7657
Holes at the edge of the anchor trench along the upstream side of the East Embankment.

20211027 – IMG_7659
The downstream slope of the East Embankment, facing south.

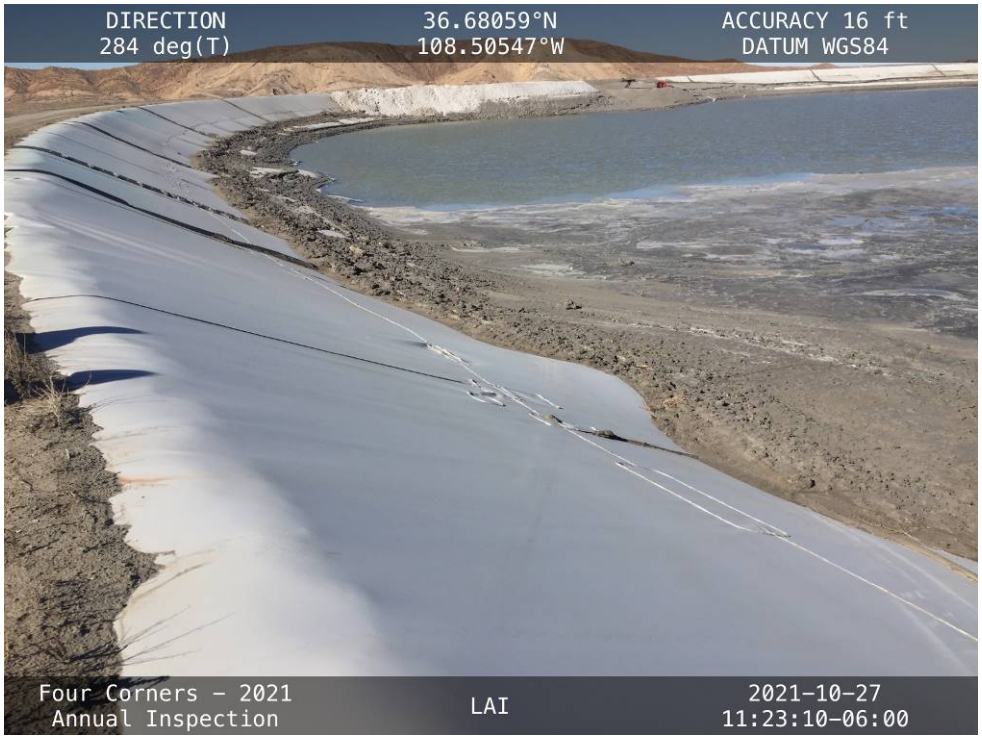
20211027 – IMG_7674
The South Embankment crest and upstream slope, facing southwest from the eastern end.

20211027 – IMG_7686
The downstream slope of the South Embankment, facing west from the DFADA.

20211027 – IMG_7688
The South Embankment upstream slope, facing southwest from the middle of the embankment.

20211027 – IMG_7698
A shallow depression on the downstream half of the South Embankment crest.

20211027 – IMG_7700
Two protrusions beneath the liner on the upstream slope of the South Embankment.



20211027 – IMG_7709
The upstream slope of the South Embankment, facing west toward the Southwest Corner.

20211027 – IMG_7713
The LAI staff gage at STA 36+00 at the time of the inspection.

20211027 – IMG_7729
The upstream slope of the South Embankment, facing east from the Southwest Corner.

20211027 – IMG_7730
Tears in the exposed liner at the cenosphere mining area in the Southwest Corner.

20211027 – IMG_7738
The pump currently being used to remove water and transport it from the LAI to the LDWP.

20211027 – IMG_7742
The upstream slope of the West Embankment, facing north from the Southwest Corner.

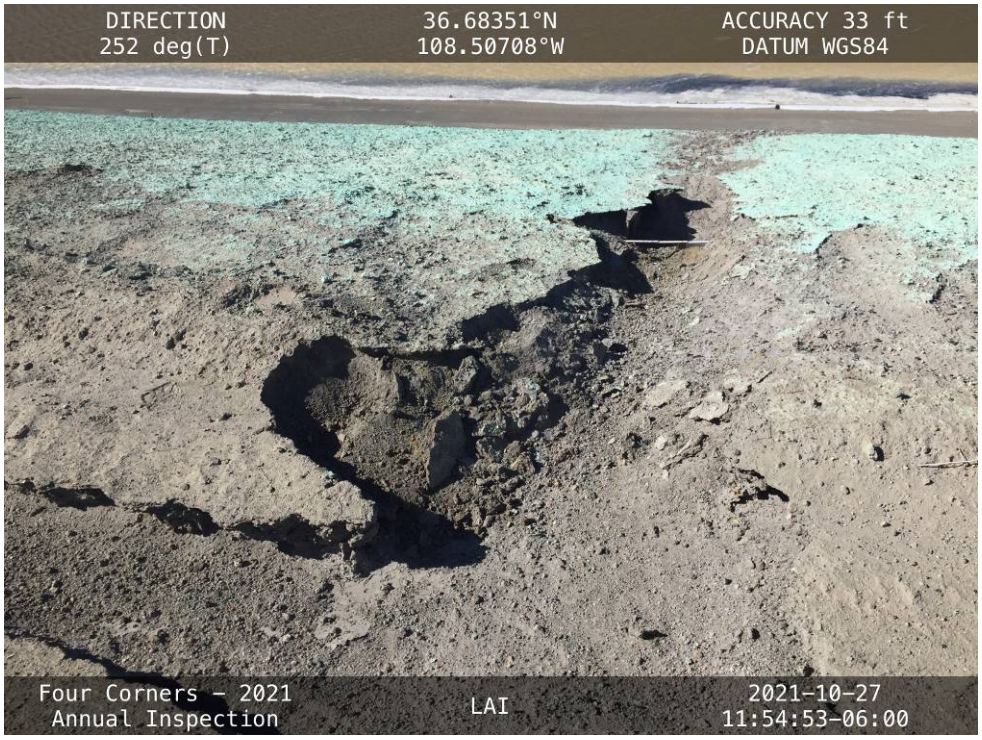
20211027 – IMG_7743
The crest of the West Embankment, facing north from the Southwest Corner.

20211027 – IMG_7744
The downstream slope of the West Embankment, facing north from the LDWP access ramp.

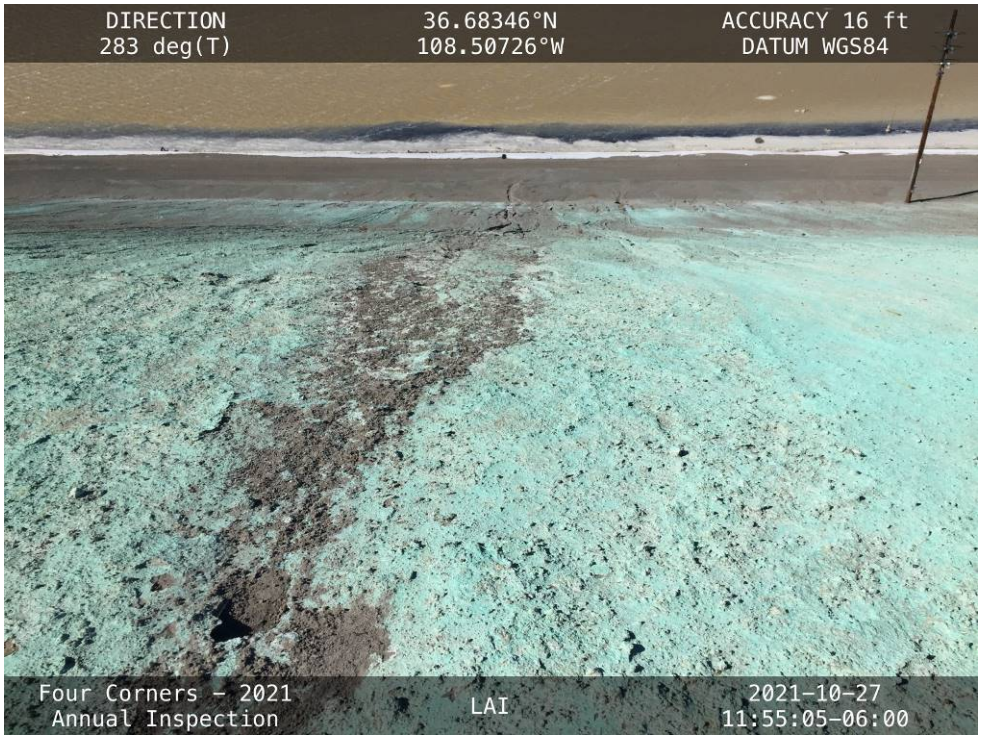
20211027 – IMG_7751
Erosion on the LDWP access ramp, facing south.

20211027 – IMG_7753
Erosion on the LDWP access ramp, facing south.

20211027 – IMG_7755
The current extent of impounded water in the LAI, facing south from the West Embankment.

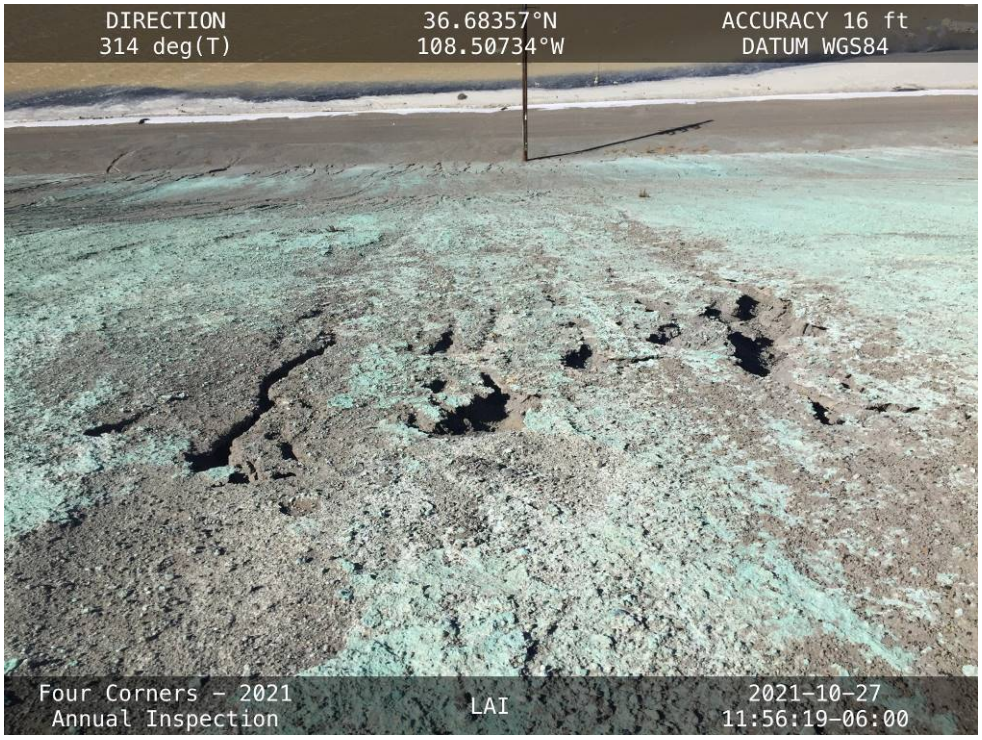


20211027 – IMG_7758
Erosion along the upper portion of the West Embankment, facing downstream from the crest.



20211027 – IMG_7761
Minor erosion on the West Embankment and runout at the downstream toe, facing west from the crest.

20211027 – IMG_7762
10 inches of erosion along the upper portion of the West Embankment downstream slope.



