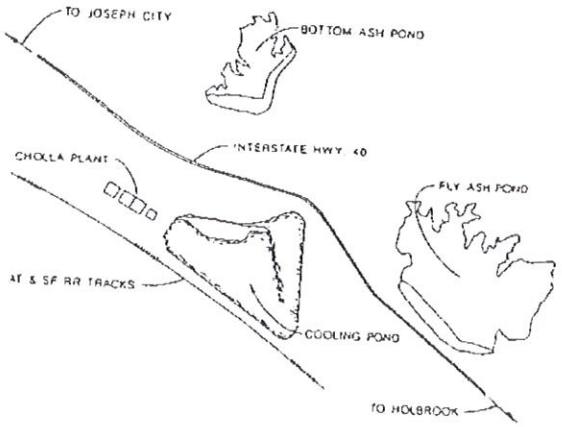
CHOLLA POWER PLANT
Fly Ash Dam, Bottom Ash Dam, and Bottom Ash Monofill

Annual CCR Impoundment and Landfill Inspection Report

2024



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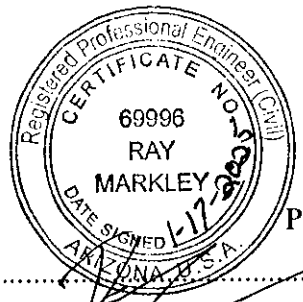

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1.0 INTRODUCTION

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 and visual inspections of the Fly Ash Dam, Bottom Ash Dam, and the Bottom Ash Monofill. The Fly Ash Dam and Bottom Ash Dam are instrumented with piezometers, settlement monuments, seepage totalizers, and wells.

Inspection Conducted by

Ray Markley, P.E.
Senior Geotechnical Engineer
APS Generation, Fossil Projects Coal
Arizona Public Service Company

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2.0 SITE BACKGROUND AND INSPECTION CONDITIONS

The Cholla Power Plant (Cholla, the Plant) is located nine miles west of Holbrook, Arizona. The Plant is located in the north half of Section 23, Township 18 North, Range 19 East in Navajo County, adjacent to and north of the Little Colorado River. The Plant site and off-site facilities comprise portions of Sections 22 through 27 in Township 18 North, Range 19 East and Section 30 in Township 18 North, Range 20 East. The Plant began operation of Unit 1 at the site in 1961 and Units 2, 3, and 4 were constructed between 1976 and 1981. Unit 2 was removed from service on October 1, 2015. Unit 4 was removed from service on December 28, 2020. The two remaining operational units (Units 1 and 3) currently burn sub-bituminous coal to provide a total net generating capacity of 387 megawatts (MW). Units 1 and 3 are operated based on load and economic factors.

The coal combustion process produces Coal Combustion Residuals (CCR) including bottom ash (silty sand, Unified Soil Classification System SM), fly ash (low plasticity silt, Unified Soil Classification System ML), and Flue Gas Desulfurization (FGD) sludge. The Plant has three active CCR units: the Bottom Ash Pond, the Fly Ash Pond, and the Bottom Ash Monofill. A fourth CCR unit, the Sedimentation Pond, was closed in 2021 in accordance with 40 CFR 257.102(c) (closure by removal of CCR). The Bottom Ash Pond and the Fly Ash Pond are used for CCR disposal. The Bottom Ash Monofill is a coal combustion waste landfill used for long-term storage and disposal of dewatered bottom ash transferred from the Bottom Ash Pond. The three active CCR units are the subjects of this inspection report.

The field inspection was conducted on Monday, October 14, 2024. Weather conditions were cool and mild (70-89 degrees Fahrenheit) with light winds (2-11 mph with gusts to 15 mph) and partly cloudy to mostly cloudy skies. Approximately 8.08 inches of precipitation had fallen between October 1, 2023, and September 30, 2024, based on data recorded near Holbrook, Arizona (Weather Underground 2024). Units 1 and 3 were running at the time of the inspection.

Instrumentation at the dams consists of open standpipe PVC piezometers, open well points, weirs, flow meters with totalizers, and brass survey caps on a concrete base measured using a Global Positioning System (GPS) survey. The water level in the piezometers is measured with an electronic water level indicator attached to a cable stamped with increments of 0.01 feet. The impounded water level in the Bottom Ash Pond is measured by an elevation indicator based on NGVD29 set at the edge of the water. The impounded water level in the Fly Ash Pond is measured on a monthly basis using GPS equipment.

The benchmark for the elevations reported for GPS surveys of the settlement monuments at the Cholla Power Plant is based on the Randell 2 monument located on the north side of the Joseph City I-40 overpass. Detailed information of Randell 2 can be found on the National Geodetic Survey (NGS) website. The latitude and longitude of the monument are based on the NAD83 datum. The NGS (2024) lists the elevation of the monument as 5088.09 feet (NAVD88).

3.0 UNIT DESCRIPTIONS

3.1 FLY ASH DAM

The Fly Ash Dam is represented on Figure 1 – Fly Ash Pond Site Map (attached).

The Fly Ash Dam (listed by the Arizona Department of Water Resources (ADWR) as Dam #09.28) was constructed between 1976 and 1978, has a capacity of 18,000 acre-feet, is approximately 80 feet high with an approximately 4,583-foot-long clay core zoned earth embankment, and has a Federal Emergency Management Agency (FEMA) rating of intermediate size and high hazard. The maximum normal operating water level is elevation (EL) 5114.0 feet. The water level was measured most recently by survey to be at EL 5079.529 feet on October 15, 2024. The original water level gauge has been abandoned. The gauge was first covered with sediment in early 2015. By the time the reservoir level had receded below the maximum elevation on the water level gauge in early 2016, the gauge had been covered with a thick layer of sediment and evaporite crystals, making it unusable.

3.2 BOTTOM ASH DAM

The Bottom Ash Dam is represented on Figure 2 – Bottom Ash Pond Site Map (attached).

The Bottom Ash Dam (ADWR Dam #09.27) was constructed between 1976 and 1978, has a capacity of 2,300 acre-feet, is approximately 73 feet high with an approximately 4,040-foot-long clay core zoned earth embankment, and has a FEMA rating of intermediate size and high hazard. The maximum operating water level is EL 5117.8 feet. The water level was observed to be at EL 5106.65 feet (NGVD29) during the inspection on October 14, 2024.

In 1993, the pond was re-permitted to an operating level of EL 5118.6 feet (NGVD29). In 1997, a reassessment of the flood pool allocation revealed the need to lower the operating level to EL 5117.8 feet (NGVD29). In April 1999, APS obtained a major modification of the ADEQ APP permit, File No. 100568, that allows dewatered bottom ash to be dredged from the pond and placed in a new facility known as the Bottom Ash Monofill located on a 43-acre parcel located adjacent to the north and east sides of the Bottom Ash Pond.

3.3 BOTTOM ASH MONOFILL

The Bottom Ash Monofill is represented on Figure 3 – Bottom Ash Monofill Site Map (attached).

The Bottom Ash Monofill is a coal combustion waste landfill that was constructed beginning in the late 1990s. In 2009, the Arizona Department of Environmental Quality (ADEQ) executed an amendment to Cholla Plant Aquifer Protection Permit No. P-100568 for the currently-permitted 43-acre footprint and maximum storage elevation of 5,261.0 feet, with final slopes of 4H:1V (horizontal : vertical). Storm water run on is diverted around the landfill by a diversion ditch sized to convey the peak 100-year flow. On-site storm water runoff is conveyed to a retention basin and eventually routed to the Bottom Ash Pond. The retention basin has a capacity of 8.2 acre-feet with an overall depth of 12 feet and 3H:1V side slopes.

In 2015, the Bottom Ash Monofill was expanded to the north and east to its maximum APP-permitted footprint to add capacity for continuing operations at the Plant.

4.0 FIELD INSPECTIONS

This section contains the 2024 annual field inspections conducted by APS and accompanied by a representative from AECOM at the Fly Ash Dam (Section 4.1), the Bottom Ash Dam (Section 4.2), and the Bottom Ash Monofill (Section 4.3).

4.1 APS FIELD INSPECTION – FLY ASH DAM

<table>
<tr><td colspan="2">Fly Ash Dam</td><td colspan="3">State Identification Number (SID): 09.28</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: 09.28</td><td>Dam Name: Fly Ash Dam</td><td>Type: Earth</td><td>Purpose: Fly ash disposal</td></tr>
<tr><td colspan="2">Contact(s): Ray Markley, P.E. (APS)</td><td colspan="2">Report Date: January 17, 2025</td></tr>
<tr><td colspan="2">Inspected by: Ray Markley, P.E. (APS)
Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 14, 2024</td></tr>
<tr><td colspan="2">Reviewed by: Ray Markley, P.E. (APS)</td><td colspan="2">Review Date: January 10, 2025</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,120</td><td colspan="2">Design Spillway Crest Elevation: None</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 6</td><td colspan="2">Measured Total Freeboard (ft): 37.9
(October 15, 2024; based on the elevation at Settlement Monument M-5B of 5117.453 feet)</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 80</td><td colspan="2">Structural Height (ft): 80</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 4,583</td><td>Upstream Slope: 3:1</td><td>Downstream Slope: 3:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 24</td><td>Lat: 34° 56' 10.0" N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 110° 16' 06.0" W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 420</td><td colspan="2">Reservoir Storage (ac-ft): 18,000</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 5079.529 (October 15, 2024)</td><td rowspan="2">Photos: Yes. See Appendix A.</td><td rowspan="2">Pages: 6</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): ~ EL 5096.56 at the discharge pipe</td></tr>
</table>

Fly Ash Dam		SID: **09.28**		N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST									
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard: **High**	Should hazard be revised?			**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **>301**	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: **5,114 feet**	Should level be revised:			**X**				
g	Any License violations? **No**	Describe and list required action:			**X**				
h	Date of current License: **10/21/1986**	Should new License be issued?			**X**				
i	Date of last Emergency Action Plan revision: **06/2022**	Should EAP be revised? **See comment i.**				**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 2025**								

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe: **1) 37 active piezometers and wells in and around the embankment as part of the CCR monitoring program. 2) 16 settlement monuments located along the crest. 3) The water level in the reservoir is measured by GPS survey each month. 4) Flow measurement devices at each downstream sump and the return lines to the reservoir to estimate seepage rates.**								
b	Any repair or replacement required? **No**	Describe: **See comment ii.**			**X**				
c	Date of last report: **January 2024 (for 2023)**	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 iii.**					**X**			**X**
b	Misalignment?				**X**				
c	Longitudinal/Transverse cracking? **None observed.**				**X**				
d	Animal burrows? **Ant hills were observed at various locations across the crest (Example Photo IMG_6432).**					**X**	**X**		
e	Adverse vegetation? **Very little adverse vegetation was observed along the crest during this inspection. Continue to monitor and remove vegetation in accordance with APS's preferred protocol, the NMOSE "*Vegetation Management on Dams*" (2011) document.**				**X**		**X**		
f	Erosion? **See comment v.**					**X**	**X**		
4	***UPSTREAM SLOPE***								
a	Erosion? **APS repaired the erosion rills observed along the upstream shoulder in the area where the crest was extended since the 2023 inspection (Example Photos IMG_6450 and IMG_6456).**				**X**				
b	Inadequate ground cover?				**X**				
c	Adverse vegetation? **None observed. Continue to monitor vegetation.**				**X**		**X**		
d	Longitudinal/Transverse cracking?				**X**				
e	Inadequate riprap?				**X**				
f	Stone deterioration? **Minor deterioration observed. See comment vi.**					**X**	**X**		
g	Settlements, slides, depressions, bulges?				**X**				
h	Animal burrows? **None observed. Continue to monitor.**				**X**		**X**		

Fly Ash Dam		SID: **09.28**	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**Erosion typically observed along the access road over the Geronimo Knob during previous inspections had been recently repaired (Photos IMG_6583 and IMG_6584); however, evidence of soil loss due to erosion at the downstream toe was present near the Geronimo Seep (IMG_6593). Continue to monitor and repair when the eroded depth exceeds 1 foot.**			**X**	**X**		
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?	**None observed. Continue to monitor.**		**X**		**X**		
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap?			**X**				
f	Stone deterioration?	**Minor deterioration observed. See comment vi.**			**X**	**X**		
g	Settlements, slides, depressions, bulges?			**X**				
h	Soft spots or boggy areas?	**There is evidence of historic seepage beyond the downstream toe. Continue to monitor.**			**X**	**X**		
i	Movement at or beyond toe?			**X**				
j	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
6	***ABUTMENT CONTACTS***							
a	Erosion?	**Approximately 1 foot of erosion observed at the Right Abutment groin (Photo IMG_6507). The erosion along the access road near the Right Abutment has been repaired (Photo IMG_6620). Continue to monitor.**			**X**	**X**		
b	Differential movement?			**X**				
c	Cracks?			**X**				
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?	**Historic seepage has been observed downstream of the dam during previous inspections. See comment vii.**			**X**	**X**		
f	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**1) The Geronimo and Hunt seepage collection and pump back systems are located downstream of the dam near I-40 for fluid interception. See comment vii.** **2) Discharge from the crest side of the reservoir creates a beach to prevent water from being stored against the upstream face.**						
b	Internal drains flowing?				**X**	**X**		
c	Seepage at or beyond toe?	**See comment vii.**			**X**	**X**		
d	If so, does seepage contain fines?	**The seepage collection system upgrades included removing the sumps. It is not possible to check for fines during the inspection.**	**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 reservoir was designed to impound sediment.**			**X**			
d	Floating debris present?			**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?			**X**				
g	Structures below dam crest elevation?	**There are extraction and observation wells throughout the reservoir, as well as a temporary evaporation pond (the EcoVap Pond). APS was in the process of installing additional extraction and observation wells during the inspection. The East Temporary Basin was also being constructed during the inspection.**			**X**			

Additional comments and recommendations for the Fly Ash Dam:

i. The EAP distribution list should be kept up to date with current personnel.

ii. The original water level gauge has been abandoned. The gauge was first covered with sediment in early 2015. By the time the reservoir level had receded below the maximum elevation on the water level gauge in early 2016, the gauge had been covered with a thick layer of sediment and evaporite crystals, making it unusable. APS measures the reservoir level by GPS survey at the same time as the monthly monument readings. The accuracy of this method is assessed to be adequate as long as the water level remains low.

iii. Settlement monument M-2 appears to be more than one foot above the typical elevation of the crest (Photo IMG_6505). During the October 15, 2024, survey, settlement monument M-2 was recorded to be at EL 5120.426 feet. The original elevation recorded in 1978 was 5121.515 feet, indicating approximately 1 foot of settlement at the monument. It is not clear as to how much of the discrepancy between M-2 and the crest is due to historic surface grading activities or wind erosion of the crest.

Settlement Monument M-5 is approximately 2.1 feet lower than the design crest elevation.

Settlement Monument M-6 is approximately 8 inches above the surrounding soil on the crest (Photo IMG_6459).

Settlement Monument M-6B is approximately 9 inches above the surrounding soil on the crest (Photo IMG_6445).

The available freeboard is sufficient to meet the capacity for the design storm. APS intends to continue removing water from the Fly Ash Pond and does not believe the lower crest is disruptive to the operation or safety of the CCR unit.

iv. In May 2021, APS replaced extraction wells GSX-1 and GSX-2; monitoring wells W-123 and W-126; and piezometers F-91, F-92, and F-111 in the Geronimo Sump area as part of a broader well and piezometer abandonment and replacement program (Wood 2022). Of these, piezometers F-91, F-92, and F-111; and well W-123 are monitored as part of the CCR program. Piezometers F-91, F-92, and F-111; and well W-123 were replaced with open-standpipe piezometers F-91R, F-92R, F-111R, and well W-123R, respectively.

v. The concrete collar around piezometer F-123 is approximately 4.5 inches higher than the surrounding grade on the upstream shoulder (Photo IMG_6457). The concrete would have originally been even with the surrounding grade, indicating soil loss or erosion along the downstream shoulder.

A 1-foot deep hole was observed within the riprap on the downstream shoulder of the West Embankment crest (Photo IMG_6473) and a 10-inch deep hole on the upstream shoulder of the West Embankment (Photo IMG_6506). Continue to monitor the crest for progressive erosion and the appearance of new erosion holes. Repair holes when the depth exceeds 1 foot.

vi. Minor stone deterioration was also observed at various locations along the slopes during previous inspections. Continue to monitor.

vii. Seepage has historically been observed at the Geronimo Seep, the Hunt seep, the I-40 seep, and in areas of relatively lower elevation along the downstream toe. The Geronimo and

Hunt sumps were active during the inspection. APS replaced Geronimo Seep well pumps A and B (GSX-1 and GSX-2) in May 2021 after observing they were operating inconsistently, had relatively low extraction rates, and erratic water levels (Wood 2022). The well pump replacement coincided with the abandonment and replacement of the piezometers and wells described in comment iv.

APS monitors the turbidity at Discharge Line "C" (i.e., the "Charlie Line") by removing water directly from the sump. The turbidity ranged from 0.99 NTU to 5.74 NTU between October 2023 and September 2024, increasing from 0.99 NTU to 5.74 NTU between April 2024 and September 2024. The turbidity during 2023 averaged 1.10 NTU. The turbidity during 2022 averaged 0.82 NTU between January and August before APS upgraded the seepage collection system. The average turbidity results during 2021 and 2020 were 1.68 NTU and 0.51 NTU, respectively. It is not clear why the turbidity began increasing in mid-2024. Continue to monitor the turbidity and review the results with the APS geotechnical engineer.

The I-40 seep was observed to be drier during this inspection compared to previous inspections (Photos IMG_6622 and IMG_6625). There had been no precipitation at the site since September 21, 2024. The elevation of the seep is still below the current reservoir level; however, the reservoir elevation is approximately 1 foot lower than it was during the 2023 inspection. Continue to monitor the I-40 seep. Any perceived increases in seepage volume, affected area, or perpetual standing water should be reviewed by the APS geotechnical engineer.

viii. APS removed the 12 PittBoss downdraft evaporators in December 2023 (Photos IMG_6527 and IMG_6530).

APS removed the two sprinkler lines in the northeast section of the reservoir that were installed in July and September 2023. The area is currently the site of the East Temporary Basin construction (comment x).

APS is hauling CCR from the Bottom Ash Monofill to the Fly Ash Pond for use as fill at the Fly Ash Pond and as part of the Bottom Ash Monofill closure.

ix. APS began installing extraction and observation wells in the Fly Ash Pond to facilitate water removal in May 2023 and wells were being installed during this inspection (Photos IMG_6431, and IMG_6521). APS is pumping pore water from the impounded CCR into the EcoVap system (a lined pond installed in the reservoir near the Left Abutment in January 2024; Photo IMG_6427). The EcoVap system is a pilot project installed to accelerate evaporation. The pore water pumped to the lined EcoVap pond is contained and can only flow back to the Fly Ash Pond if the inflow exceeds the evaporation rate; the water would be released via a spillway on the north side of the containment area. To prevent uncontrolled changes in the deposition path from damaging the well access roads, APS first moved the main deposition point from the upstream slope to a location in the Fly Ash Pond by attaching a flexible extension to the inlet pipes and burying the extension under bottom ash (Photos IMG_6489 and IMG_6548) in February 2024. APS may move the main deposition point to other areas in the Fly Ash Pond when necessary to distribute CCR more evenly or to prevent damage to access roads or equipment.

x. APS began constructing the East Temporary Basin in September 2024 as part of the pond closure (Photo IMG_6541). The East Temporary Basin will be excavated to EL 5087.0 feet and be lined with a 60-mil scrim reinforced polyethylene geomembrane. The nominal crest of the East Temporary Basin is EL 5100 feet. Approximately 36,000 cubic yards of soil had been removed at the time of the inspection. APS intends to move water currently impounded in the Fly Ash Pond into the East Temporary Basin to facilitate construction in the pond starting in 2025. The East Temporary Basin will ultimately be replaced by the East Basin for stormwater management during closure construction and the excavation will be extended to EL 5068.0 feet.

xi. Continue removing excessive natural vegetation in accordance with APS's preferred protocol, the NMOSE "*Vegetation Management on Dams*" (2011) document.

xii. The weekly inspection reports for the period between October 1, 2023, and September 30, 2024, were reviewed and indicate the following:

   a. Continuing since June 2023, erosion on the dam crest was noted as requiring repair through the 12/12/2023 inspection. APS scheduled an earthwork contractor to complete the repair.

   b. Animal burrows on the downstream slope were noted as requiring monitoring starting with the 12/12/2023 inspection. APS assessed the animal burrows (gophers) as requiring repair starting with the 1/23/2024 inspection and scheduled a pest control contractor to remove the gophers creating the burrows.

   c. Signs of erosion on the crest and at abutment contacts were noted as requiring monitoring starting with the 2/27/2024 inspection. APS assessed the signs of erosion as requiring repair starting with the 5/6/2024 inspection. APS scheduled an earthwork contractor to complete the repairs prior to the 9/11/2024 inspection.

4.2 APS FIELD INSPECTION – BOTTOM ASH DAM

<table>
<tr><td colspan="2">Bottom Ash Dam</td><td colspan="2">State Identification Number (SID): 09.27</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: 09.27</td><td>Dam Name: Bottom Ash Dam</td><td>Type: Earth</td><td>Purpose: Bottom ash containment</td></tr>
<tr><td colspan="2">Contact(s): Ray Markley, P.E. (APS)</td><td colspan="2">Report Date: January 17, 2025</td></tr>
<tr><td colspan="2">Inspected by: Ray Markley, P.E. (APS)
Lee Wright, P.E. (AECOM)</td><td colspan="2">Inspection Date: October 14, 2024</td></tr>
<tr><td colspan="2">Reviewed by: Ray Markley, P.E. (APS)</td><td colspan="2">Review Date: January 10, 2025</td></tr>
<tr><td colspan="2">Design Dam Crest Elevation (ft): 5,123.3</td><td colspan="2">Design Spillway Crest Elevation: None</td></tr>
<tr><td colspan="2">Design Total Freeboard (ft): 5.5</td><td colspan="2">Measured Total Freeboard (ft): 16.65</td></tr>
<tr><td colspan="2">Statutory Dam Height (ft): 73</td><td colspan="2">Structural Height (ft): 73</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): 4,040</td><td>Upstream Slope: 3:1</td><td>Downstream Slope: 3:1</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): 12</td><td>Lat: 34° 57' 07.0" N</td><td rowspan="2">Water Rights: N/A</td></tr>
<tr><td>Long: 110° 17' 22.7" W</td></tr>
<tr><td colspan="2">Reservoir Area (acres): 80</td><td colspan="2">Reservoir Storage (ac-ft): 2,300</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): 5106.65</td><td rowspan="2">Photos: Yes. See Appendix B.</td><td rowspan="2">Pages: 5</td></tr>
<tr><td colspan="2">Estimated Solids Level (ft): Varies – approx. EL 5115 feet</td></tr>
</table>

Bottom Ash Dam			SID: **09.27**	N/A	No	Yes	Mon	Rep	Inv
COMPLIANCE CHECKLIST									
1	***CONDITION SUMMARY, LICENSE, EAP, NEXT INSPECTION***								
a	Recorded downstream hazard: **High**		Should hazard be revised?		**X**				
b	If high hazard, estimate downstream persons-at-risk (PAR): **>301**		Is there a significant increase since the last inspection?		**X**				
c	Recorded size: **Intermediate**		Should size be revisited?		**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: **5,117.8 feet**		Should level be revised:		**X**				
g	Any License violations? **No**		Describe and list required action:		**X**				
h	Date of current License: **12/11/1998**		Should new License be issued?		**X**				
i	Date of last Emergency Action Plan revision: **06/2022**		Should EAP be revised? **See comment i.**			**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 2025**								

MONITORING CHECKLIST									
2	***INSTRUMENTATION AND MONITORING***								
a	Describe:	**1) 19 active piezometers and wells in and around the embankment as part of the CCR monitoring program.** **2) 10 settlement monuments.** **3) A V-notch weir and seepage monitoring systems.** **4) Water level gauge in the reservoir.**							
b	Any repair or replacement required? **Yes.**		Describe: **See comment vi.**			**X**		**X**	
c	Date of last report: **January 2024 (for 2023)**		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? **See comment iii.**				**X**				
d	Animal burrows?	**Ant hills were observed at various locations across the crest (example Photo IMG_6212).**				**X**	**X**		
e	Adverse vegetation?	**Vegetation on the crest and shoulders appeared to be less prevalent during this inspection compared to previous inspections (Photos IMG_6118, IMG_6176, and IMG_6179). Remove vegetation in accordance with APS's preferred protocol, the NMOSE "*Vegetation Management on Dams*" (2011) document.**				**X**	**X**		
f	Erosion?	**See comment ii.**				**X**	**X**		
4	***UPSTREAM SLOPE***								
a	Erosion?	**The hole adjacent to the concrete on the west side of the central siphon line first observed during the 2022 inspection was present during this inspection (Photo IMG_6152). Minor erosion near the crest should also be monitored. See comment iv.**				**X**	**X**	**X**	
b	Inadequate ground cover?				**X**				
c	Adverse vegetation?	**There is woody vegetation in the pond near the Right Abutment (Photo IMG_6119) and along the upstream slope (Photos IMG_6130, IMG_6156, IMG_6157, IMG_6169, IMG_6177, IMG_6179, and IMG_6185).**				**X**		**X**	
d	Longitudinal/Transverse cracking?				**X**				
e	Inadequate riprap?				**X**				
f	Stone deterioration?				**X**				
g	Settlements, slides, depressions, bulges?				**X**				
h	Animal burrows?	**None observed. Continue to monitor.**			**X**		**X**		

Bottom Ash Dam		SID: **09.27**	N/A	No	Yes	Mon	Rep	Inv
5	***DOWNSTREAM SLOPE***							
a	Erosion?	**Erosion gullies at the toe of the East Embankment downstream slope do not appear to be affecting the embankment (Photos IMG_6334 and IMG_6337).**			**X**		**X**	
b	Inadequate ground cover?			**X**				
c	Adverse vegetation?	**Most of the dense vegetation near the West Abutment Weir was removed during the seepage collection upgrades (Photos IMG_6402 and IMG_6412). Continue to monitor the area and remove vegetation before it becomes dense to prevent the new seepage collection pipe from clogging.**		**X**		**X**		
d	Longitudinal/Transverse cracking?			**X**				
e	Inadequate riprap?			**X**				
f	Stone deterioration?	**Riprap deterioration does not appear to have accelerated since the previous inspection.**			**X**	**X**		
g	Settlements, slides, depressions, bulges?			**X**				
h	Soft spots or boggy areas?	**See comment v.**			**X**	**X**		
i	Movement at or beyond toe?			**X**				
j	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
6	***ABUTMENT CONTACTS***							
a	Erosion?	**APS repaired the erosion in the downstream groin of the Right Abutment (Photo IMG_6116). An erosion gully has since formed in the repaired area and was measured to be 22 inches deep during this inspection. Continue to monitor this area and repair it as directed by the APS geotechnical engineer.**			**X**		**X**	
b	Differential movement?			**X**				
c	Cracks?			**X**				
d	Settlements, slides, depressions, bulges?			**X**				
e	Seepage?	**Yes. See comment v.**			**X**	**X**		
f	Animal burrows?	**None observed. Continue to monitor.**		**X**		**X**		
7	***SEEPAGE/PIPING CONTROL DESIGN FEATURE(S)***							
a	Describe:	**Several monitoring, seepage, and pump back collection systems are located downstream of the dam. The monitored seeps include the West Abutment Weir, the Toe Drain Seep, the Petroglyph Seep, the Tanner Wash Seep, and the P-226 Seep. The pump back collection system consists of three siphon lines extending from the toe into the reservoir along the South Embankment.**						
b	Internal drains flowing?	**See comment vi.**			**X**	**X**	**X**	
c	Seepage at or beyond toe?	**See comment v.**			**X**	**X**		
d	If so, does seepage contain fines?	**See comment v.**	**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 reservoir is designed to store bottom ash.**			**X**			
d	Floating debris present?			**X**				
e	Depressions, sinkholes, or vortices?			**X**				
f	Low ridges/saddles allowing overflow?			**X**				
g	Structures below dam crest elevation?	**There is a divider dike in the center of the pond.**			**X**			

Additional comments and recommendations for the Bottom Ash Dam:

i. The EAP distribution list should be kept up to date with current personnel.

ii. Several new erosion holes and rills were observed along the crest and shoulder (Photos IMG_6121, IMG_6130, IMG_6138, IMG_6188, IMG_6189, IMG_6191, IMG_6206, and IMG_6211). The deepest measured erosion hole was at least 27 inches (on the South Embankment; Photo IMG_6121). Although erosion holes are more prevalent in some annual inspections compared to others, most individual erosion holes are not present in consecutive inspections. Holes that are observed in consecutive inspections are typically shallower or nearly filled in during the next annual inspection and are not present during the third annual inspection. The holes on the crest and shoulders should be monitored and repaired if the depth exceeds 1 foot or appears to reach the core.

iii. Since 2021, a portion of the supporting fill material on the downstream side of settlement monument M-13 was observed to be separated from the concrete base. The gap had been slowly self-healing in each inspection since the initial observation and the original separation was no longer apparent during this inspection (Photo IMG_6139).

iv. Continue to monitor the erosion around the siphon line encasements (Photos IMG_6130 and IMG_6135), soil wasting along the downstream slope of the East Embankment, and erosion gullies (Photos IMG_6334 and IMG_6337) that were also observed during previous inspections. Repair erosion if the eroded depth exceeds 1 foot. Investigate the source of sediment collecting in the diversion ditch between the East Embankment access road and the East Embankment.

v. APS monitors known seepage in five locations – the Petroglyph Seep, the Tanner Wash Seep, the Bottom Ash Toe Drain, the West Abutment, and the P-226 seepage intercept area. APS installed the following upgrades and completed the following maintenance activities on these systems to support compliance with CCR corrective action requirements detailed in the CCR Rule (WSP 2024):

   At the Petroglyph Seep, APS installed 70 feet of 6-inch slotted HDPE pipe in the existing ditch, regraded the area adjacent to the sump, placed 3-inch crushed basalt in the ditch, and removed the excess vegetation (Photo IMG_6355). The ditch had previously been prone to contain standing water. APS also upgraded the existing sump by adding valves, piping, meters, and appurtenances. The pump was set to “auto,” but was not running at the time of this inspection. The water in the sump was clear.