20211027 – IMG_7764
Erosion along the upper portion of the West Embankment, facing downstream from the crest.

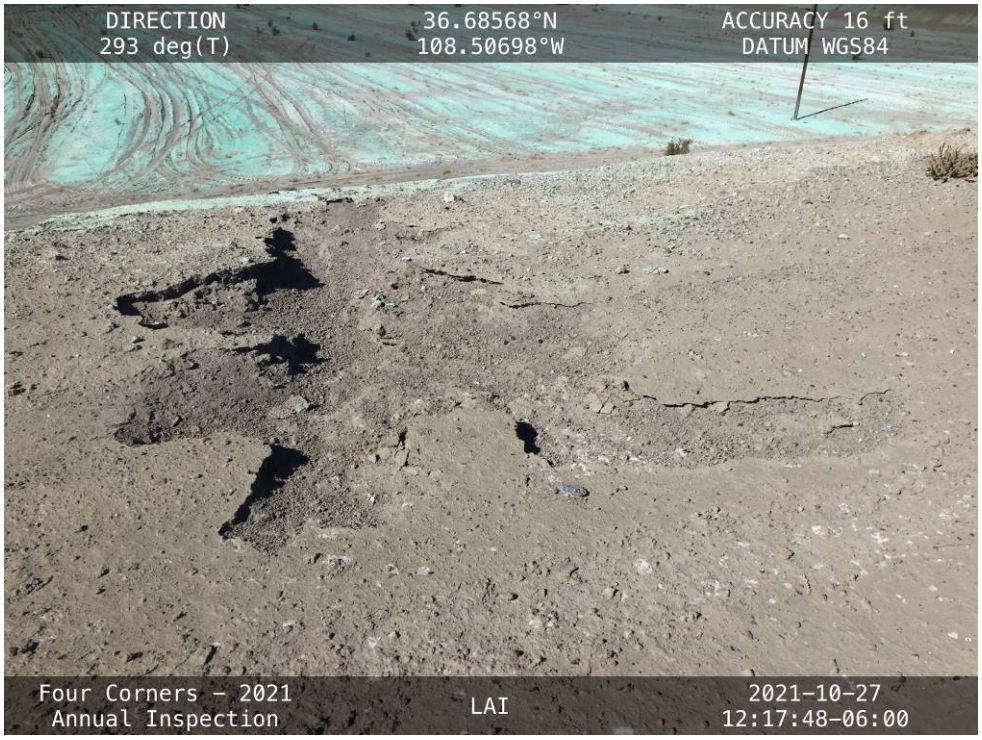
20211027 – IMG_7768
A liner mud crack on the upstream side of the West Embankment crest.

20211027 – IMG_7770
The upstream slope of the West Embankment, facing south from the Drop Inlet Structure ramp.

20211027 – IMG_7772
The upstream slope of the West Embankment, facing north from the Drop Inlet Structure ramp.

20211027 – IMG_7775
The Drop Inlet Structure, facing west from inside the LAI reservoir.

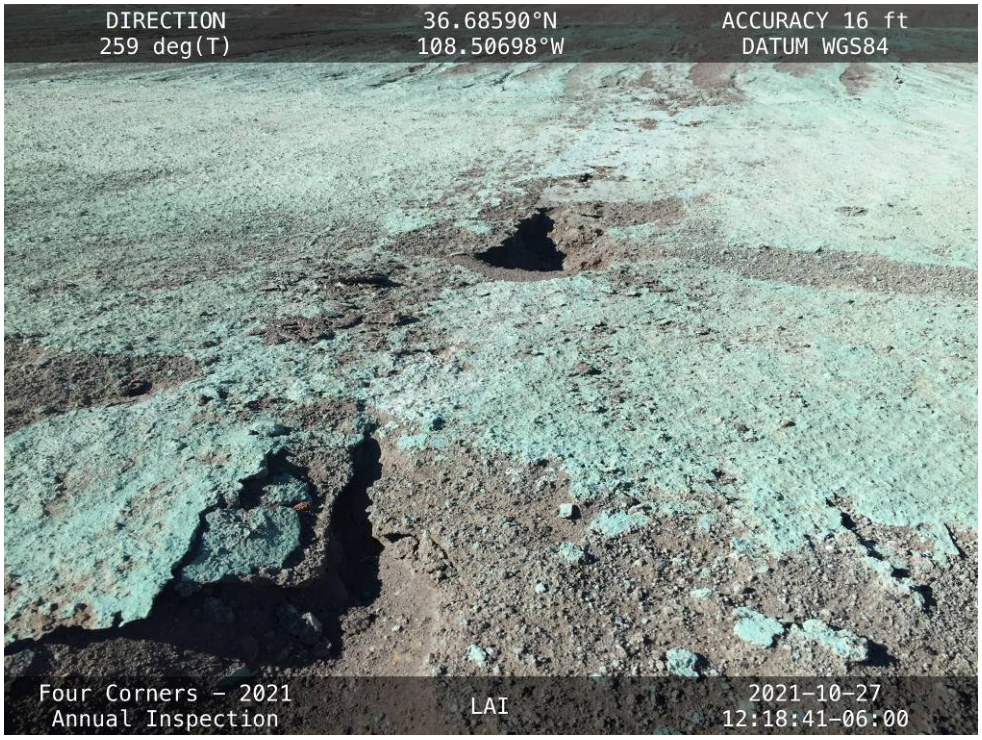
20211027 – IMG_7776
Holes in the mud cracks along the anchor trench north of the Drop Inlet Structure.



20211027 – IMG_7780
Erosion along the upper portion of the West Embankment, facing downstream from the crest.

20211027 – IMG_7783
The downstream slope of the West Embankment, facing south from the north end.

20211027 – IMG_7784
Erosion along the upper portion of the West Embankment, facing downstream from the crest.



20211027 – IMG_7785
Erosion along the upper portion of the West Embankment, facing downstream from the crest.

20211027 – IMG_7787
The North Toe Buttress, facing west from the crest of the West Embankment.

20211027 – IMG_7788
The crest of the West Embankment, facing south from the north side of the West Embankment.

20211027 – IMG_7789
The impounded ash level nearly at the crest of the Northwest Embankment, facing northeast.

20211027 – IMG_7790
The impounded ash level along the north side of the West Embankment, facing south.

20211027 – IMG_7793
The downstream slope of the Northwest Embankment, facing northeast toward Pond 6.

20211027 – IMG_7794
An erosion rill on the downstream slope of the Northwest Embankment.

20211027 – IMG_7802
The impounded ash level along the Northwest Embankment, facing northeast toward the crest.

20211027 – IMG_7805
The impounded ash level at the Northwest Embankment with an 18-inch ruler on the upstream slope.

20211027 – IMG_7807
The impounded ash along the Northwest Embankment.

20211027 – IMG_7814
Ash at the north side of the LAI within inches of the crest elevation.

20211027 – IMG_7815
The downstream slope of the Northwest Embankment, facing west.

20211027 – IMG_7822
The downstream slope of the Northwest Embankment, facing northeast toward Pond 6.

20211027 – IMG_7823
The crest and upstream slope of the Northwest Embankment, facing northeast toward the north V-ditch.

20211027 – IMG_7827
Ash and the CCR berm constructed to keep inflows off the crest at the north V-ditch, facing northeast.

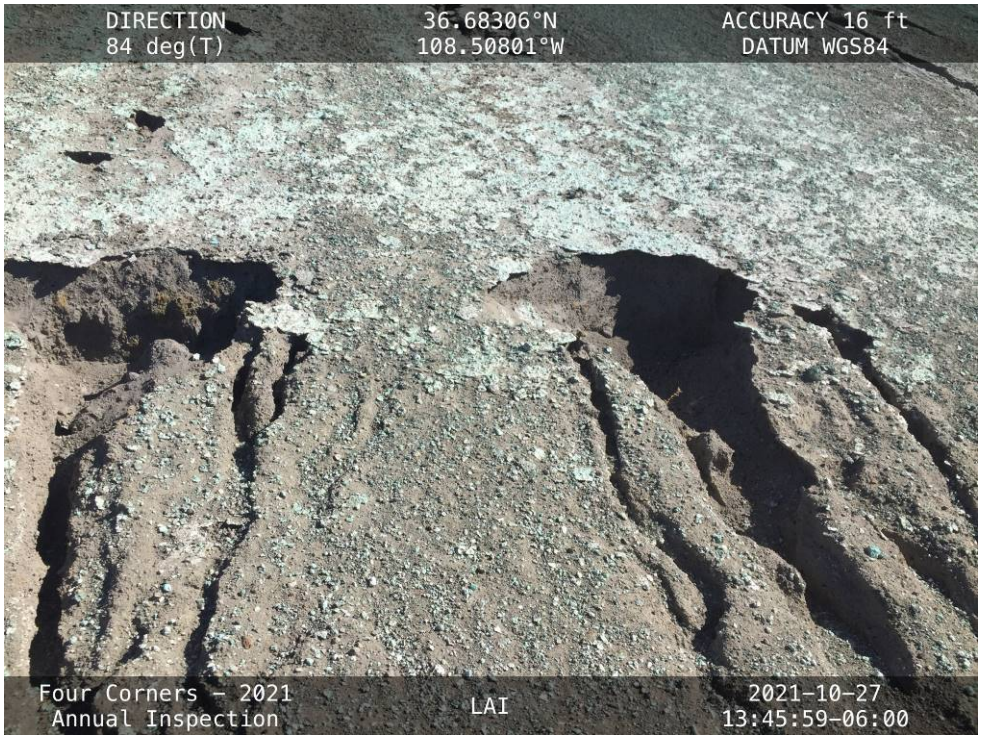
20211027 – IMG_7836
Ash and the CCR berm constructed to keep inflows off the crest at the north V-ditch, facing southwest.

20211027 – IMG_7610
The CCR berm constructed to divert inflows away from the crest at the north V-ditch.

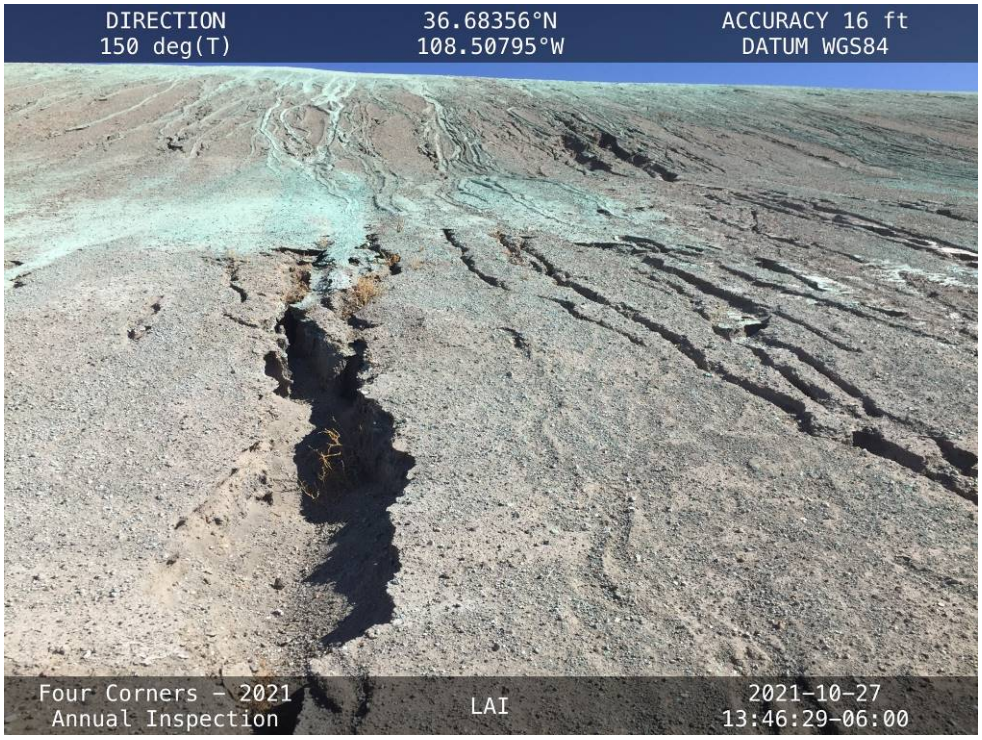
20211027 – IMG_7611
The upstream slope of the East Embankment, facing south near the north V-ditch.

20211027 – IMG_7605
The former location of the north V-ditch (now closed), facing northeast.

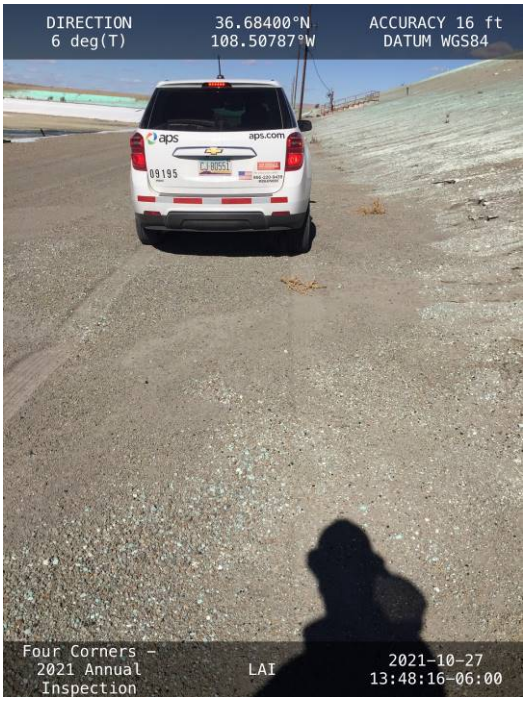
20211027 – IMG_7615
The CCR berm constructed to divert inflows away from the crest at the north V-ditch.



20211027 – IMG_7891
Erosion rills on the West Embankment downstream slope, facing east from the toe.



20211027 – IMG_7895
Erosion rills on the West Embankment downstream slope, facing east from the toe.



20211027 – IMG_7898

The location of a hole previously observed at the toe of the West Embankment, no longer present, facing north.

20211027 – IMG_7905

Erosion gullies on the West Embankment near the south end of the North Toe Buttress.

20211027 – IMG_7906
Erosion gullies at the toe of the West Embankment near the south end of the North Toe Buttress.

20211027 – IMG_7909
An erosion rill at the junction of the Northwest Embankment (soil) and the West Embankment (ash).

20211027 – IMG_7911
The toe of the West Embankment, facing north from the south end.

20211027 – IMG_7581
The South Embankment toe drain in a dry condition.

20211027 – IMG_7962
The downstream slope of the West Embankment, facing east from the LDWP.

20211027 – IMG_7963
The downstream slope of the West Embankment, facing east from the LDWP.

20211027 – IMG_7964
The downstream slope of the West Embankment, facing east from the LDWP.

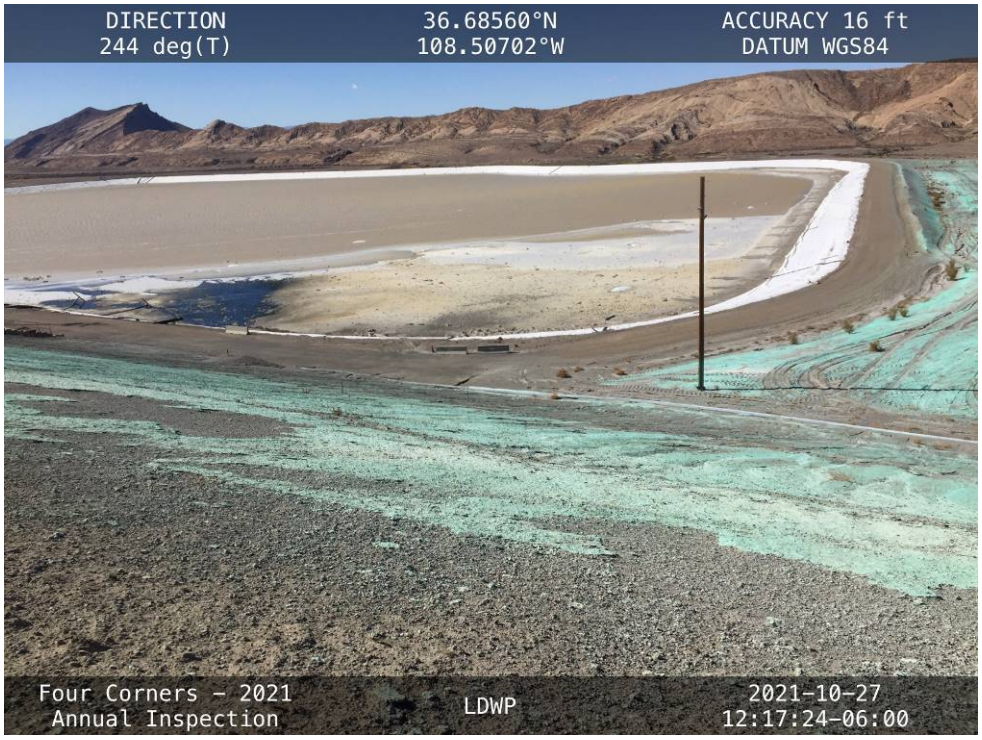
20211027 – IMG_7965
The downstream slope of the West Embankment, facing east from the LDWP.

APPENDIX B

LINED DECANT WATER POND (LDWP) PHOTO LOG

20211027 – IMG_7727
The downstream slope of the South Embankment, facing west from the LAI crest.

20211027 – IMG_7739
The upstream slope of the South Embankment, facing west from the LAI crest.



20211027 – IMG_7779
The north side of the LDWP reservoir, facing west from the crest of the LAI.

20211027 – IMG_7588
The downstream slope of the South Embankment, facing west from the toe.

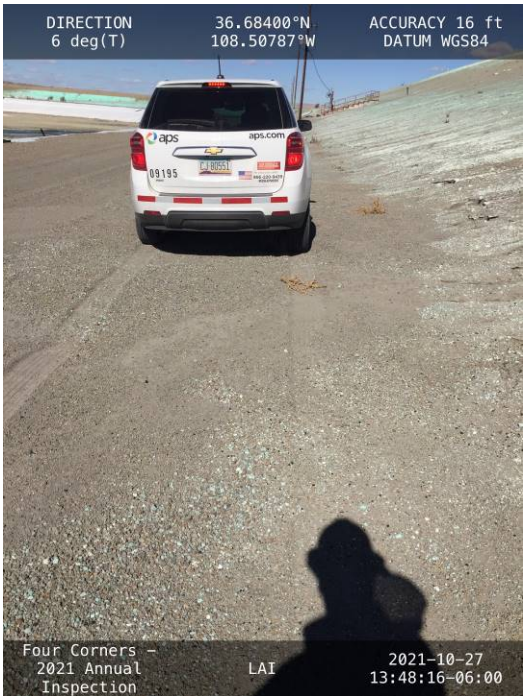
20211027 – IMG_7866
Erosion on the western half of the South Embankment downstream slope, facing north from the toe.

20211027 – IMG_7868
Erosion on the downstream slope at the western end of the South Embankment.

20211027 – IMG_7879
The West Embankment slope, facing southeast from the toe near the center of the embankment.

20211027 – IMG_7881
The West Embankment slope, facing east from the toe near the center of the embankment.

20211027 – IMG_7886
The upstream slope of the South Embankment, facing west from the southeast corner.

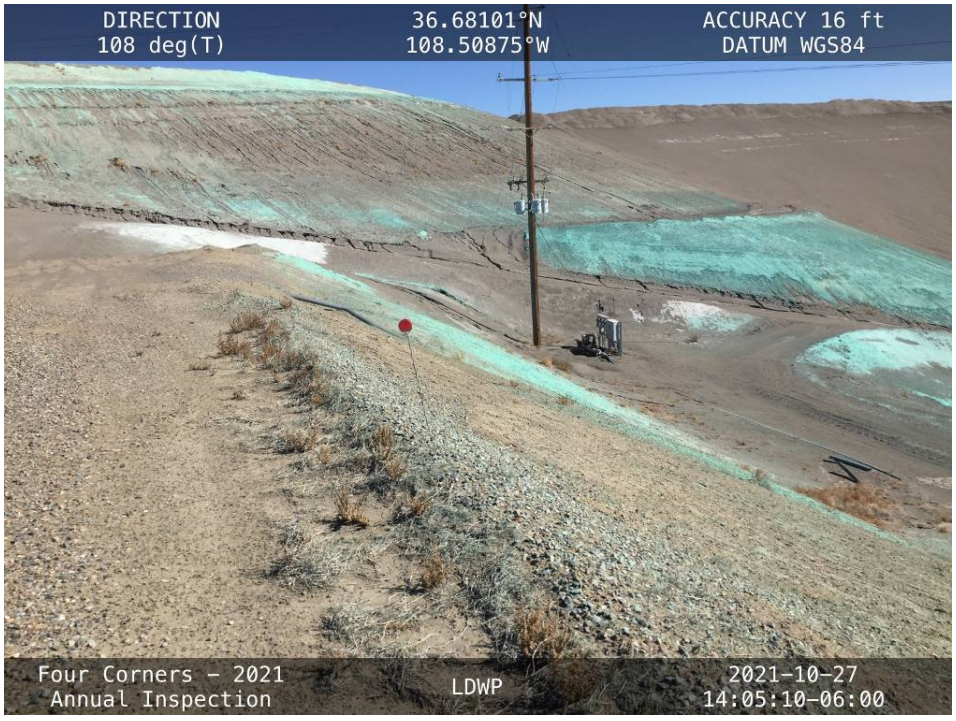


20211027 – IMG_7898
The location of a hole previously observed at the toe of the West Embankment, no longer present, facing north.

20211027 – IMG_7912
The upstream slope of the East Embankment, facing north from the southeast corner.