   At the Tanner Wash Seep, APS installed approximately 275 feet of 6-inch perforated pipe, regraded the area adjacent to the sump, placed 1-inch minus crushed rock in the ditch adjacent to the sump and removed the excess vegetation. APS also added new valves, piping, meters, and appurtenances to the existing sump. The pump was set to “auto” and was running at the time of this inspection. The water in the sump was clear.

   At the Bottom Ash Toe Drain, APS installed new piping to connect the toe drain with three new extraction wells and equipped them with pumps and associated valves, piping, flowmeters, pressure switches, and level controls. The pumps were set to “auto,” but were not running at the time of this inspection. Due to the sump access location, it was difficult to assess the turbidity in the sump at the time of the inspection.

At the West Abutment, APS replaced the West Abutment Weir with a 6-inch perforated HDPE collection pipe for approximately 470 feet along the toe of the dam in mid-2024. The 6-inch perforated HDPE collection pipe is connected to approximately 200 feet of 6-inch solid HDPE pipe that conveys the collected seepage to the Bottom Ash Toe Drain Sump.

At the P-226 seepage intercept area, APS upgraded the existing wells by adding valves, piping, meters, flow regulators, and appurtenances to each. APS replaced the vaults and flanges at each well after discovering they were corroded. The P-226 sump was also removed and the totalizer was replaced. APS installed a remote monitoring system at each well.

APS installed a new 8,400-gallon equalization tank as part of the seepage collection system upgrades (Photo IMG_6364). The equalization tank is connected to the eastern siphon lines (Photos IMG_6162 and IMG_6362) so that water from the seepage collection system can be diverted to the equalization tank. APS intends to route water from the Bottom Ash Pond seepage collection system to the new Evaporation Ponds constructed south of I-40.

As part of the seepage collection system upgrades, APS also installed a remote monitoring system at each pump and upgraded the existing sumps by adding valves, piping, meters, and replaced the level controls.

During the installation and tie-in of new underground piping to the existing pipe system, APS discovered the existing piping at the Petroglyph, Tanner Wash, and P-226 seepage areas was clogged with black sediment. The sediment had built up inside the old pipes such that the inside diameter had been reduced by more than 50%. APS replaced the clogged pipes; the replacement consisted of more than 1,800 feet of 2-inch HDPE pipe, 878 feet of 3-inch HDPE pipe, 299 feet of 3-inch carbon steel Schedule 40 pipe, and 13 cleanouts.

vi. Water was flowing through the eastern siphon line back into the pond during the inspection, but the flowmeter was not running (unchanged since the 8/30/2024 APS reading). The flowmeter should be repaired or replaced. The flowmeter was last replaced on December 22, 2021.

vii. The weekly inspection reports for the period between October 1, 2023, and September 30, 2024, were reviewed and indicate the following:

a. Continuing since June 2023, animal burrows (gophers) on the crest were noted as requiring monitoring through the 12/12/2023 inspection. Animal burrows on the downstream slope were noted as requiring monitoring through the 1/16/2024 inspection. APS assessed the animal burrows as requiring repair starting with the 1/23/2024 inspection.

b. Animal burrows on the crest were noted as requiring monitoring again starting with the 5/22/2024 inspection. The animal burrows on the crest were resolved by mid-August 2024.

c. Signs of erosion at an abutment contact were noted as requiring repair starting with the 5/22/2024 inspection. APS scheduled an earthwork contractor to complete the repairs prior to the 7/15/2024 inspection.

4.3 APS FIELD INSPECTION – BOTTOM ASH MONOFILL

<table>
<tr><td colspan="2">Bottom Ash Monofill</td><td colspan="3">State Identification Number (SID): N/A</td><td rowspan="12">Not Applicable</td><td rowspan="12">No</td><td rowspan="12">Yes</td><td rowspan="12">Monitor</td><td rowspan="12">Repair</td><td rowspan="12">Investigate</td></tr>
<tr><td>SID: N/A</td><td>Landfill Name: Bottom Ash Monofill</td><td>Type: Landfill</td><td colspan="2">Purpose: Permanent Storage of Dry Bottom Ash Dredged from Bottom Ash Pond</td></tr>
<tr><td colspan="2">Contact(s): Ray Markley, P.E. (APS)</td><td colspan="3">Report Date: January 19, 2025</td></tr>
<tr><td colspan="2">Inspected by: Ray Markley, P.E. (APS)
Lee Wright, P.E. (AECOM)</td><td colspan="3">Inspection Date: October 14, 2024</td></tr>
<tr><td colspan="2">Reviewed by: Ray Markley, P.E. (APS)</td><td colspan="3">Review Date: January 10, 2025</td></tr>
<tr><td colspan="2">Design Maximum Ash Elevation (ft): 5261</td><td colspan="3">Approximate Maximum Current Ash Elevation: 5132 feet</td></tr>
<tr><td colspan="2">Dam Crest Length (ft): Not a dam, not applicable.</td><td>Design Side Slope: 4:1 (Final)</td><td colspan="2">Observed Side Slope: 3:1, steeper (2:1) towards the south end of the west side.</td></tr>
<tr><td colspan="2" rowspan="2">Dam Crest Width (ft): Not a dam, not applicable.</td><td>Lat: 34° 57' 35.4"N</td><td rowspan="2">Water Rights: N/A</td><td rowspan="2"></td></tr>
<tr><td>Long: 110° 17' 06.3"W</td></tr>
<tr><td colspan="2">Landfill Area (acres): 43 (maximum permitted area)</td><td colspan="3">Landfill Capacity (ac-ft): 2,417</td></tr>
<tr><td colspan="5">Inflow Design Flood/Safe Flood-Passing Capacity: Diversion of 100-year, 24-hour run-on storm</td></tr>
<tr><td colspan="2">Photos: Yes. See Appendix C.</td><td colspan="3">Pages: 3</td></tr>
</table>

Bottom Ash Monofill		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 report: **January 2024 (for 2023)**	Should new readings be taken and new report provided? **Annual reporting is required.**			**X**			
2	***CONDITION SUMMARY***							
a	Waste placed in good practices?		**X**					
3	***LANDFILL CONFIGURATION***							
a	Settlements, slides, slope instability? **See comment ii.**			**X**				
b	Cracking?			**X**				
c	Run on control? **See comment iii.**				**X**			
d	Run off control? **See comment iii.**				**X**			
e	Erosion? **See comment ii.**			**X**				
f	Dust control issues? **See comment iv.**					**X**		

Additional comments and recommendations for the Bottom Ash Monofill:

i. APS has been removing CCR from the Bottom Ash Monofill since August 2023. The CCR is being taken to the Fly Ash Pond and the Bottom Ash Pond to be used in pre-closure construction activities. Approximately half of the CCR in the Bottom Ash Monofill had been removed prior to October 14, 2024.

ii. The oversteepened slope observed on the south end of the Bottom Ash Monofill observed during the previous inspection has been removed. Erosion rills, gullies, sediment deposition along the toe of the slopes, and other observations from previous inspections are no longer present as a result of APS excavating CCR from the CCR unit.

iii. The Bottom Ash Monofill layout features a perimeter drainage channel designed to capture and convey the 24-hour, 100-year offsite/run-on flows produced by the 98-acre watershed toward one of three historic discharge points. The design storm magnitude exceeds the 24-hour, 25-year requirement in § 257.81 of the CCR Rule (EPA 2015).

The perimeter drainage channel and the Stormwater Detention Basin should be cleared of excessive vegetation and the design grade should be maintained along the length of the channel (Photos IMG_6270, IMG_6272, IMG_6273, and IMG_6316). In addition, erosion features on the channel slopes should be repaired (Photo IMG_6256).

The Stormwater Detention Basin is an incised structure with no offsite conveyance. Over the last few years, APS has repaired erosion damage at the northwest corner, the southwest corner, and the inlet; however, erosion has continued (Photos IMG_6297 and IMG_6299). APS should assess the gradients entering the Stormwater Detention Basin at these locations and either reduce the entrance slope or place riprap to reduce the erosive potential of the run-on in order to prevent excessive erosion after the Plant closes.

iv. The excavation contractor has removed more than half of the soil cover to excavate the stockpiled ash within the CCR unit. Consequently, the exposed CCR is at risk of being blown off the surface during periods of high winds. The soil cover should only be removed to the extent it is needed to excavate CCR.

v. The weekly inspection reports for the period between October 1, 2023, and September 30, 2024, were reviewed and indicate the following:

   a. Continuing since June 2023, erosion on the landfill crest was noted as requiring repair through the 12/12/2023 inspection. APS scheduled an earthwork contractor to complete the repair.

   b. Erosion was noted as requiring monitoring starting with the 2/27/2024 inspection until 8/29/2024. APS has been removing CCR from the Bottom Ash Monofill throughout the year, resulting in some erosion rills and gullies being removed entirely.

5.0 DATA REVIEW

5.1 FLY ASH DAM

5.1.1 Geometry Changes Since Last Inspection

APS began excavating the East Temporary Basin in September 2024 as part of the pre-closure activities for the CCR unit. The East Temporary Basin is located in the easternmost portion of the designated reservoir footprint; the Fly Ash Pond is currently lower than the East Temporary Basin excavation and the East Temporary Basin excavation is lower than the Fly Ash Dam crest.

5.1.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the Fly Ash Dam are shown on Figure 4 – Fly Ash Dam Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2023 – September 30, 2024 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
Open Standpipe Piezometers (10/1/23 to 9/30/24)			
F-81	5058.59	5058.87	Water Elevation (ft)
F-88	5006.68	5009.44	Water Elevation (ft)
F-89	5050.81	5052.54	Water Elevation (ft)
F-90	4999.75	5002.02	Water Elevation (ft)
F-91R[1]	5000.53	5002.94	Water Elevation (ft)
F-92R[1]	5007.46	5011.84	Water Elevation (ft)
F-93	5017.60	5017.88	Water Elevation (ft)
F-100	5075.61	5080.26	Water Elevation (ft)
F-101	5047.18	5048.89	Water Elevation (ft)
F-102	5024.58	5025.84	Water Elevation (ft)
F-103	5018.02	5018.57	Water Elevation (ft)
F-104	5061.12	5065.45	Water Elevation (ft)
F-105	5077.37	5083.73	Water Elevation (ft)
F-106	5014.73	5016.31	Water Elevation (ft)
F-107	5024.16	5025.64	Water Elevation (ft)
F-108	5054.52	5057.50	Water Elevation (ft)
F-109	5030.50	5031.82	Water Elevation (ft)
F-110	5080.91	5084.60	Water Elevation (ft)
F-111R[1]	4999.96	5010.81	Water Elevation (ft)
F-112	5027.37	5027.84	Water Elevation (ft)
F-113	5044.47	5045.89	Water Elevation (ft)
F-114	5026.21	5026.50	Water Elevation (ft)

Instrument Name	Minimum	Maximum	Unit
F-115	5035.63	5039.04	Water Elevation (ft)
F-117	5082.80	5083.07	Water Elevation (ft)
F-123	5079.96	5081.09	Water Elevation (ft)
F-124	5081.94	5083.01	Water Elevation (ft)
F-125	5072.93	5072.97	Water Elevation (ft)
F-126	5071.48	5074.30	Water Elevation (ft)
F-127	5065.87	5068.67	Water Elevation (ft)
F-128	5086.44	5087.25	Water Elevation (ft)
F-129	5078.51	5080.89	Water Elevation (ft)
F-130	5069.03	5072.08	Water Elevation (ft)
F-131	5052.10	5054.21	Water Elevation (ft)
F-132	5081.01	5082.47	Water Elevation (ft)
F-133	5071.99	5073.62	Water Elevation (ft)
F-134	5056.34	5058.91	Water Elevation (ft)
W-123R[1]	5032.06	5033.00	Water Elevation (ft)
Settlement Monuments (10/1/23 to 9/30/24)			
M-1	5120.903	5120.986	Monument Elevation (ft)
M-2	5120.364	5120.438	Monument Elevation (ft)
M-3	5119.715	5119.816	Monument Elevation (ft)
M-4	5118.897	5118.970	Monument Elevation (ft)
M-5	5117.840	5117.909	Monument Elevation (ft)
M-5A	5117.654	5117.726	Monument Elevation (ft)
M-5B	5117.442	5117.509	Monument Elevation (ft)
M-5C	5117.732	5117.816	Monument Elevation (ft)
M-6	5118.896	5118.968	Monument Elevation (ft)
M-6A	5118.524	5118.605	Monument Elevation (ft)
M-6B	5119.565	5119.632	Monument Elevation (ft)
M-6C	5119.923	5119.976	Monument Elevation (ft)
M-7	5119.379	5119.473	Monument Elevation (ft)
M-8	5119.507	5119.588	Monument Elevation (ft)
M-9	5119.894	5119.964	Monument Elevation (ft)
M-10	5119.872	5119.956	Monument Elevation (ft)
Totalizers (10/1/23 to 9/30/24)			
Geronimo	0.36[2]	12.40[2]	Average Flowrate (gpm)
Hunt	2.55[2]	9.59[2]	Average Flowrate (gpm)

1) Instrument was abandoned and replaced in May 2021. The "R" suffix designates the name assigned to the nearby replacement instrument.
2) The reference values are the minimum and maximum of calculated average flowrates based on weekly readings at the instruments.