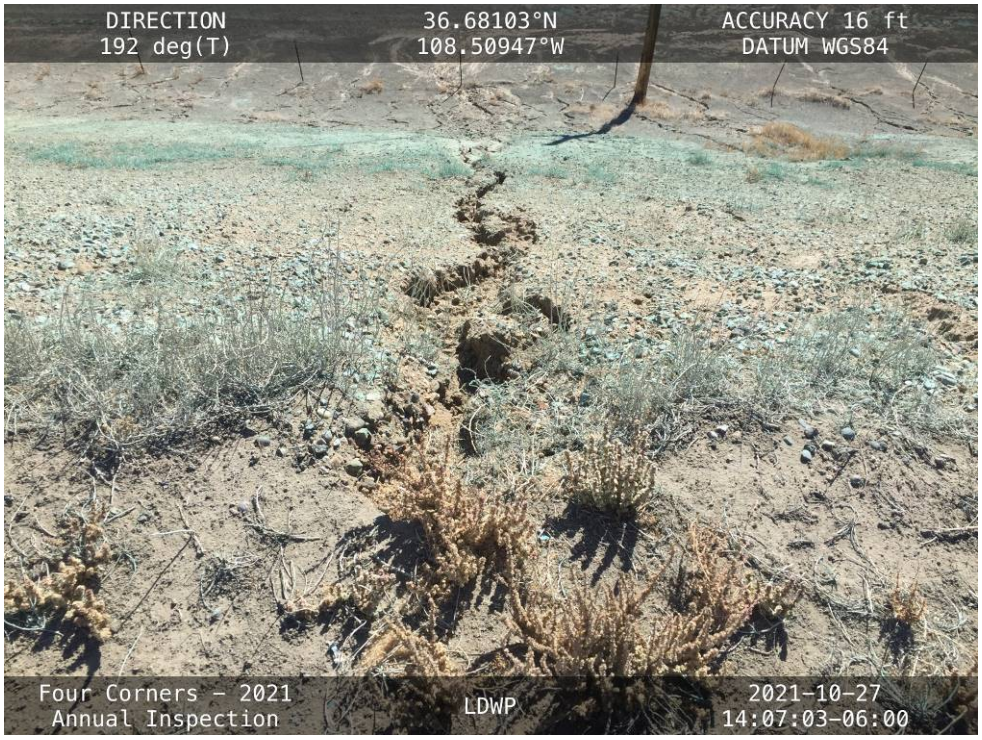
20211027 – IMG_7917
The crest of the South Embankment, facing west from the southeast corner.

20211027 – IMG_7918
A rut in the crest of the South Embankment.

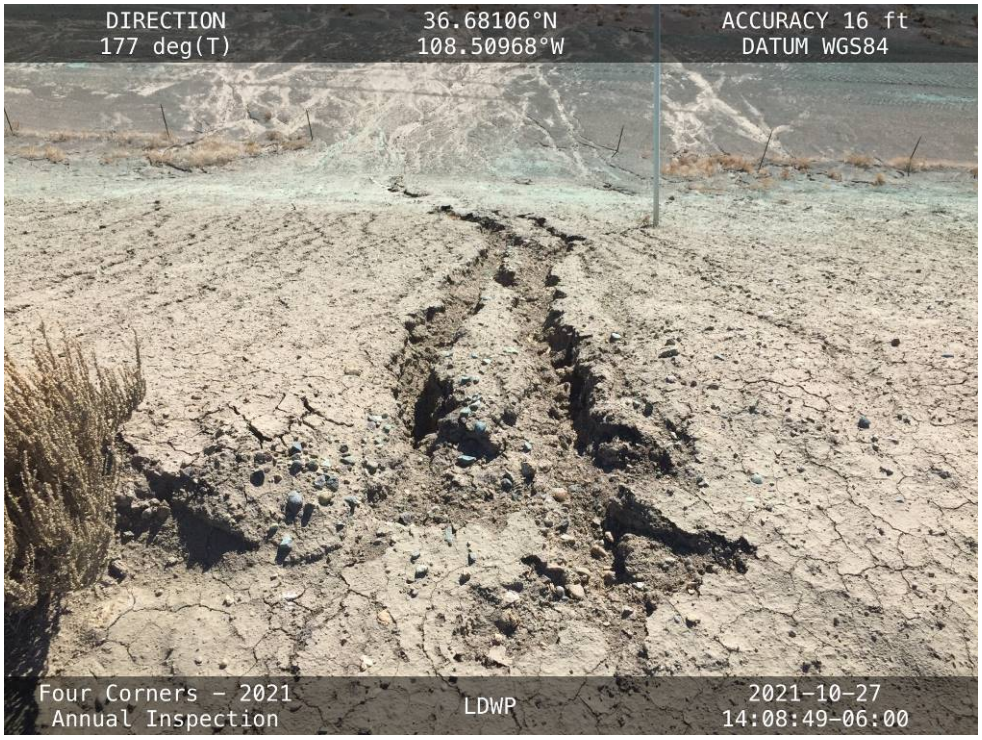


20211027 – IMG_7919
The Deadpool Sump control panel and the abutment with the LAI, facing east from the South Embankment crest.

20211027 – IMG_7920
The downstream slope of the South Embankment, facing west from the southeast corner.



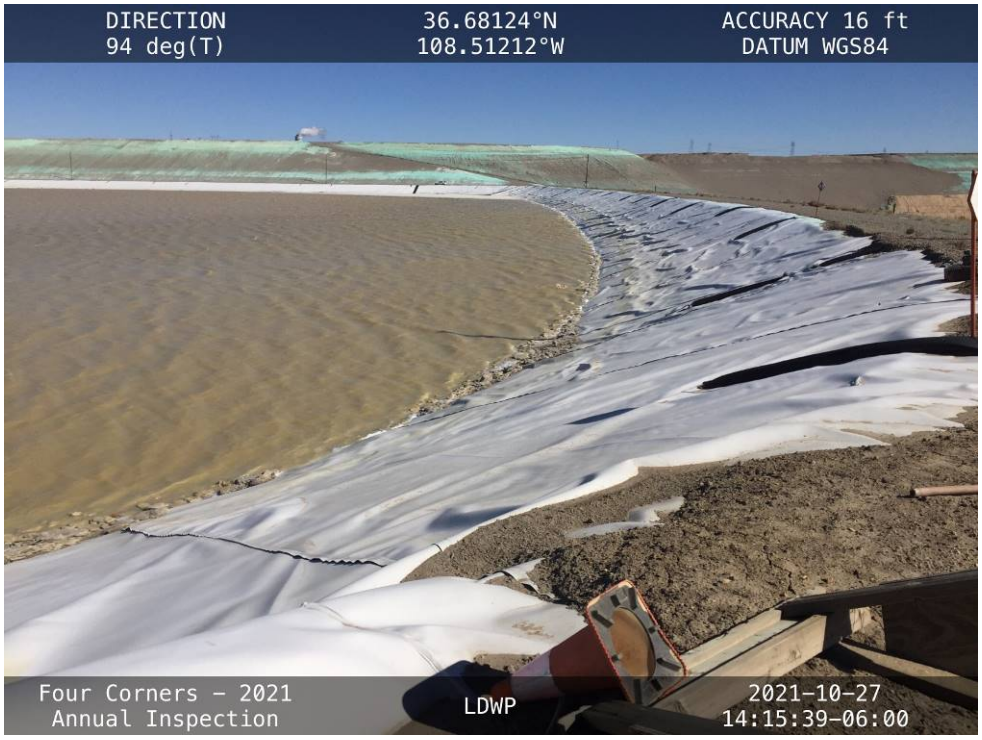
20211027 – IMG_7921
Erosion rills forming on the downstream slope in the upper half of the South Embankment.



20211027 – IMG_7922
Erosion rills forming on the downstream slope in the upper half of the South Embankment.

20211027 – IMG_7937
The Interstitial Evacuation Pump access pipes in the southwest corner of the LDWP.

20211027 – IMG_7935
The upstream slope of the West Embankment, facing north from the southwest corner.



20211027 – IMG_7939
The upstream slope of the South Embankment, facing east from the West Embankment.

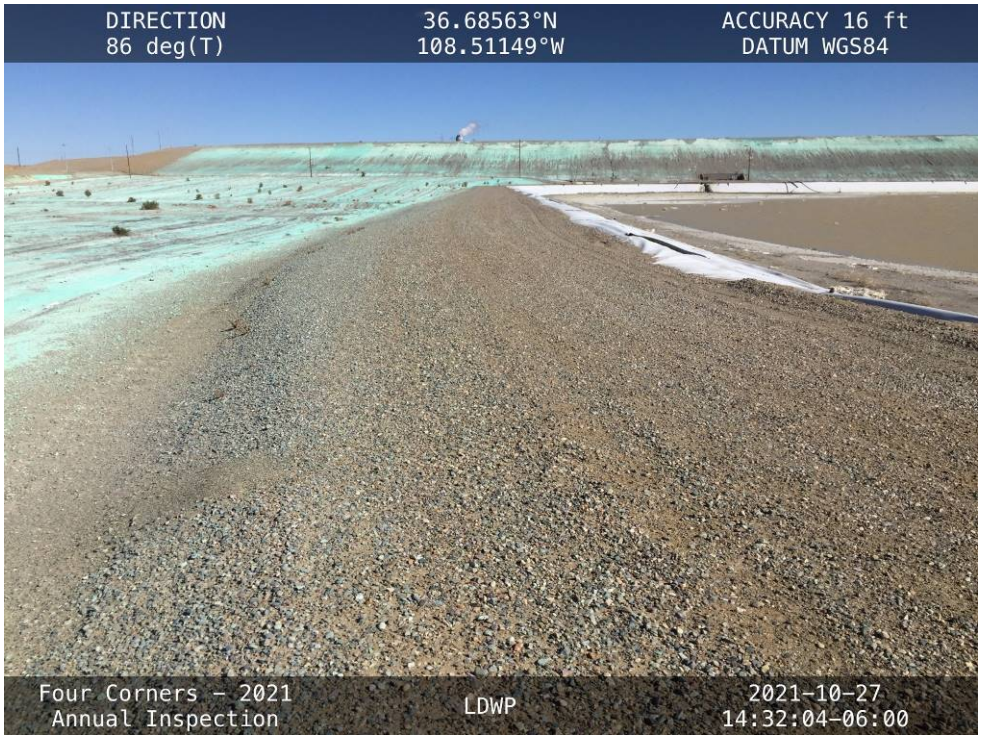
20211027 – IMG_7949
The crest of the West Embankment, facing south.

20211027 – IMG_7954
The liner pulling out of the anchor trench in the northern portion of the West Embankment.

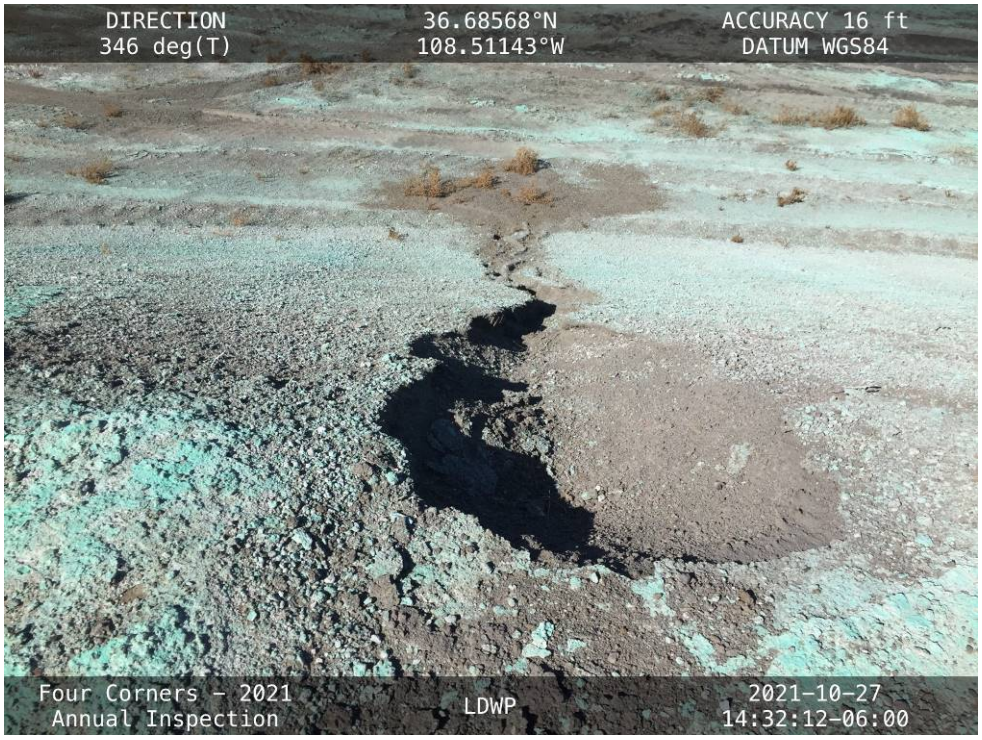
20211027 – IMG_7957
The northwest corner of the LDWP, facing north from the West Embankment.

20211027 – IMG_7960
The crest of the West Embankment, facing south from the North Embankment.

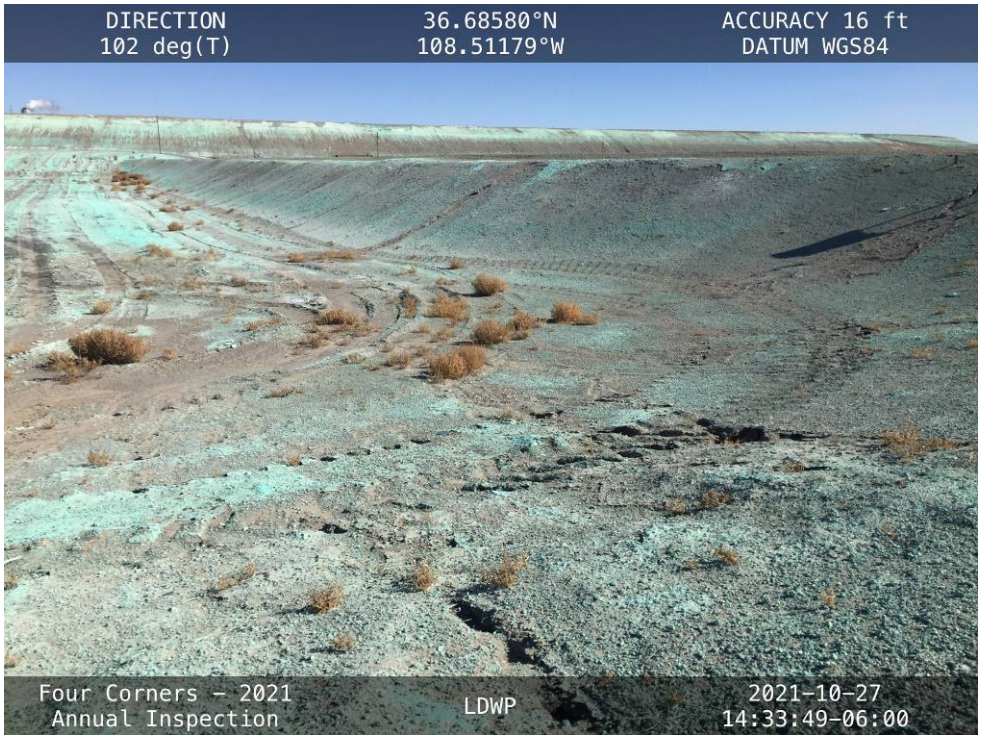
20211027 – IMG_7966
The upstream slope of the West Embankment, facing south.



20211027 – IMG_7967
The crest of the North Embankment, facing east from the West Embankment.



20211027 – IMG_7968
An erosion gully on the downstream slope of the North Embankment, near the northwest corner.



20211027 – IMG_7970
The downstream slope of the North Embankment, facing east from the northwest corner.

20211027 – IMG_7975
A hole in the liner along the North Embankment marked with a pin flag.

20211027 – IMG_7984
A whaleback on the north side of the reservoir, facing south from the North Embankment crest.

20211027 – IMG_7986
An area of previous liner repairs on the upstream slope of the North Embankment.

20211027 – IMG_7989
The crest of the North Embankment, facing west from the eastern end.

20211027 – IMG_7991
A whaleback on the north side of the reservoir, facing south from the North Embankment crest.

20211027 – IMG_7993
The surface monuments for piezometers P-23, P-24, and P-25.

20211027 – IMG_7994
The crest and upstream slope of the East Embankment, facing south from the northeast corner.

20211027 – IMG_7995
The upstream slope of the North Embankment, facing east from the East Embankment.

20211027 – IMG_7996
The 8-inch and 16-inch HDPE outlet pipes used to convey decant water from the LAI.

20211027 – IMG_7998
The crest of the East Embankment, facing south from the northeast corner.

20211027 – IMG_7999
The suction intake lines in the northeast corner of the LDWP.

20211027 – IMG_8001
Erosion on the crest near the suction intake lines in the northeast corner of the LDWP.

20211027 – IMG_8004
The suction intake lines in the northeast corner of the LDWP.

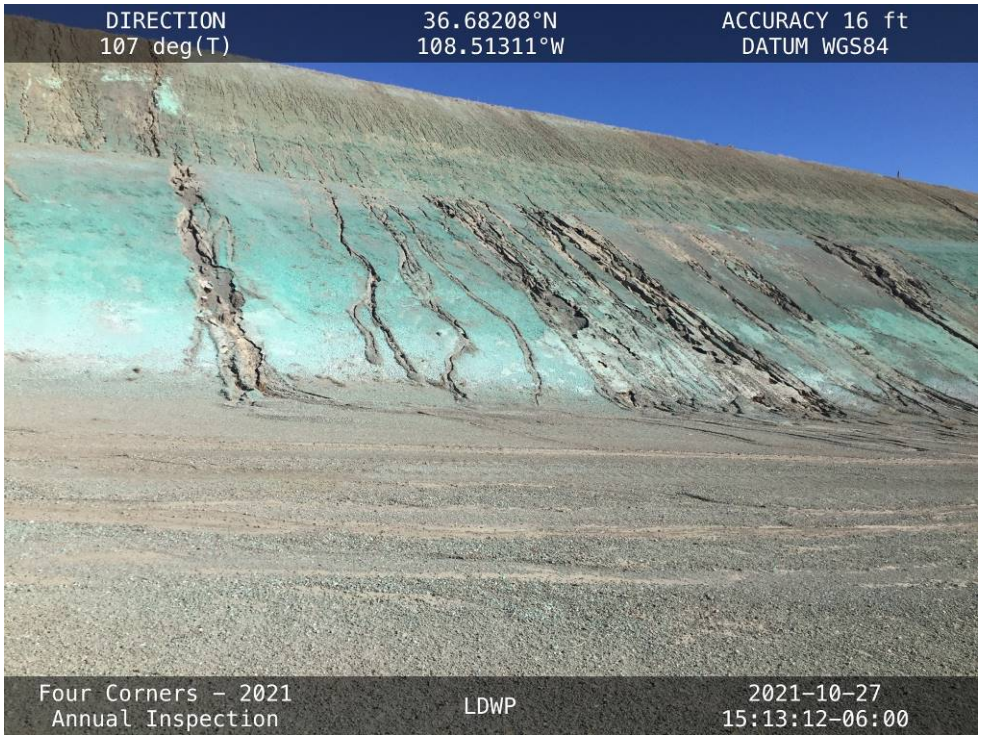
20211027 – IMG_8005
Portions of the outer pipes for the suction intake lines exposed across the East Embankment crest.

20211027 – IMG_8006
A 2-inch notch in the liner on the upstream shoulder of the East Embankment.

20211027 – IMG_8007
The reservoir staff gage and the elevation gage marked on the liner along the East Embankment.

20211027 – IMG_8009
Portions of the liner exposed in the anchor trench along the East Embankment crest.

20211027 – IMG_8011
The upstream slope of the East Embankment, facing north from the south end.



20211027 – IMG_8015
Erosion rills and gullies on the upper section of the West Embankment.

20211027 – IMG_8018
Erosion rills and gullies on the upper section of the West Embankment.

20211027 – IMG_8017
Runout channels from the erosion shown in IMG_8015 and IMG_8018.

20211027 – IMG_7945
The runout channels shown in IMG_8017 as seen from the crest of the West Embankment.

APPENDIX C

COMBINED WASTE TREATMENT POND (CWTP) PHOTO LOG

20211028 – IMG_8332
Water in the decant cells on the west side of the CWTP reservoir.

20211028 – IMG_8336
Vegetation on the downstream slope at the Right Abutment.

20211028 – IMG_8338
Vegetation near and erosion around the steps leading to the outfall headwall.

20211028 – IMG_8340
The crest of the CWTP, facing north from the south end of the East Embankment.

20211028 – IMG_8342
The CWTP flow monitoring structure on the eastern portion of the embankment.

20211028 – IMG_8344
Water impounded approximately 1′-5″ below the top stop log at the overflow weir.

20211028 – IMG_8346
Water below the crest of the overflow weir.

20211028 – IMG_8350
The 30-inch RCP outfall from the CWTP to the discharge canal.

20211028 – IMG_8352
The downstream slope along the eastern portion of the embankment, facing northwest.

20211028 – IMG_8353
An ant hill on the downstream shoulder of the embankment.

20211028 – IMG_8354
Vegetation to be removed from the downstream slope of the East Embankment.

20211028 – IMG_8356
The reservoir and vegetation along the upstream slope of the embankment, facing northwest.

20211028 – IMG_8358
A zone of loose material on the upstream half of the crest also observed during the 2020 inspection (2020 Photo IMG_3273).

20211028 – IMG_8359
A 7-inch deep erosion hole on the downstream shoulder of the East Embankment crest.

20211028 – IMG_8361

20211028 – IMG_8366

IMG_8361 and IMG_8366: Location of the 11.5-foot long tension crack observed during the 2020 and 2018 inspections. Not observed during this inspection, but the ground appears to be less vegetated; the surficial material may have sloughed into the canal.

20211028 – IMG_8375
Two small erosion holes on the downstream shoulder of the East Embankment crest

20211028 – IMG_8376
The reservoir and vegetation along the upstream slope of the embankment, facing northwest.

20211028 – IMG_8378
The downstream slope along the eastern portion of the embankment, facing southeast.

20211028 – IMG_8383
Erosion in a portion of the downstream slope.

20211028 – IMG_8386
Vegetation growing where a riprap boulder is separating from the rest of the slope (2020 Photo IMG_3258).

20211028 – IMG_8388
The crest along the eastern portion of the embankment, facing northwest.

20211028 – IMG_8389
An incipient erosion rill on the upstream slope of the embankment.

20211028 – IMG_8393
Erosion beneath a riprap boulder on the downstream slope.

20211028 – IMG_8397
A riprap boulder separating from the rest of the downstream slope.

20211028 – IMG_8401
Vegetation to be removed from the downstream slope near the curved section of the CWTP.

20211028 – IMG_8402
The downstream slope along the northern portion of the embankment, facing east.

20211028 – IMG_8403
Vegetation to be removed from the upstream slope of the North Embankment.

20211028 – IMG_8406
Vegetation to be removed from the downstream slope of the North Embankment.

20211028 – IMG_8407
Vegetation to be removed from the downstream slope, with rills forming in the foreground.

20211028 – IMG_8409
Erosion around vegetation to be removed from the downstream slope of the North Embankment.

20211028 – IMG_8410
An erosion rill forming on the downstream slope of the North Embankment.