The data for the piezometers during the current review period indicate that the water levels recorded in piezometers F-110 (screened in the alluvium underlying the dam), F-117 (screened in the Moqui Member of the Moenkopi Formation at the Left Abutment), and all four piezometers screened in the core of the dam – F-123, F-124, F-128, and F-132 – are higher than the most recently measured (present) reservoir water level (EL 5079.529 feet on October 15, 2024). The water level in piezometer F-105 (screened in the alluvium on the upstream side of the cutoff wall) was higher than the reservoir between June 2023 and May 2024. In addition, the water level measured in piezometer F-129 was nearly equal to the reservoir elevation throughout the year. The higher water levels in the piezometers are attributed to the intentionally rapid decrease in the reservoir level as APS prepares the Fly Ash Pond for closure, the relatively low hydraulic permeability of the core, the slurry cutoff wall underlying the dam, and the installation of new pumping wells in the reservoir that have been removing interstitial water from the impounded ash since mid-2023. Approximately 50 feet of CCR is impounded against the upstream slope of the dam near these piezometers, forming a buttress to prevent slope instability. APS will continue to monitor these and nearby instruments.

Most of the settlement monuments are below the design crest elevation (EL 5120 feet). The highest total settlement recorded at any of the Fly Ash Dam monuments is approximately 2.1 feet at Settlement Monument M-5, in the vicinity of the greatest depth to rock along the embankment. Approximately half of the total settlement at M-5 took place throughout the first four years after the Fly Ash Dam was constructed. The trend at Settlement Monument M-5 is similar to the trends at other settlement monuments where the majority of settlement was recorded within the first few years after construction. APS will continue to monitor the settlement monuments for adverse conditions related to dam safety. In general, the data for the settlement monuments during the current review period indicate no significant changes or adverse trends related to the performance of the dam.

APS completed replacing the extraction wells at the Geronimo Seep in early 2023. APS obtains turbidity measurements from Sump C on a monthly basis. Starting in May 2024, the turbidity began to increase from 0.99 NTU in April to 5.74 NTU in September. It is not clear why the turbidity began increasing in mid-2024. APS will continue to monitor the turbidity and review the results with the APS geotechnical engineer.

The data for the totalizers during the current review period indicate no significant changes or adverse trends related to the performance of the dam. The average weekly flowrates were relatively constant throughout the current review period.

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 (the October 1, 2023 – September 30, 2024 review period) are presented in the following table:

Water	Depth of Water (ft) (calculated)	Water Elevation (ft) (surveyed)	Measurement Location
Minimum	10.309	5079.309 (9/17/24)	Northwest Corner of Pond
Maximum	11.959	5080.959 (4/3/24)	Northwest Corner of Pond
Present (this inspection)	10.529	5079.529 (10/15/2024)	Northwest Corner of Pond
CCR	**Depth of CCR (ft) (calculated)**	**CCR Elevation (ft) (estimated)**	**Measurement Location**
Minimum	0	5108.8	East Temporary Basin
Maximum	69.5	5108.8	Well UAX-01R 34.929892°N 110.266161°W
Present (this inspection)	69.5	5108.8	

Water elevation measurements are made by Plant surveyors using GPS techniques on a monthly basis.

The CCR elevation was previously estimated by measuring the gap from the invert of the discharge pipe to the top of the CCR surface at the time of the annual inspection. APS extended the discharge point from the upstream slope of the Fly Ash Dam to a point several hundred feet into the reservoir in February 2024. As a result, the depth of CCR and the CCR elevation at the original discharge point is assumed to be unchanged throughout the year. The reference location for the depth of CCR was revised as part of this report to incorporate the thickness of CCR encountered in wells completed in the reservoir during 2023 and throughout 2024, and visual observations of the East Temporary Basin now under construction. The subsurface profile in well UAX-01R indicated 69.5 feet of CCR overlying the original ground surface. This well is located approximately 480 feet southeast of the inlet pipe and approximately 340 feet northeast of the crest. As the new deposition point is further into the reservoir than UAX-01R, the CCR thickness is assumed to remain unchanged throughout the year. The minimum CCR depth was revised in this report because APS began excavating the East Temporary Basin in September 2024, thereby creating a separate location with no CCR present.

Reported water depths are calculated relative to the estimated lowest elevation of natural ground within the Fly Ash Pond. APS commissioned a bathymetric survey, performed in late August 2022, to aid in closure design. This bathymetry showed the lowest point in the reservoir is approximately EL 5069 feet (Industrial Aerobotics 2022). The 2022 bathymetry was used to estimate the maximum and minimum water depth during the review period. The elevation at the bottom of the CCR deposit at UAX-01R is similar to the estimated lowest elevations (approximately EL 5039 feet) along the toe of the upstream slope of the dam based on original as-built dam construction drawings (APS 1977).

5.1.4 Storage Capacity

The storage capacity of the CCR unit at the time of the inspection was 18,000 acre-feet (ac-ft). This value is based on the existing dam design.

5.1.5 Approximate Impounded Volume at Time of Inspection

The approximate volume of impounded water and CCR at the time of the inspection was 6,682.02 ac-ft. The volume is estimated via three steps: 1) the volume of CCR and water below the current

water level from the Elevation-Area-Capacity curve for the reservoir; 2) the volume of CCR above the water level based on the maximum elevation measured during the inspection, areal measurements, and a truncated pyramid volume estimate; and 3) the reported volume of ash relocated from Ash Pond 1 and the Bottom Ash Monofill (Section 5.1.6). The approximate impounded volume is greater than the 2023 inspection primarily due to the CCR relocated from the Bottom Ash Monofill to the Fly Ash Pond.

5.1.6 Structural Weakness or Operational Change/Disruption

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

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

APS is currently transferring CCR from the Bottom Ash Monofill to a stockpile within the Fly Ash Pond. At the time of the inspection, APS estimates that approximately 1,100,000 cubic yards (681.81 ac-ft) have been transferred since hauling began in August 2023. This is in addition to APS relocating 766,988.8 cubic yards (475.4 ac-ft) of CCR from Ash Pond 1 to the Fly Ash Pond reservoir for use as fill during closure construction in 2022. The Ash Pond 1 material was placed within the reservoir, above the pond level, on the left abutment/hillside. The CCR from the Bottom Ash Monofill is being placed in a stockpile on top of the material from Ash Pond 1 to serve as bridging lift fill.

APS continued or initiated several activities related to closure construction since the previous inspection:

- APS removed the 12 PittBoss downdraft evaporators in December 2023.

- APS first moved the deposition point from the upstream slope to a location in the Fly Ash Pond in February 2024.

- APS continued installing dewatering wells on the beach within the reservoir. None of the dewatering wells are within the dam footprint and all are designed to be screened either in the impounded CCR or in the alluvium underlying the reservoir. The bottom ash access road was also extended to the well locations as part of this work.

- APS removed the two sprinkler systems in the northeast drainage ditch and began excavating the East Temporary Basin in September 2024.

- APS constructed the pilot EcoVap Pond (a lined pond installed in the reservoir near the Left Abutment in January 2024) to facilitate water removal. The pore water pumped to the lined EcoVap pond is contained and can only flow back to the Fly Ash Pond if the inflow exceeds the evaporation rate; the water would be released via a spillway on the north side of the containment area.

5.2 BOTTOM ASH DAM

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 2023.

5.2.2 Instrumentation

The locations of geotechnical and other related instrumentation in the vicinity of the Bottom Ash Dam are shown on Figure 5 – Bottom Ash Dam Instrumentation Map.

The minimum and maximum recorded readings for each instrument over the October 1, 2023 – September 30, 2024 (current) review period are reported in the following table:

Instrument Name	Minimum	Maximum	Unit
Open Standpipe Piezometers (10/1/23 to 9/30/24)			
B-200	5044.75	5049.72	Water Elevation (ft)
B-201	5040.22	5045.50	Water Elevation (ft)
B-202	5036.77	5041.14	Water Elevation (ft)
B-204	5096.40	5098.58	Water Elevation (ft)
B-206	5027.47	5029.29	Water Elevation (ft)
B-207	5030.04	5031.97	Water Elevation (ft)
B-208B	Dry	Dry	Water Elevation (ft)
B-209	5072.02	5072.83	Water Elevation (ft)
B-210	5066.34	5067.03	Water Elevation (ft)
B-211	Dry	Dry	Water Elevation (ft)
B-212	5090.84	5091.63	Water Elevation (ft)
B-213	5080.03	5081.02	Water Elevation (ft)
B-214	5079.05	5080.14	Water Elevation (ft)
B-215	5078.66	5079.76	Water Elevation (ft)
B-216	5071.64	5073.30	Water Elevation (ft)
B-217	5098.39	5102.26	Water Elevation (ft)
B-218	5092.49	5094.35	Water Elevation (ft)
B-225	5058.88	5060.27	Water Elevation (ft)
W-227	5088.78	5091.21	Water Elevation (ft)
Settlement Monuments (10/1/23 to 9/30/24)			
M-11	5123.230	5123.327	Monument Elevation (ft)
M-12	5122.657	5122.759	Monument Elevation (ft)
M-13	5122.570	5122.603	Monument Elevation (ft)
M-14	5119.307	5119.393	Monument Elevation (ft)
M-15	5122.916	5122.986	Monument Elevation (ft)
M-16	5123.436	5123.525	Monument Elevation (ft)

Instrument Name	Minimum	Maximum	Unit
M-17	5122.912	5123.001	Monument Elevation (ft)
M-18	5123.236	5123.377	Monument Elevation (ft)
M-19	5123.383	5123.455	Monument Elevation (ft)
PI	5123.360	5123.449	Monument Elevation (ft)
Totalizers (10/1/23 to 9/30/24)[1]			
West Abutment Totalizer[2]	3.30	9.93	Average Flowrate (gpm)
West Abutment Weir[3]	0.50	3.40	Average Flowrate (gpm)
P-226[2]	0.00	4.12	Average Flowrate (gpm)
Tanner Wash Totalizer[2]	3.68	37.45	Average Flowrate (gpm)
Petroglyph[2]	1.21	5.42	Average Flowrate (gpm)

1) The reference values are the minimum and maximum of calculated average flowrates for the available quarters.
2) The totalizer was replaced during the second quarter of 2024.
3) The West Abutment Weir was removed and replaced with a buried, perforated, corrugated collection pipe in mid-2024. The collection pipe was connected to the Bottom Ash Toe Drain system.

The water levels recorded in the piezometers monitored at the Bottom Ash Dam generally followed the trends exhibited by the Bottom Ash Pond level throughout the year. The data for the piezometers indicate no significant elevation changes or trends related to the performance of the dam during the current review period.

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

The data for the totalizers and seeps during the current review period indicates that the seepage flow rates appear to change in response to changes in the Bottom Ash Pond water elevation. The higher flowrates were typically recorded in early 2023 when the Bottom Ash Pond exceeded EL 5111 feet. The Bottom Ash Pond receded to its 2023 minimum at EL 5108.85 feet in July. In addition, the flow rate at the West Abutment Totalizer, P-226 seep, and the Tanner Wash Totalizer increased after the clogged pipes, pumps, and appurtenant features were replaced.

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 (the October 1, 2023 – September 30, 2024 review period) are presented in the following table:

Water	Depth of Water (ft) (calculated)	Water Elevation (ft) (measured)	Measurement Location
Minimum	27.17	5106.0 (7/22/2024)	Upstream slope at the staff gauge
Maximum	31.17	5111.0 (3/18/2024)	Upstream slope at the staff gauge
Present (this inspection)	27.82	5106.65 (NGVD29)	Upstream slope at the staff gauge

CCR	Depth of CCR (ft) (calculated)	CCR Elevation (ft) (estimated)	Measurement Location
Minimum	~6.43	5116.43 (NGVD29)	Visual observation in the north half of the reservoir
Maximum	~43.7	~5111.13 (NGVD29)	Southeast side of the East Decant Cell Divider Dike
Present (this inspection)	9-43.7	~5111.13 to ~5116.43 (NGVD29)	Visual observation in the East Decant Cell

The reference CCR depths are based on the June 9, 2023, aerial survey (Aerotech Mapping, Inc. 2023).

Water elevation measurements are made by Plant personnel on a daily basis by reading the staff gauge on the upstream slope along the South Embankment of the dam. APS constructed divider dikes in 2009 to create the East and West Decant Cells in the northern half of the reservoir. The divider dikes were constructed on top of the existing impounded ash and currently prevent most of the newly deposited ash from reaching the South Embankment. Since the water elevation is measured against the South Embankment, the resulting water depth is calculated based on the depth of impounded water to the top of previously deposited bottom ash (Aerotech Mapping, Inc. 2023). Based on the 2023 bathymetric survey, the lowest point in the CCR south of the Divider Dike is at approximate EL 5081.4 feet NAVD88 (EL 5078.83 feet NGVD29).

The CCR elevation and depth of CCR are estimated based on observations of ash levels around the divider dikes, ash levels in the East Decant Cell, the 2023 aerial survey, and preconstruction topography. The maximum CCR depth is typically along the southeast side of the East Decant Cell divider dike where the original topography is the lowest (near EL 5070 feet per APS Drawing #G-44556); the maximum CCR thickness is based on a CCR surface elevation at approximately 5111.13 feet (NGVD29) as recorded in the 2023 aerial survey (Aerotech Mapping, Inc. 2023). The minimum CCR depth is typically in the alluvial fan in the north half of the reservoir where the original topography is relatively higher (near EL 5110 feet NGVD29 per APS Drawing #G-44556); the minimum CCR thickness is based on a CCR surface elevation at approximately 5116.43 feet (NGVD29) as recorded in the 2023 aerial survey (Aerotech Mapping, Inc. 2023). The volume of CCR placed across the reservoir between June 9, 2023, and this inspection was assumed to account for a sufficiently small increase in thickness such that the June 9, 2023, aerial survey remains reasonably consistent with the current CCR elevation.

APS historically excavated bottom ash from the Bottom Ash Pond at various times throughout the year and would place it in the Bottom Ash Monofill. However, APS did not remove any ash in 2024.

5.2.4 Storage Capacity

The storage capacity of the CCR unit at the time of the inspection was 2,300 ac-ft. This value is based on the existing dam design.

5.2.5 Approximate Impounded Volume at Time of Inspection

APS did not remove any CCR from the Bottom Ash Pond in 2024, instead moving 20,000 cubic yards (12.4 ac-ft) from the Bottom Ash Monofill to the Bottom Ash Pond to be used for access

roads and depositing 150,000 cubic yards (92.98 ac-ft). Based on a bathymetry survey in the southern end of the reservoir conducted in June 2023, digitized contours from the pond construction documents, and the as-built EAC, the approximate impounded volume of CCR and water at the time of the inspection was 2,150.37 ac-ft.

5.2.6 Structural Weakness or Operational Change/Disruption

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

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

There are no significant changes to the structural integrity of the impoundment since the 2023 inspection.

APS installed the following upgrades and completed the following maintenance activities at the Petroglyph Seep, the Tanner Wash Seep, the Bottom Ash Toe Drain, the West Abutment, and the P-226 seepage intercept area to support compliance with CCR corrective action requirements detailed in the CCR Rule (WSP 2024):

- At the Petroglyph Seep, APS installed 70 feet of 6-inch slotted HDPE pipe in the existing ditch, regraded the area adjacent to the sump, placed 3-inch crushed basalt in the ditch, and removed the excess vegetation. APS also upgraded the existing sump by adding valves, piping, meters, and appurtenances.

- At the Tanner Wash Seep, APS installed approximately 275 feet of 6-inch perforated pipe, regraded the area adjacent to the sump, placed 1-inch minus crushed rock in the ditch adjacent to the sump and removed the excess vegetation. APS also added new valves, piping, meters, and appurtenances to the existing sump.

- At the Bottom Ash Toe Drain, APS installed new piping to connect the toe drain with three new extraction wells and equipped them with pumps and associated valves, piping, flowmeters, pressure switches, and level controls.

- At the West Abutment, APS replaced the West Abutment Weir with a 6-inch perforated HDPE collection pipe for approximately 470 feet along the toe of the dam. The 6-inch perforated HDPE collection pipe is connected to approximately 200 feet of 6-inch solid HDPE pipe that conveys the collected seepage to the Bottom Ash Toe Drain Sump.

- At the P-226 seepage intercept area, APS upgraded the existing wells by adding valves, piping, meters, flow regulators, and appurtenances to each. APS replaced the vaults and flanges at each well after discovering they were corroded. The P-226 sump was also removed and the totalizer was replaced. APS installed a remote monitoring system at each well.

- APS installed a new 8,400-gallon equalization tank as part of the seepage collection system upgrades.

- APS also installed a remote monitoring system at each pump and upgraded the existing sumps by adding valves, piping, meters, and replaced the level controls.

- APS replaced the clogged pipes at the Petroglyph, Tanner Wash, and P-226 seepage areas; the replacement consisted of more than 1,800 feet of 2-inch HDPE pipe, 878 feet of 3-inch HDPE pipe, 299 feet of 3-inch carbon steel Schedule 40 pipe, and 13 cleanouts.

5.3 BOTTOM ASH MONOFILL

5.3.1 Geometry Changes Since Last Inspection

APS did not move any ash from the Bottom Ash Pond into the Bottom Ash Monofill in 2024. APS began removing CCR from the Bottom Ash Monofill in August 2023 to facilitate closure at the Fly Ash Pond and the Bottom Ash Pond. APS's construction contractor had removed more than half of the soil cover and approximately 1,100,000 cubic yards (681.8 acre-feet) of CCR at the time of the inspection, primarily from the western and southern portions of the CCR unit. The Bottom Ash Monofill's footprint remains unchanged since the previous inspection.

5.3.2 Instrumentation

There are no instruments associated with the Bottom Ash Monofill.

5.3.3 CCR Volume

The CCR unit is estimated to have contained approximately 681.8 ac-ft at the time of the inspection. This value is based on the approximate volume removed as part of the closure activities (1,900,000 cubic yards), up to 300,000 cubic yards expected to remain after the current CCR removal project is complete, and the approximate volume of CCR that has already been removed (1,100,000 cubic yards). The basis for this report's estimate is the September 2024 aerial survey conducted as part of the regular monitoring for the ash removal work at the Bottom Ash Monofill. The estimated maximum storage capacity is based on the design volume approved as part of the ADEQ APP (e.g., 2,417 ac-ft). APS did not move any ash from the Bottom Ash Pond into the Bottom Ash Monofill in 2024.

5.3.4 Structural Weakness or Operational Change/Disruption

APS continued removing CCR from the Bottom Ash Monofill in throughout 2024. APS is stockpiling CCR from the Bottom Ash Monofill at the Fly Ash Pond and the Bottom Ash Pond to be used in pre-closure construction activities.

6.0 OPERATION AND MAINTENANCE RECOMMENDATIONS

6.1 FLY ASH DAM

6.1.1 Current Fly Ash Dam Action Items

The following items were noted during this inspection as requiring attention.

Action Item	Action Status
1) The EAP distribution list should be kept up to date with current personnel.	Update the EAP distribution list.
2) Settlement monument M-2 is at least one foot higher than the crest. Settlement monuments M-6 and M-6B are also noticeably higher than the crest.	Reconcile the difference between M-2 and the crest either by restoring the crest to EL 5120 feet or install a new survey monument on the crest.
3) There is erosion around piezometer F-123.	Repair if the eroded depth around the piezometer exceeds 1 foot.
4) Continue identifying and remediating scattered animal burrows and ant hills.	Mark ant hills and animal burrows identified during weekly inspections. NOTE: This will always be an ongoing maintenance activity.
5) Continue to maintain, treat, and remove excessive vegetation.	Remove trees, shrubs, and other deleterious vegetation on the dam as per NMOSE (2011). Large stumps should be removed, and the resulting void should be filled with compacted soil. NOTE: This will always be an ongoing maintenance activity.
6) Historic holes on the crest.	Continue to monitor the crest for progressive erosion and the appearance of new erosion holes.
7) Continue monitoring the riprap for signs of deterioration.	Replace riprap as needed.
8) Continue monitoring the groin of the Right Abutment, the downstream slope, and the access road near the Geronimo sumps for erosion.	Repair the erosion at the Right Abutment and continue to repair other areas when the eroded depth exceeds 1 foot.
9) Continue to monitor seepage through the embankment.	NOTE: This will always be an ongoing maintenance activity.
10) Continue to monitor the I-40 seep.	Any perceived increases in seepage volume, affected area, or perpetual standing water should be reviewed by the APS geotechnical engineer.

Action Item	Action Status
11) The turbidity measurements at the Geronimo Sump began to increase from 0.99 NTU in April to 5.74 NTU in September.	Continue to monitor the turbidity. Turbidity measurements over 1.0 should be reported to the APS geotechnical engineer to assess the significance of the trend.

6.1.2 Previous Fly Ash Dam Action Items

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

Action Item and First Instance of Observation	Resolution
1) Erosion and soil wasting along the upstream slope (2023 inspection).	APS repaired the erosion rills observed along the upstream shoulder in the area where the crest was extended.
2) There is erosion along the access road near the Geronimo Seep (2023 inspection).	The erosion was repaired.

6.2 BOTTOM ASH DAM

6.2.1 Current Bottom Ash Dam Action Items

The following items were noted during this inspection as requiring attention.

Action Item	Action Status
1) The EAP distribution list should be kept up to date with current personnel.	Update the EAP distribution list.
2) The pumpback flowmeter at the eastern siphon line is broken.	Replace the pumpback flowmeter at the eastern siphon line.
3) Continue identifying and remediating scattered animal burrows and ant hills.	Mark ant hills and animal burrows identified during weekly inspections. NOTE: This will always be an ongoing maintenance activity.
4) Continue to monitor the erosion around the siphon line encasements and on the shoulder of the crest.	Repair erosion if the eroded depth exceeds 1 foot.
5) Monitor the crest for erosion holes during weekly inspections. Record the location and sizes of erosion holes during the weekly inspections. There is a 21-inch-deep hole adjacent to the concrete on the west side of the central siphon line.	Establish a regular schedule (e.g., semi-annually) to remediate holes identified in the crest. Establish a procedure to track the appearance of new holes and the disappearance of old holes. NOTE: This will always be an ongoing maintenance activity. Repair the 21-inch-deep hole.
6) Remove vegetation from the upstream slope at the Right Abutment.	Woody vegetation rooted in the embankment should be removed and the resulting disturbed area should be replaced with compacted material similar to the embankment material per NMOSE (2011).
7) Continue to maintain, treat, and remove excessive vegetation, including vegetation on the upstream and downstream slopes.	Remove trees, shrubs, and other deleterious vegetation on the dam as per NMOSE (2011). Large stumps should be removed, and the resulting void should be filled with compacted soil. NOTE: This will always be an ongoing maintenance activity.
8) Repair the erosion gullies at the downstream slope of the East Embankment.	The erosion should be restored with compacted, well-graded fill at the direction of the APS geotechnical engineer.
9) Continue monitoring the riprap for additional signs of deterioration.	Replace riprap as needed.

Action Item	Action Status
10) Continue to monitor seepage through the embankment.	NOTE: This will always be an ongoing maintenance activity.
11) Repair the 22-inch deep erosion in the downstream groin of the Right Abutment.	The erosion should be restored with compacted, well-graded fill at the direction of the APS geotechnical engineer.
12) Continue to monitor the soil wasting observed along the downstream slope of the East Embankment near the Left Abutment access road.	Investigate the source of sediment collecting in the diversion ditch between the East Embankment access road and the East Embankment.

6.2.2 Previous Bottom Ash Dam Action Items

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

Action Item and First Instance of Observation	Resolution
1) The downstream section of support material is separating from the concrete at Settlement Monument M-13 (2021, 2022, 2023 inspections.	The gap has filled.
2) Continue to monitor seepage areas, including the West Abutment Weir, for excessive vegetation (2021, 2022, 2023 inspections).	The vegetation in the vicinity of the West Abutment Weir was cut as part of the weir removal project.
3) Repair the 4-foot-deep erosion in the downstream groin of the Right Abutment (2022, 2023 inspections).	The erosion was repaired.

6.3 BOTTOM ASH MONOFILL

6.3.1 Current Bottom Ash Monofill Action Items

The following items were noted during this inspection as requiring attention.

Action Item	Action Status
1) Standing water was observed in the perimeter drainage channel during the 2022 inspection.	Grade the channel to drain to the Stormwater Detention Basin.
2) The tunnel on the west side of the perimeter drainage channel has collapsed.	Repair the perimeter drainage channel under the direction of the APS Geotechnical Engineer.
3) There was a low spot on the toe road where stormwater was ponding behind a berm during the 2022 inspection.	Regrade the area such that water does not pond.
4) Severe erosion around the Stormwater Detention Basin.	Repair the erosion. Assess the gradients entering the Basin and consider reducing the entrance slope or placing riprap along the slopes to reduce the erosive potential of the run-on.
5) More than half of the soil cover has been removed to gain access to the stockpiled ash within the CCR unit.	The soil cover should only be removed to the extent it is needed to excavate CCR. Consider applying a dust palliative to prevent fugitive CCR from leaving the Bottom Ash Monofill during wind events.

6.3.2 Previous Bottom Ash Monofill Action Items

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

Action Item and First Instance of Observation	Resolution
1) Erosion gullies several feet deep were observed at various locations at the CCR unit. Some erosion gullies extended into the ash underlying the soil cover (2021, 2022, 2023 inspections).	The CCR in the affected area has been removed.
2) There is CCR at the eastern toe of the Bottom Ash Monofill, west of the Stormwater Detention Basin that has eroded off the eastern slope (2021, 2022, 2023 inspections).	The CCR in the affected area has been removed.
3) There is an erosion gully several feet deep near the south end of the Bottom Ash Monofill (2022, 2023 inspections).	The CCR in the affected area has been removed.
4) There is an exposed section of the ash on the southern face of the Bottom Ash Monofill. The slope is now oversteepened and may fail in the future (2023 inspection).	The CCR in the affected area has been removed.

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FIGURES

Last saved by: LEE.WRIGHT(2022-11-28) Last Plotted: 2022-11-28
Filename: L:\DCS\PROJECTS_WTR\60692686_APS_CH_2022_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 1 - FLY ASH POND.DWG

ANSI A 8.5" x 11"

CHOLLA POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

FLY ASH POND
SITE MAP

AECOM

FIGURE 1

Last saved by: LEE.WRIGHT(2022-11-28) Last Plotted: 2022-11-28
Filename: L:\DCS\PROJECTS_WTR\60692686_APS_CH_2022_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 2 - BOTTOM ASH POND.DWG
ANSI A 8.5" x 11"

CHOLLA POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

BOTTOM ASH POND
SITE MAP

AECOM

FIGURE 2

Last saved by: LEE.WRIGHT(2022-11-28) Last Plotted: 2022-11-28
Filename: L:\DCS\PROJECTS_WTR\60692686_APS_CH_2022_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 3 - BOTTOM ASH MONOFILL.DWG
ANSI A 8.5" x 11"

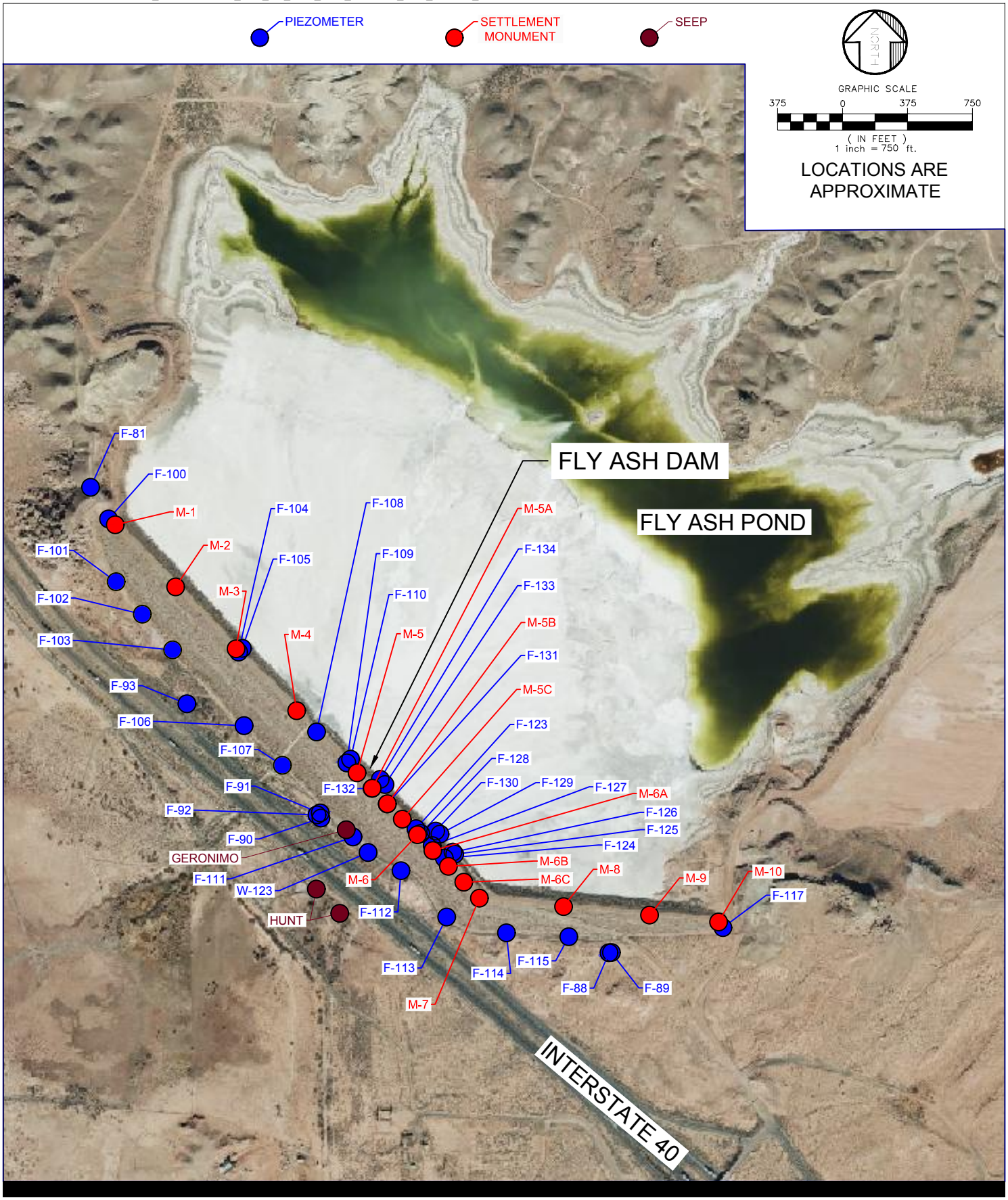
CHOLLA POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