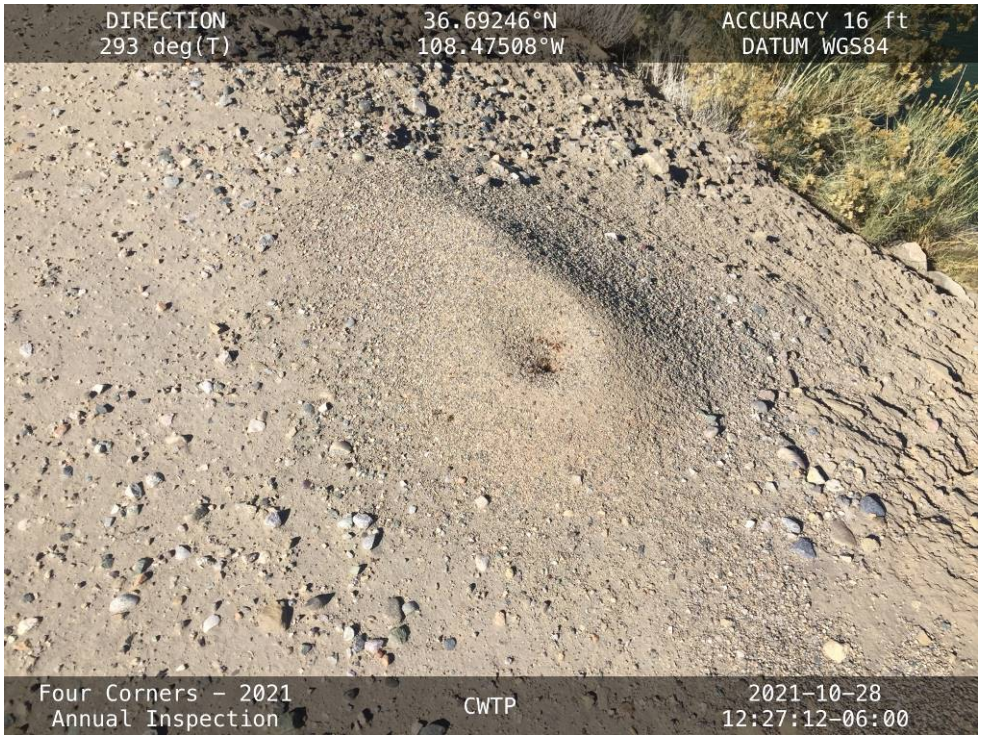
20211028 – IMG_8411
Vegetation to be removed from the downstream slope of the North Embankment.

20211028 – IMG_8413
The downstream slope along the North Embankment, facing west.

20211028 – IMG_8414
Vegetation to be removed from the upstream slope of the North Embankment.

20211028 – IMG_8417
The crest of the North Embankment, facing east from the curved section of the CWTP.

20211028 – IMG_8428
The upstream slope along the northern portion of the embankment, facing east.



20211028 – IMG_8431
An ant hill on the downstream shoulder of the embankment.

20211028 – IMG_8433
The downstream slope along the northern portion of the embankment, facing east.

20211028 – IMG_8439
Incipient erosion rills and vegetation to be removed from the downstream slope of the North Embankment.

20211028 – IMG_8440
Vegetation to be removed from the downstream slope of the North Embankment.

20211028 – IMG_8448
Shallow depressions on the downstream shoulder of the North Embankment.

20211028 – IMG_8454
The 18-inch pipe that transfers water from the canal to the CWTP and the water level transducer.

20211028 – IMG_8458
The 18-inch pipe installed to transfer water from the canal to the CWTP.

20211028 – IMG_8459
The downstream slope along the northern embankment, facing east.

20211028 – IMG_8466
The upstream slope along the northern embankment, facing east from the Left Abutment.

20211028 – IMG_8471
The crest of the North Embankment, facing east from the Left Abutment.

APPENDIX D

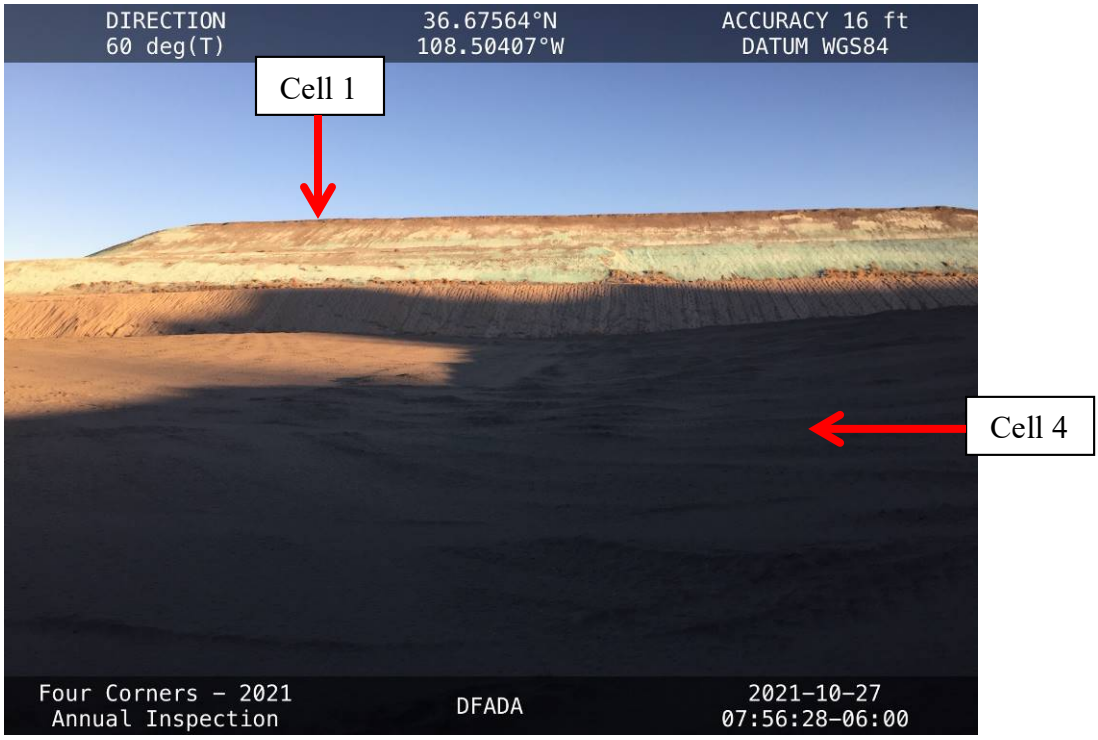
DRY FLY ASH DISPOSAL AREA (DFADA) PHOTO LOG

20211027 – IMG_7478
An erosion gully in the groin of the access ramp to Cell 2, facing south from the north side.

20211027 – IMG_7480
MW-55R and the east side of Cell 2, facing south from the northeast side.

20211027 – IMG_7481
The slope on the southeast side of Cell 2, facing southwest from the east side.

20211027 – IMG_7487
The south slope of Cells 1 and 2, facing north from the north side of Cell 4.



20211027 – IMG_7488
The south slope of Cell 1, facing north from the middle of Cell 4.

20211027 – IMG_7492
The south toe of Cell 1, facing east from the north side of Cell 4.

20211027 – IMG_7497
Filter bags and other debris disposed of in Cell 2.

20211027 – IMG_7500
The surface of Cell 2, facing north from the middle of the cell.

20211027 – IMG_7521
The Stormwater Diversion Channel along the southeast side of Cell 2.

20211027 – IMG_7525
The liner and bottom ash drain layer on the north side of Cell 4, facing south from Cell 2.

20211027 – IMG_7529
The surface of Cell 4, facing west from the south side of Cell 2.

20211027 – IMG_7531
Riprap lining the new section of the Stormwater Diversion Channel constructed south of Cell 4.

20211027 – IMG_7532
The new cement-treated base stilling basin constructed along the south side of Cell 4.

20211027 – IMG_7533
An erosion gully where the Stormwater Diversion Channel previously terminated, immediately upstream of the section lined with cement-treated base.

20211027 – IMG_7536
The new concrete weir wall in the new stilling basin.

20211027 – IMG_7538
The surface of Cell 4 with the downstream slope of Cell 1 in the background, facing west from the south side of Cell 4.

20211027 – IMG_7539
The surface of Cell 4 with the downstream slopes of Cells 1 and 2 in the background, facing northwest from the south side of Cell 4.

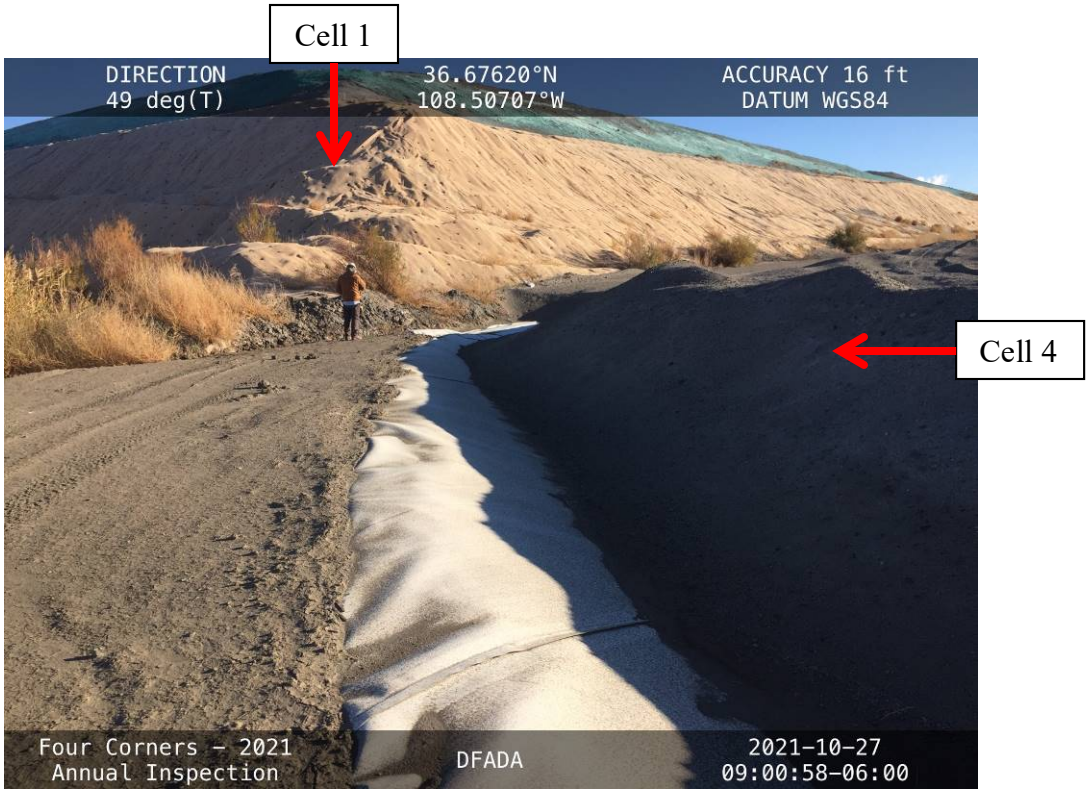
20211027 – IMG_7541
The surface of Cell 4 with the downstream slope of Cell 2 in the background, facing north from the south side of Cell 4.

20211027 – IMG_7542
The surface of Cell 4 with the downstream slope of Cell 2 in the background, facing northeast from the south side of Cell 4.

20211027 – IMG_7545
The north side of the new Cell 4 leachate collection pond, as seen from the west side.

20211027 – IMG_7547
The new Cell 4 leachate collection pond, facing south from the north side.

20211027 – IMG_7554
The bottom ash drainage layer and liner for Cell 4, facing south from the north end of the western toe.



20211027 – IMG_7555

The liner bottom ash drainage layer for Cell 4, facing north from the north end of the western toe.

20211027 – IMG_7560

The DFADA Cell 2 leachate collection pond, facing north from the southwest corner of Cell 1.

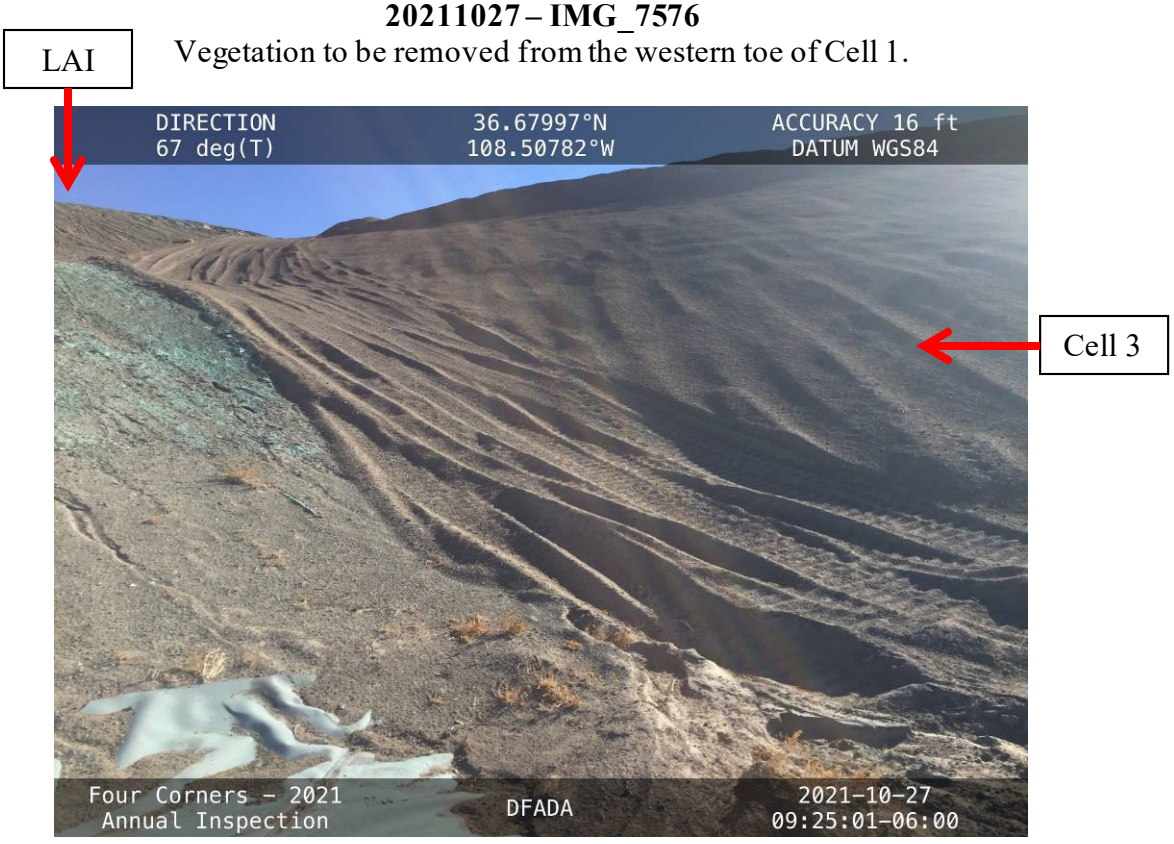
20211027 – IMG_7569
The DFADA Cell 1 leachate collection pond, facing west from the western toe of Cell 1.

20211027 – IMG_7571
The DFADA Cell 1 leachate collection pond, facing north from the western toe of Cell 1.

20211027 – IMG_7572
The western slope and toe of Cell 1, facing north from the leachate collection pond.

20211027 – IMG_7574
The western slope and toe of Cell 1, facing south from the leachate collection pond.

20211027 – IMG_7576
Vegetation to be removed from the western toe of Cell 1.



20211027 – IMG_7591
Erosion repair at the groin between the LAI and Cell 3, facing east.

20211027 – IMG_7594
Erosion repair at the groin between the LAI and Cell 3, facing north.

20211027 – IMG_7592
Erosion along the liner at the downstream toe of the Cell 3 West Embankment, facing south.

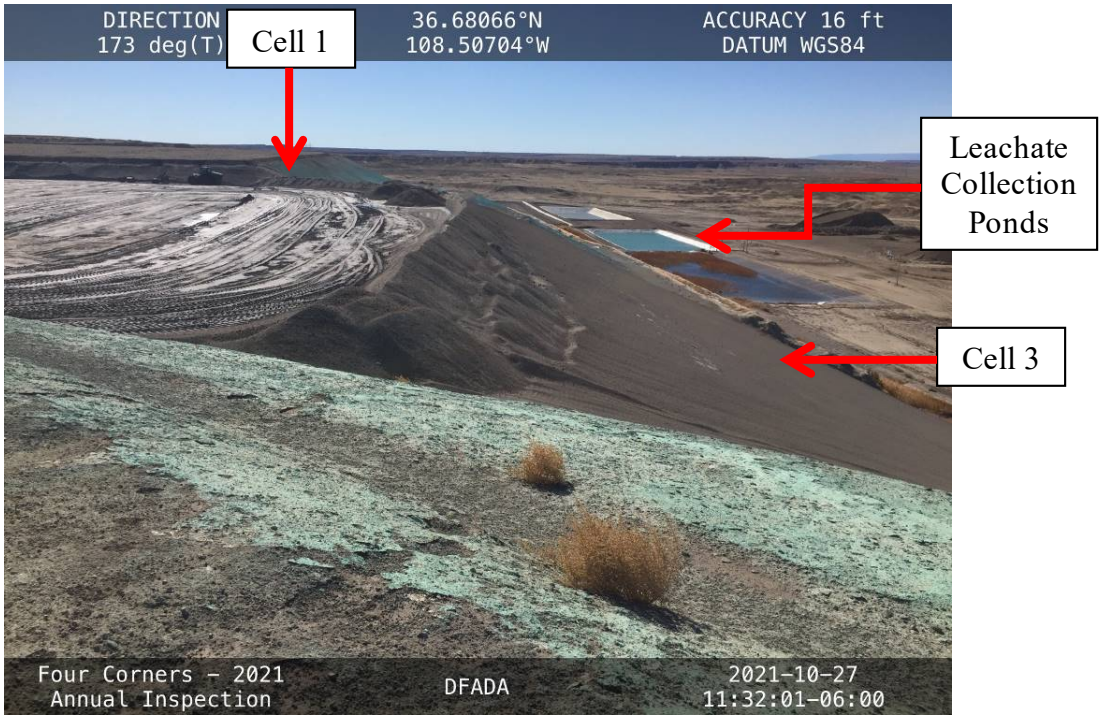
20211027 – IMG_7596
The Cell 3/Cell 1 abutment, facing east from the toe.

20211027 – IMG_7691
The top of the eastern portion of Cell 1, facing east from the LAI crest.

20211027 – IMG_7692
Cell 2 (background) and the central portion of Cell 3 (foreground), facing south from the LAI crest.

20211027 – IMG_7696
Cell 2 (left) and Cell 3 (foreground), facing southwest from the LAI crest.

20211027 – IMG_7719
Ash being compacted on the west side of Cell 3, facing south from the LAI crest.

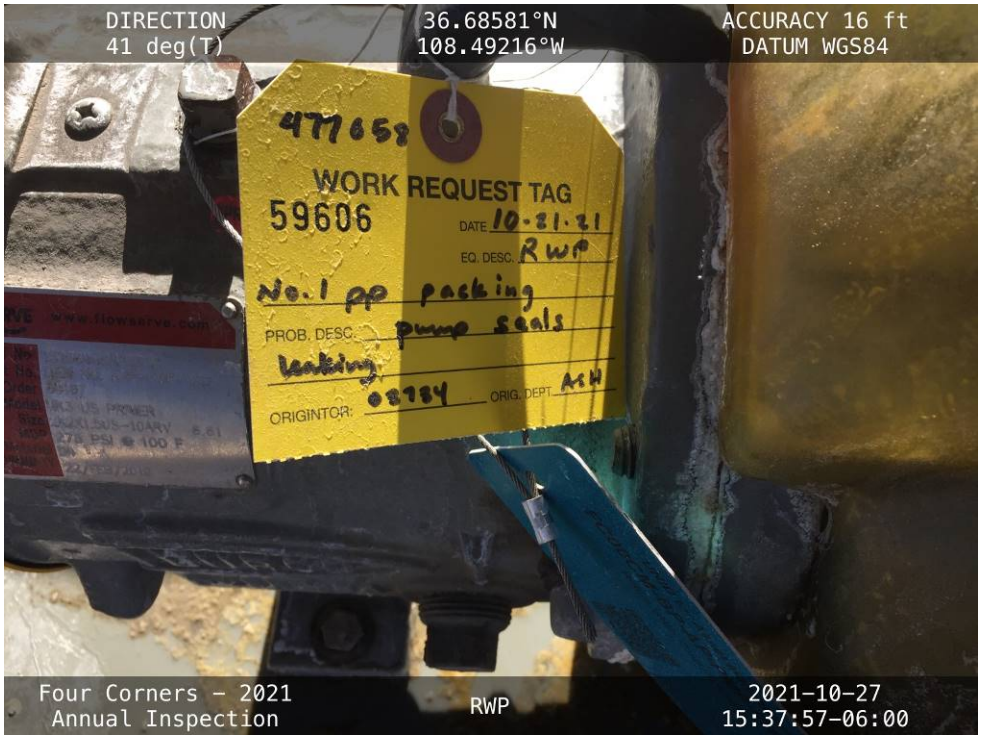


20211027 – IMG_7724
The leachate collection ponds and the western portion of DFADA Cells 1, 3 and 4, facing south from the LAI crest.

APPENDIX E

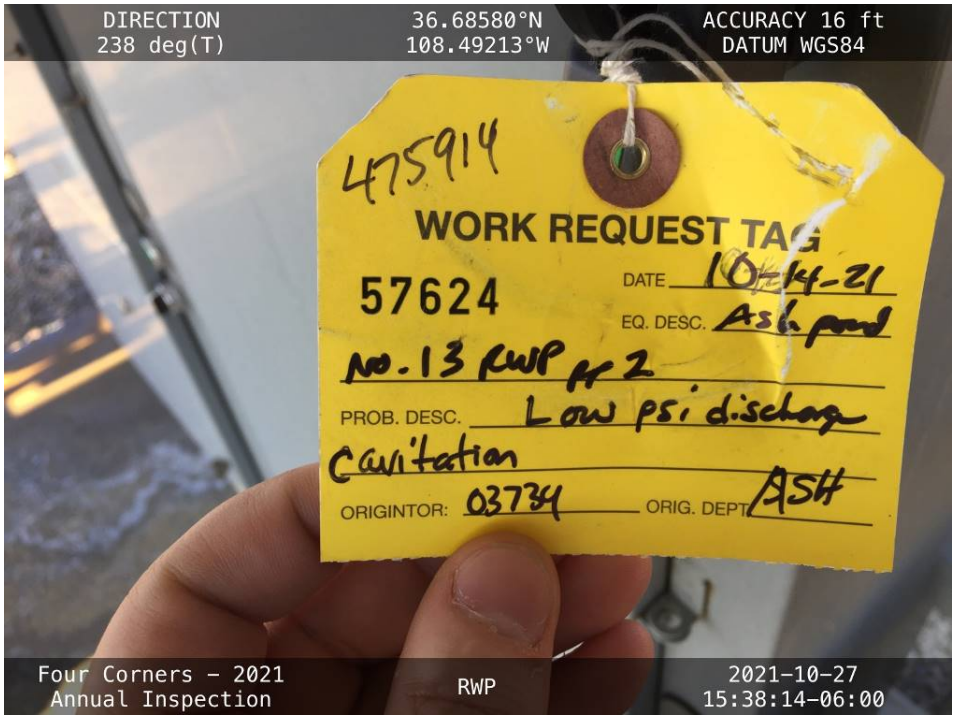
RETURN WATER POND (RWP) PHOTO LOG

20211027 – IMG_8019
The permanent identification marker for the RWP.