BOTTOM ASH MONOFILL
SITE MAP

AECOM

FIGURE 3

Last saved by: LEE.WRIGHT(2022-11-28) Last Plotted: 2022-11-28
Filename: L:\DCS\PROJECTS_WTR\60692686_APS_CH_2022_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 4 - FLY ASH DAM INSTRUMENTS.DWG
ANSI A 8.5" x 11"



CHOLLA POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

FLY ASH DAM
INSTRUMENTATION MAP

AECOM

FIGURE 4

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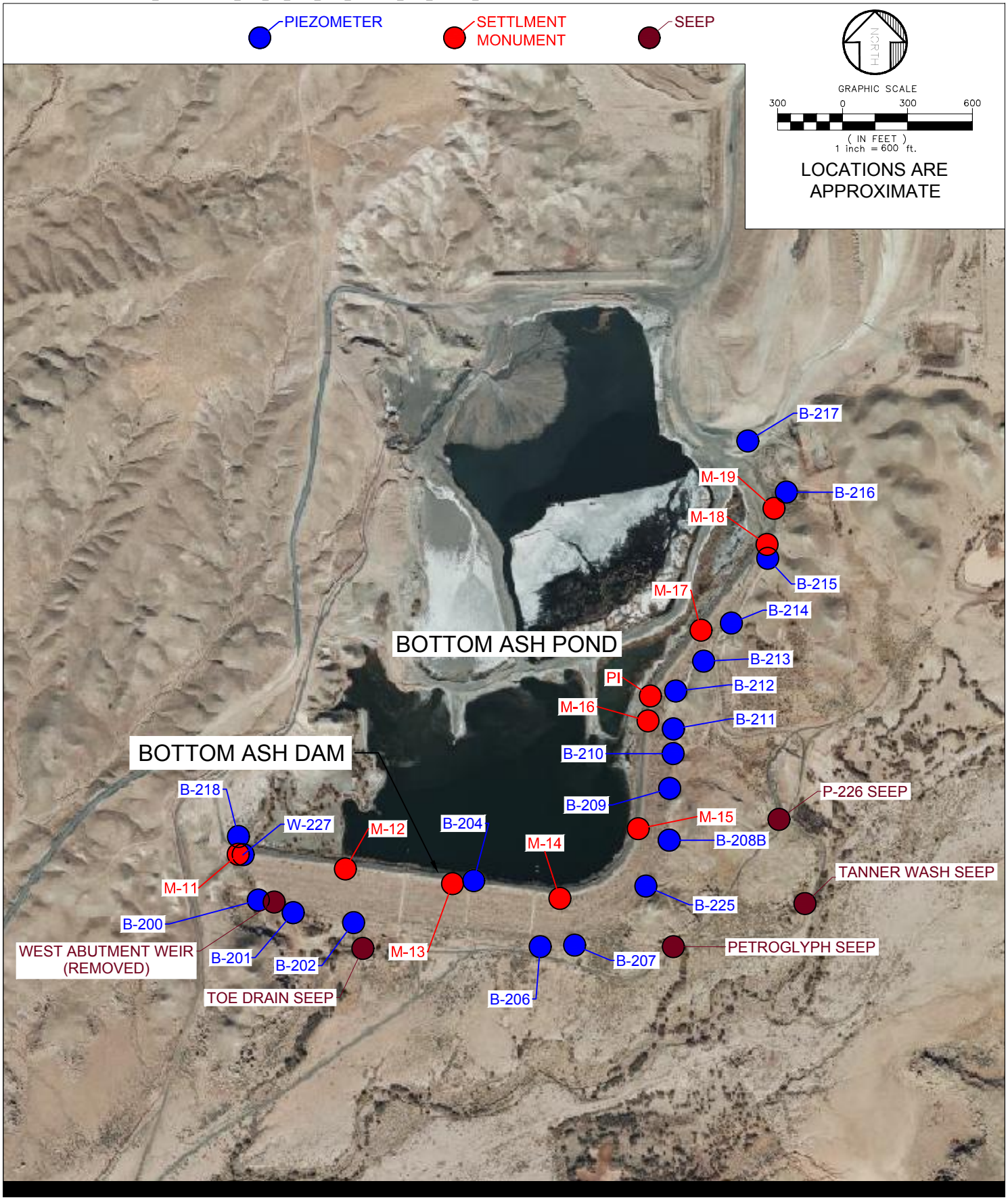
Filename: L:\DCS\PROJECTS_WTR\60692686_APS_CH_2022_DAM_INSP\900_CAD_GIS\910_CAD\25-SKETCHES\FIGURE 5 - BOTTOM ASH DAM INSTRUMENTS.DWG
ANSI A 8.5" x 11"



CHOLLA POWER PLANT
CCR IMPOUNDMENT AND LANDFILL INSPECTION REPORT
ARIZONA PUBLIC SERVICE

BOTTOM ASH DAM
INSTRUMENTATION MAP

AECOM

FIGURE 5

APPENDIX A

FLY ASH DAM PHOTO LOG

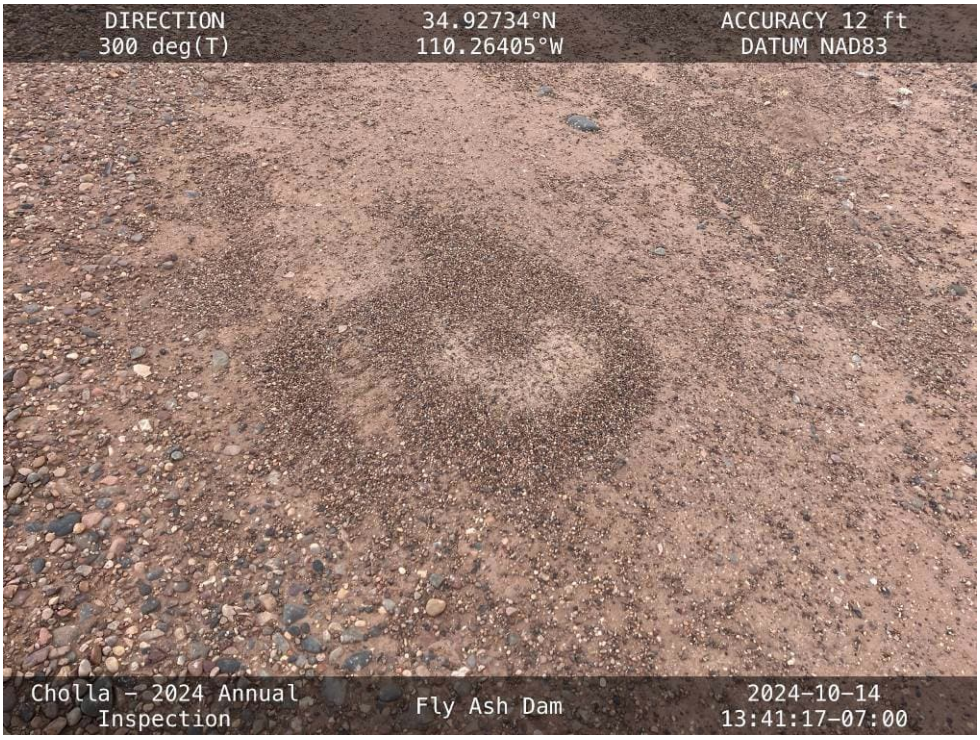
20241014 – IMG_6422
The downstream slope of the South Embankment, facing west from the Left Abutment.

20241014 – IMG_6423
The upstream slope of the South Embankment, facing west from the Left Abutment.

20241014 – IMG_6424
The crest of the South Embankment, facing west from the Left Abutment.

20241014 – IMG_6427
The EcoVap pond where APS is pumping pore water from the wells in the reservoir.

20241014 – IMG_6431
Access roads and wells installed as part of pre-closure work.



20241014 – IMG_6432
An ant hill on the South Embankment crest.

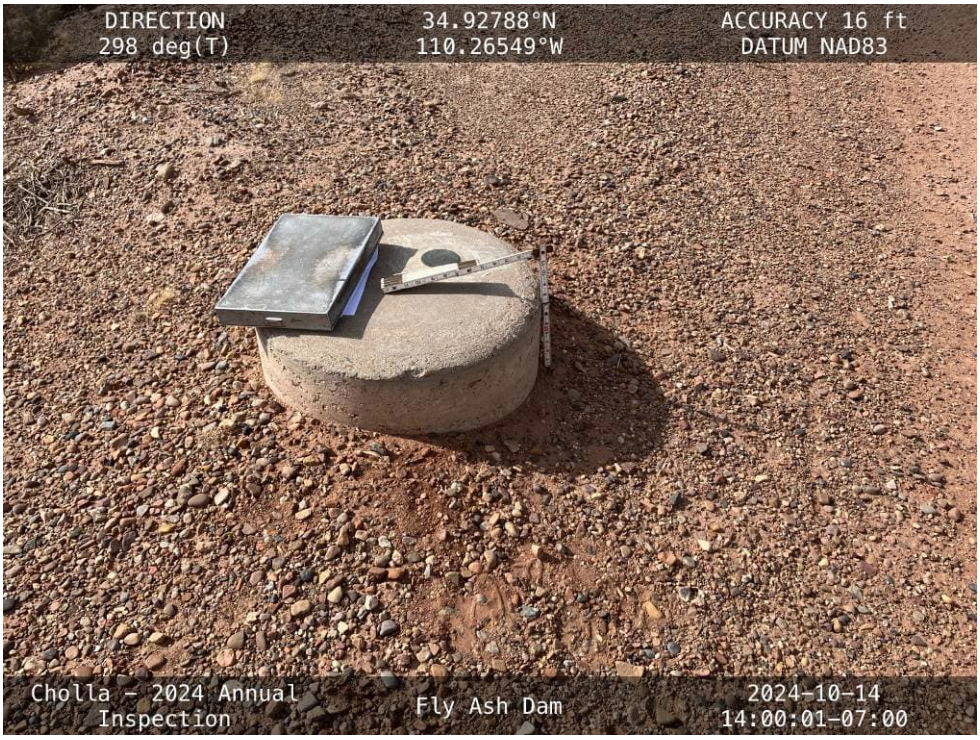
20241014 – IMG_6434
The upstream slope of the South Embankment, facing east.

20241014 – IMG_6435
The crest of the South Embankment, facing east.

20241014 – IMG_6436
The downstream slope of the South Embankment, facing east.

20241014 – IMG_6438
The upstream slope of the West Embankment, facing northwest.

20241014 – IMG_6442
The downstream slope of the West Embankment, facing northwest.



20241014 – IMG_6445
Settlement Monument M-6B, with approximately 9 inches of soil loss around the concrete.

20241014 – IMG_6450

Location along the upstream slope where erosion observed during the 2023 inspection has been repaired.

20241014 – IMG_6451

The crest of the West Embankment, facing northwest. Tires placed around the piezometer for protection.

20241014 – IMG_6456

Location along the upstream slope where erosion 3.25 feet wide and 1.5 feet deep observed during the 2023 inspection has been repaired.

20241014 – IMG_6457

Erosion around piezometer F-123 on the downstream shoulder of the West Embankment crest.

20241014 – IMG_6459
Settlement Monument M-6, with approximately 8 inches of soil loss around the concrete.

20241014 – IMG_6473
A 1-foot deep hole within the riprap on the downstream shoulder.

20241014 – IMG_6476
The inlet pipes along the downstream slope.

20241014 – IMG_6480
The downstream slope along the northern half of the West Embankment, facing northwest.

20241014 – IMG_6482
The upstream slope along the northern half of the West Embankment, facing northwest.

20241014 – IMG_6483
The upstream slope along the southern half of the West Embankment, facing southeast.

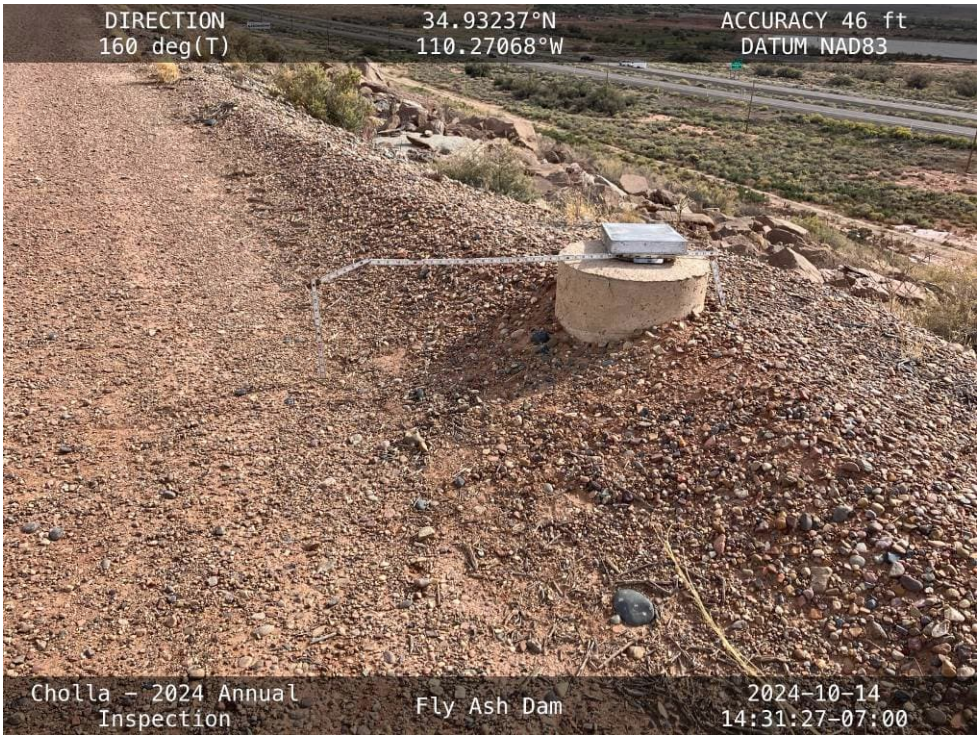
20241014 – IMG_6484
The crest along the southern half of the West Embankment, facing southeast.

20241014 – IMG_6485
The downstream slope along the southern half of the West Embankment, facing southeast.

20241014 – IMG_6490
The crest along the northern half of the West Embankment, facing northwest.

20241014 – IMG_6489
The inlet pipes on the upstream slope, with the extension buried under the bottom ash road.

20241014 – IMG_6548
The new deposition point, extended beyond the bottom ash well access roads.



20241014 – IMG_6505
Settlement monument M-2 on the crest of the West Embankment.

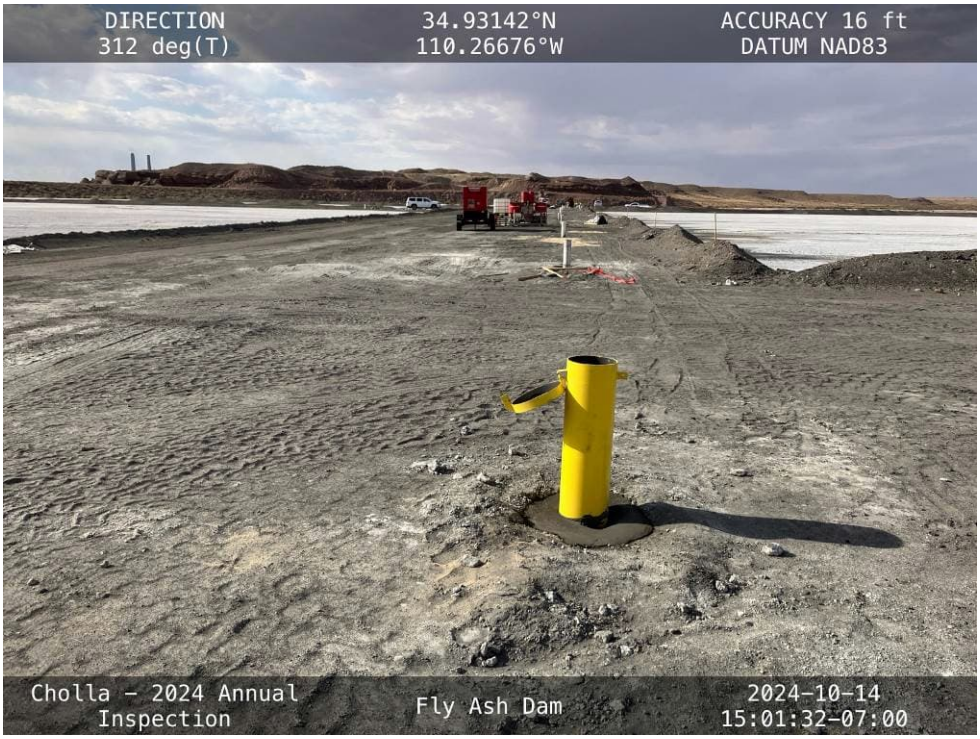
20241014 – IMG_6506
A 10-inch deep hole on the upstream shoulder of the West Embankment.

20241014 – IMG_6507
Minor erosion on the downstream side of the Right Abutment contact.

20241014 – IMG_6511
The downstream slope of the Fly Ash Dam, facing southeast from the Right Abutment.

20241014 – IMG_6512
The crest of the Fly Ash Dam, facing southeast from the Right Abutment.

20241014 – IMG_6513
The upstream slope of the Fly Ash Dam, facing southeast from the Right Abutment.



20241014 – IMG_6521
Extraction wells installed in the reservoir.

20241014 – IMG_6527

The eastern side of the reservoir where the downdraft evaporators were.

20241014 – IMG_6530

The eastern side of the reservoir where the downdraft evaporators were.

20241014 – IMG_6541

The northeastern side of the reservoir where the East Evaporation Basin is being constructed.

20241014 – IMG_6545

Haul trucks moving CCR from the Bottom Ash Monofill to the Fly Ash Pond stockpile.

20241014 – IMG_6568
The downstream slope and toe of the South Embankment.

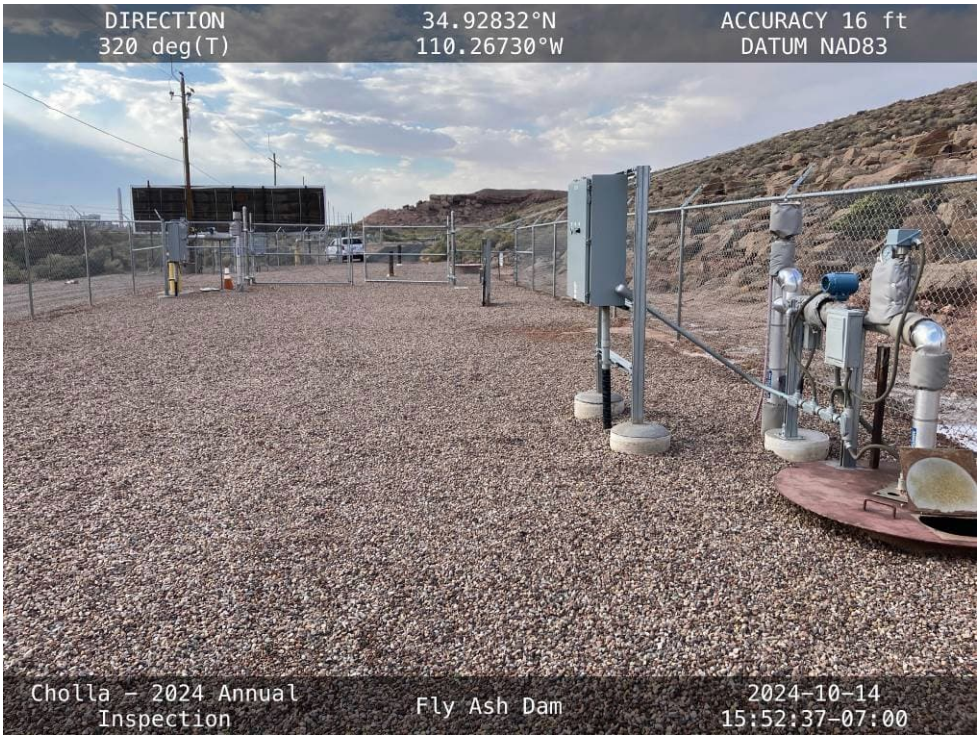
20241014 – IMG_6573
The downstream slope and toe of the South Embankment.

20241014 – IMG_6578
The downstream slope and toe of the West Embankment.

20241014 – IMG_6583
Repaired erosion at the downstream toe, south of the Geronimo Seep area.

20241014 – IMG_6584
Repaired erosion at the downstream toe, south of the Geronimo Seep area.

20241014 – IMG_6593
Salty seepage at downstream at the Geronimo Seep area, facing southeast.



20241014 – IMG_6596
The Geronimo Seep area, facing northwest.

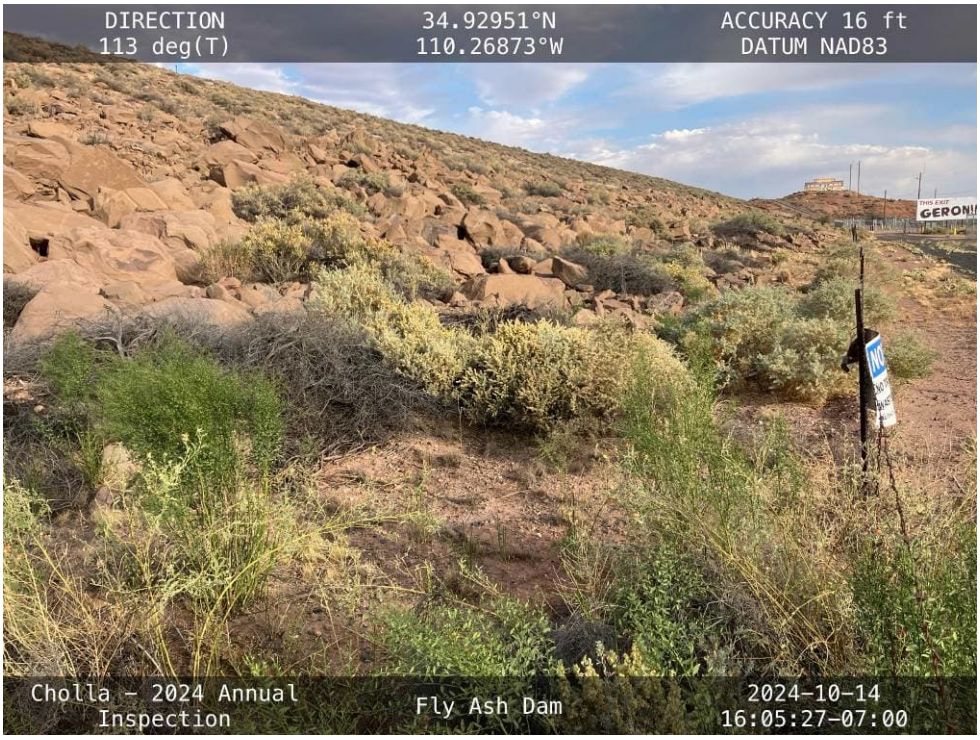
20241014 – IMG_6602
The inlet pipes at the Hunt totalizer, facing southwest toward I-40.

20241014 – IMG_6606

The Geronimo totalizer and the inlet pipes along the downstream slope.

20241014 – IMG_6609

The downstream toe of the West Embankment, facing northwest from the inlet pipes.



20241014 – IMG_6610

The downstream toe of the West Embankment, facing southeast from the inlet pipes.

20241014 – IMG_6620

The Right Abutment groin on the downstream slope, facing toward the abutment contact.

20241014 – IMG_6622
The I-40 seep.

20241014 – IMG_6625
The I-40 seep.

APPENDIX B

BOTTOM ASH DAM PHOTO LOG

20241014 – IMG_6116

22-inch deep erosion near the downstream groin of the Right Abutment, facing northwest.

20241014 – IMG_6117

The downstream slope of the South Embankment, facing east from the Right Abutment.

20241014 – IMG_6118
The South Embankment crest, facing east from the Right Abutment.

20241014 – IMG_6119
Trees and other woody vegetation to be removed from the South Embankment upstream slope.

20241014 – IMG_6121

A 27-inch deep hole under the crest on the upstream side of the South Embankment shoulder.

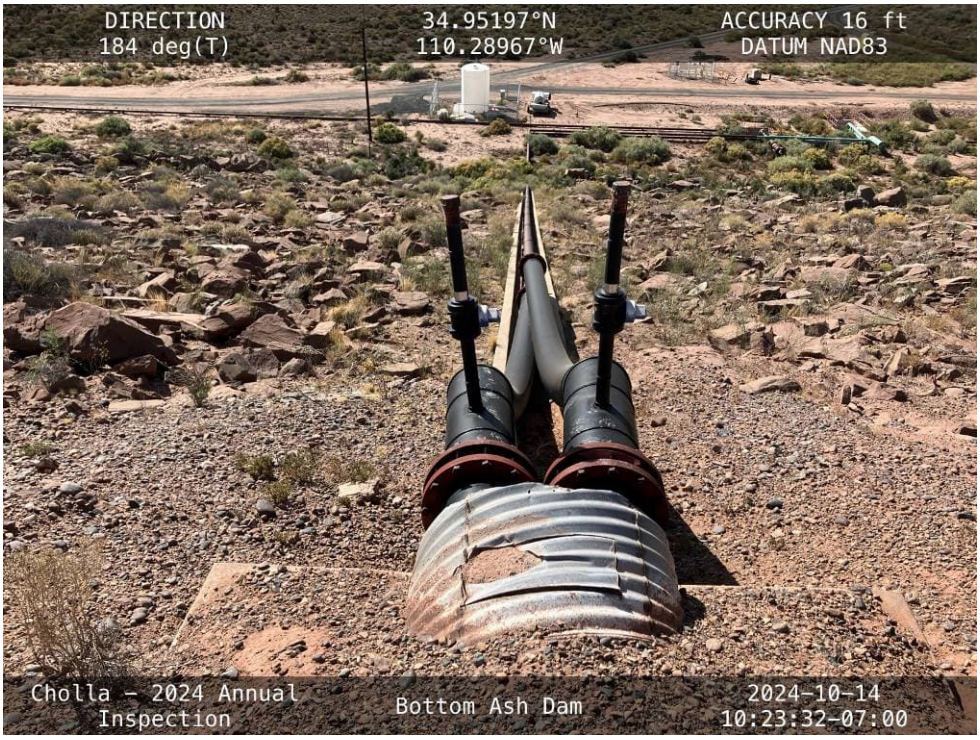
20241014 – IMG_6130

Minor erosion around the concrete encasement for the western siphon line, facing upstream.