20211027 – IMG_8020
A work request tag for RWP Pump 001 (RWP-PMP-001), which has been leaking.

20211027 – IMG_8021
Water on the concrete pad that leaked from RWP Pump 001 (RWP-PMP-001).



20211027 – IMG_8022
A work request tag for the RWP Pump 002 (RWP-PMP-002), which has had low discharge pressure and cavitation.

20211027 – IMG_8023
The RWP pumps.

20211027 – IMG_8027
The downstream slope of the Northwest Embankment, facing southwest from the north corner.

20211027 – IMG_8028
The crest of the Northwest Embankment, facing southwest from the north corner.

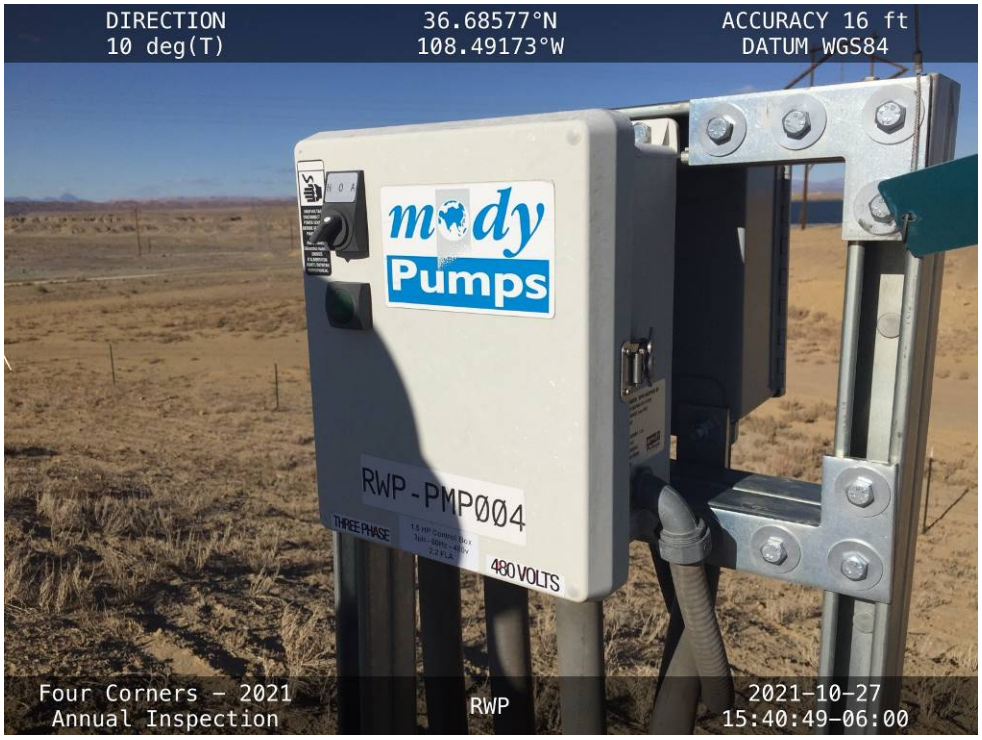
20211027 – IMG_8029
The upstream slope of the Northwest Embankment, facing southwest from the north corner.

20211027 – IMG_8030
The upstream slope of the Northeast Embankment, facing southeast from the north corner.

20211027 – IMG_8031
The crest of the Northeast Embankment, facing southeast from the north corner.

20211027 – IMG_8032
A monitoring well installed at the toe of the Northeast Embankment.

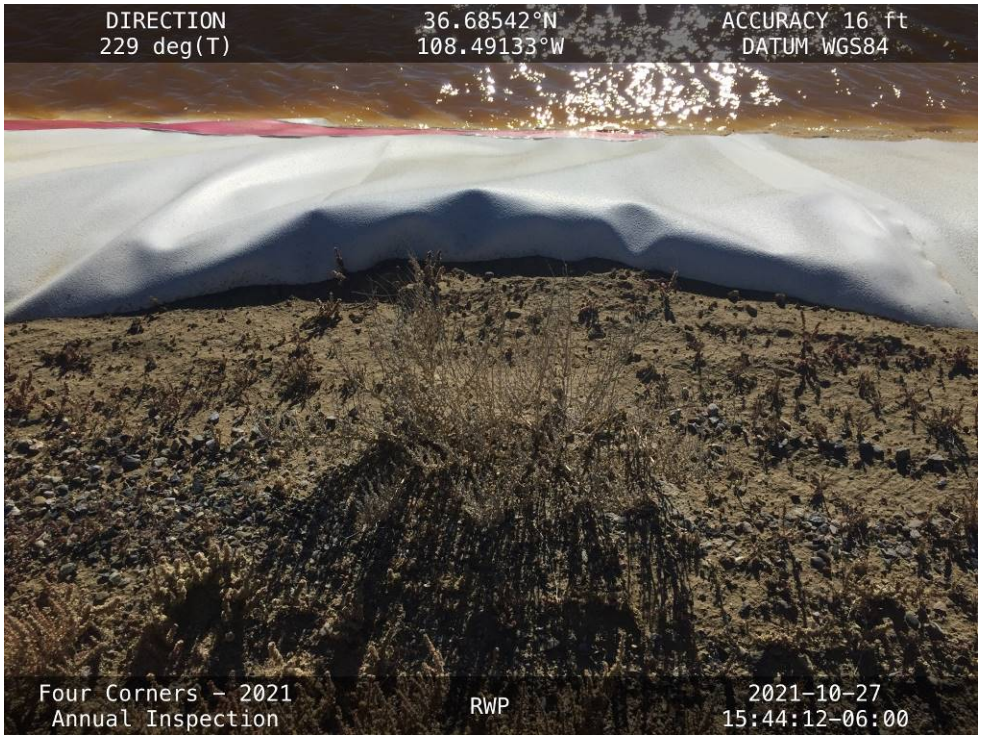
20211027 – IMG_8033
The downstream slope of the Northeast Embankment, facing southeast from the north corner.



20211027 – IMG_8034
The LCRS pump control for RWP Pump 004 on the north side of the RWP.

20211027 – IMG_8035
The LCRS riser pipes and crane on the north side of the RWP.

20211027 – IMG_8037
A shallow hole in the anchor trench on the Northeast Embankment.



20211027 – IMG_8040
The liner pulling out of the anchor trench along the Northeast Embankment.

20211027 – IMG_8041
The upstream slope of the Southeast Embankment, facing southwest from the northeast corner.

20211027 – IMG_8047
The crest of the Southeast Embankment, facing southwest from the northeast corner.

20211027 – IMG_8048
The drainage ditch along the downstream slope of the Southeast Embankment, facing southwest.

20211027 – IMG_8055
The upstream slope of the RWP Internal Embankment, facing northwest.

20211027 – IMG_8056
The crest of the FGD Pond cell Internal Embankment, facing northwest.

20211027 – IMG_8057
The upstream slope of the FGD Pond cell Internal Embankment, facing northwest.

20211027 – IMG_8058
The upstream slope of the FGD Pond cell Southeast Embankment, facing southwest.

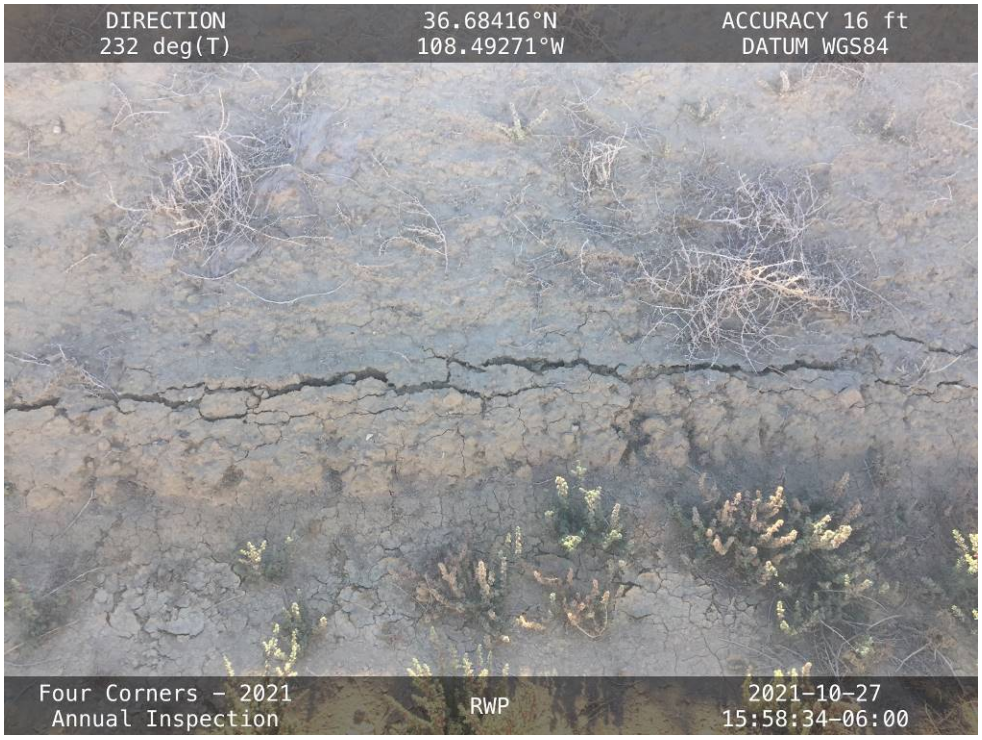
20211027 – IMG_8059
The crest of the FGD Pond cell Southeast Embankment, facing southwest.

20211027 – IMG_8064
The water in the FGD Pond cell on the verge of overflowing into the RWP cell, facing northwest.

20211027 – IMG_8075
The crest of the FGD Pond cell South Embankment, facing northwest.

20211027 – IMG_8076
The upstream slope of the FGD Pond cell South Embankment, facing northwest.

20211027 – IMG_8077
The gate at the southern entrance to the RWP, with a broken hinge.



20211027 – IMG_8078
Tension cracks forming on the slope of the drainage ditch along the western corner of the pond.

20211027 – IMG_8081
The downstream slope of the FGD Pond cell Northwest Embankment, facing northeast.

20211027 – IMG_8082
The crest of the FGD Pond cell Northwest Embankment, facing northeast.

20211027 – IMG_8083
The upstream slope of the FGD Pond cell Northwest Embankment, facing northeast.

20211027 – IMG_8088
The FGD Pond cell Inlet Pipes.

20211027 – IMG_8095
The downstream slope of RWP Cell Northwest Embankment, facing northeast.

20211027 – IMG_8096
The crest of the RWP Cell Northwest Embankment, facing northeast.

20211027 – IMG_8097
The RWP cell inlet along the upstream slope of the Northwest Embankment, facing northeast.

20211027 – IMG_8099
The crest of the Internal Embankment, facing southeast.

20211027 – IMG_8106
The RWP cell reservoir below the elevation of the overflow weir in the Internal Embankment.

20211027 – IMG_8115
The RWP cell inlet pipes.

20211027 – IMG_8122
The return water pipe and pumps along the downstream slope of the Northwest Embankment.

20211027 – IMG_8123
Erosion beginning to form on the south side of the return water pipe outlet pipe crossing.