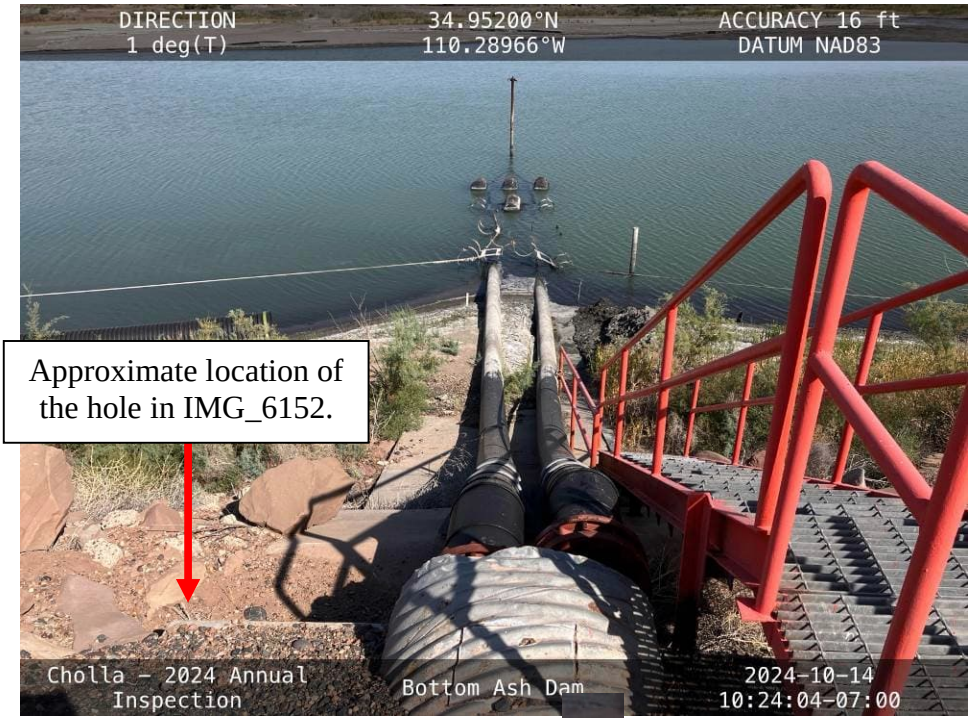
20241014 – IMG_6135
The western siphon line along the downstream slope of the South Embankment.

20241014 – IMG_6138
A 19-inch deep hole along the downstream shoulder of the South Embankment.

20241014 – IMG_6139
Survey monument M-13.



20241014 – IMG_6145
The central siphon lines along the downstream slope of the South Embankment.



20241014 – IMG_6150
The central siphon lines along the upstream slope of the South Embankment.

20241014 – IMG_6152
A hole adjacent to the concrete on the west side of the central siphon line, present since the 2022 inspection, on the upstream slope.

20241014 – IMG_6153

The reservoir level staff gauge adjacent to the central siphon lines. The water level is at EL 5106.65 feet.

20241014 – IMG_6156

The upstream slope along the western half of the South Embankment, facing west.

20241014 – IMG_6157
The upstream slope along the eastern half of the South Embankment, facing east.

20241014 – IMG_6162
The eastern siphon line along the downstream slope of the South Embankment.

20241014 – IMG_6166
The eastern siphon line along the upstream slope of the South Embankment.

20241014 – IMG_6169
Vegetation growing at the discharge area around the eastern siphon line.

20241014 – IMG_6175
The downstream slope of the South Embankment, facing west from the east end.

20241014 – IMG_6176
The crest of the South Embankment, facing west from the east end.

20241014 – IMG_6177
The upstream slope of the South Embankment, facing west from the east end.

20241014 – IMG_6179
The upstream slope at the southern end of the East Embankment, facing northeast.

20241014 – IMG_6180

Vegetation to be removed along the downstream slope of the South Embankment.

20241014 – IMG_6185

Vegetation to be removed along the upstream slope of the East Embankment.

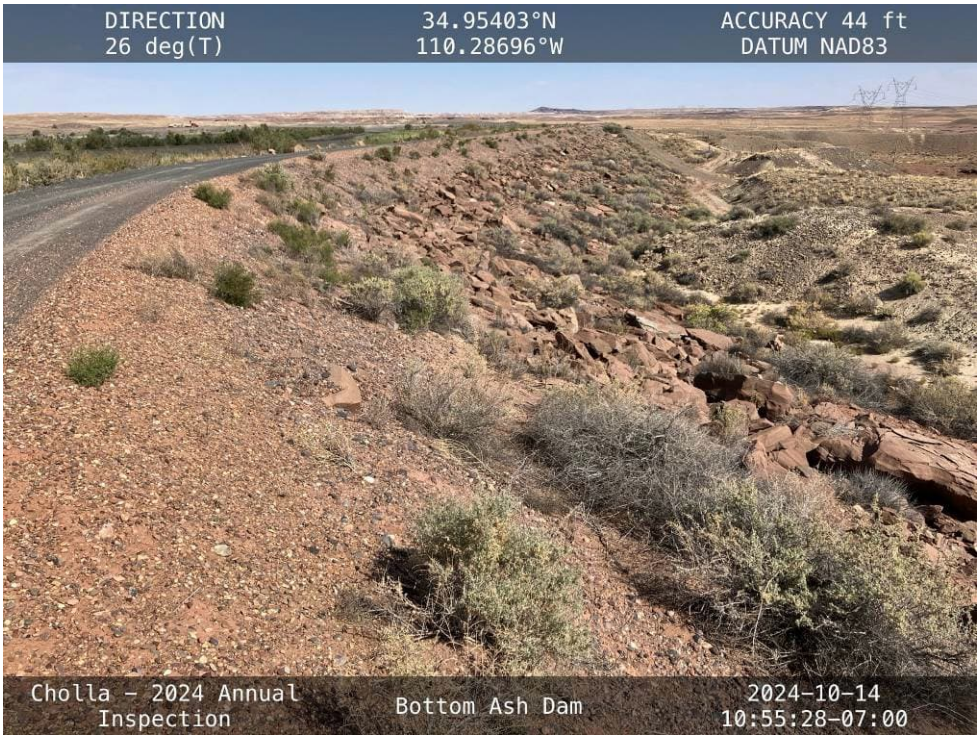
20241014 – IMG_6188

A 5.5-inch deep erosion rill forming along the upstream shoulder of the East Embankment.

20241014 – IMG_6189

A 6-inch deep hole forming along the upstream shoulder of the East Embankment.

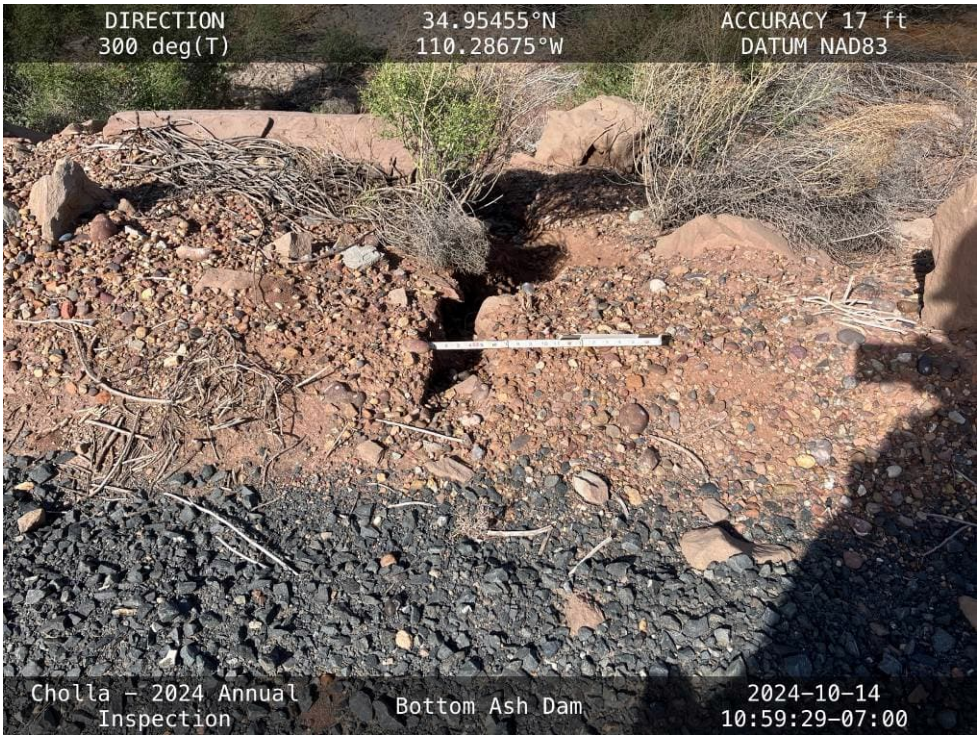
20241014 – IMG_6191
Erosion rills forming along the upstream shoulder of the East Embankment.



20241014 – IMG_6194
The downstream slope of the northern half of the East Embankment, facing northeast.

20241014 – IMG_6196
The crest along the southern half of the East Embankment, facing south.

20241014 – IMG_6199
The Divider Dike in the reservoir and vegetation on the upstream side of the East Embankment.



20241014 – IMG_6206

A 7-inch wide, 5-inch deep erosion rill on the upstream shoulder of the East Embankment.

20241014 – IMG_6207

The downstream slope of the southern half of the East Embankment, facing south.

20241014 – IMG_6209
The northern half of the East Embankment crest, facing northeast.

20241014 – IMG_6211
A 6-inch deep hole on the downstream half of the East Embankment crest.

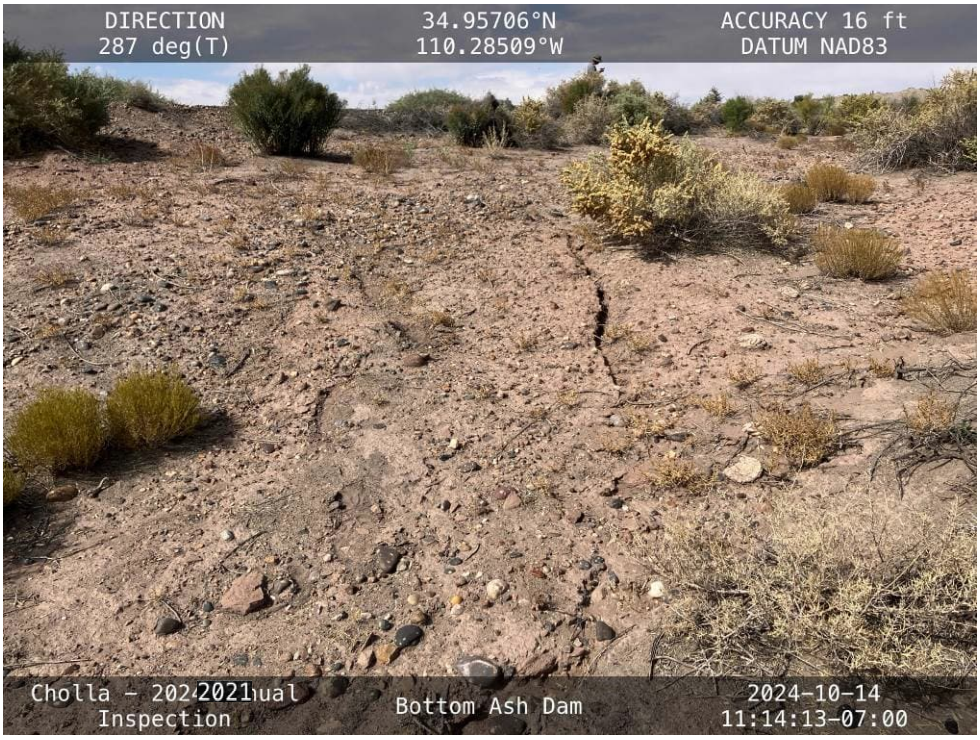
20241014 – IMG_6212
An ant hill on the upstream shoulder of the East Embankment.

20241014 – IMG_6221
The upstream slope and Left Abutment, facing northwest.

20241014 – IMG_6222
The upstream slope of the East Embankment at the Left Abutment, facing southeast.

20241014 – IMG_6223
The crest of the East Embankment at the Left Abutment, facing southeast.

20241014 – IMG_6224
The access road along the downstream slope of the East Embankment, facing southwest.



20241014 – IMG_6231
The downstream slope and Left Abutment, facing northwest.

20241014 – IMG_6332

The downstream toe along the access road at the northern end of the East Embankment.

20241014 – IMG_6334

An erosion gully on the downstream slope along the northern half of the East Embankment.

20241014 – IMG_6337
An erosion gully on the downstream slope along the northern half of the East Embankment.

20241014 – IMG_6343
APS replacing the wells in the P-226 seepage intercept area.

20241014 – IMG_6346
The former location of the P-226 totalizer.

20241014 – IMG_6355
The ditch adjacent to the Petroglyph Seep, regraded since the 2023 inspection.

20241014 – IMG_6358

The downstream slope and toe of the Bottom Ash Dam, facing north from the southeast corner.

20241014 – IMG_6360

The downstream slope and toe of the South Embankment, facing west from the southeast corner.

20241014 – IMG_6362

New piping for the seepage collection system at the eastern end of the South Embankment.

20241014 – IMG_6364

The new equalization tank added as part of the seepage collection system upgrades.

20241014 – IMG_6394
The eastern end of the West Abutment seepage collection upgrade, facing west.

20241014 – IMG_6395
The southern end of the West Abutment seepage collection upgrade, with TDX-3 on the left.

20241014 – IMG_6402
The former location of the West Abutment Weir, now removed.

20241014 – IMG_6412
The western end of the West Abutment seepage collection upgrade, facing east.

APPENDIX C

BOTTOM ASH MONOFILL PHOTO LOG

20241014 – IMG_6233
The south side of the BAM, facing northwest.

20241014 – IMG_6236
The south side of the BAM, facing northeast.

20241014 – IMG_6246
The west side of the BAM, facing north from Monitoring Well M-59.

20241014 – IMG_6254
APS removing CCR from the BAM.

20241014 – IMG_6256
Erosion gullies and tunnels on the west side of the diversion ditch.

20241014 – IMG_6257
The west side of the BAM, facing north.

20241014 – IMG_6270
The drainage channel on the west side of the BAM, facing south.

20241014 – IMG_6272
Erosion along the drainage channel on the west side of the BAM, facing west.

20241014 – IMG_6273
The drainage channel on the west side of the BAM, facing north.

20241014 – IMG_6277
The north side of the BAM, facing south from the perimeter road.

20241014 – IMG_6281
The edge of the current excavation area, facing southeast from the top of the BAM.

20241014 – IMG_6283
The top of the BAM, facing west from the eastern side.

20241014 – IMG_6288
The top of the BAM, facing west from the eastern side.

20241014 – IMG_6292
The eastern portion of the BAM, facing northeast from the top of the Monofill.

20241014 – IMG_6296
The southeast corner of the BAM, facing south.

20241014 – IMG_6297
Erosion on the north side of the Stormwater Detention Basin.

20241014 – IMG_6299
Erosion on the north side of the Stormwater Detention Basin.

20241014 – IMG_6314
The CCR excavation area on top of the BAM, facing west from the east side.

20241014 – IMG_6316
The Stormwater Detention Basin, facing southeast.