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November 29, 2021

**Subject: §257.103(f)(2) ANNUAL PROGRESS REPORT DOCUMENTING
THE CONTINUED LACK OF ALTERNATIVE CAPACITY AND
PROGRESS TOWARDS CLOSURE OF THE FAP AND BAP
Cholla Power Plant – Navajo County, Arizona**

In accordance with the requirement for an annual progress report required by 40 CFR §257.103(f)(2)(x), this report documents the continued lack of alternative disposal capacity for coal combustion residuals (CCR) at the Arizona Public Service Company (APS) Cholla Power Plant. This report also describes progress made towards closure of two CCR units that APS has requested a site-specific alternative deadline to initiate closure for: the Fly Ash Pond (FAP) and the Bottom Ash Pond (BAP). Our demonstration prepared pursuant to §257.103(f)(2) was submitted to the United States Environmental Protection Agency (US EPA) on November 30, 2020 and is currently under completeness review.

Background. The 420-acre FAP and 80-acre BAP are unlined surface impoundments that receive CCR from coal-fired boiler operations at the Cholla Power Plant. In accordance with the requirements of federal CCR regulations, both the FAP and BAP must cease receiving CCR in the near term and “close for cause.” Since APS plans to cease coal-fired boiler operations at Cholla Power Plant no later than April 2025 and close the FAP and BAP by October 17, 2028, APS seeks to continue receiving CCR and non-CCR wastestreams in the FAP and BAP under the alternative closure provision of §257.103(f)(2) through June 2025 to accommodate decommissioning.

Lack of Alternative Disposal Capacity. There have been no changes in alternative disposal capacity since submittal of our §257.103(f)(2) demonstration. If the FAP and BAP were not available to receive CCR, coal-fired electrical generation operations at Cholla Power Plant would need to shut down because:

- The FAP and BAP are the only existing CCR units located on-site that are sized and designed appropriately to receive CCR and non-CCR wastestreams generated by operation of Cholla Power Plant.
- Management of CCR and non-CCR wastestreams in wet temporary storage on-site is not technically feasible, let alone safe or adequately protective of the environment, given the projected volumes and the corresponding number of temporary tanks that would be required to contain the wastestreams.
- It is not technically feasible to send wet CCR off-site for disposal – there is no appropriate off-site treatment or disposal facility nearby to pipe the CCR to and trucking/conveying by rail significant quantities of liquids to an appropriate waste processing facility or landfill is unlikely to be successful. Off-site transport of this liquid CCR risks creating significant threats to public safety; these risks far out-weigh the benefit of off-site disposal of CCR.

Progress Towards Closure. Attachment D(2) of our §257.103(f)(2) demonstration identified multiple tasks required to advance closure of the FAP and BAP by October 17, 2028. An updated version of Attachment D(2) is included with this report. Progress on these tasks is as follows:

- Minimize discharge to the FAP – The only liquid discharges to the FAP at present are flue gas desulfurization (FGD) solids and small amounts of slurried non-saleable fly ash generated from operation of Cholla Power Plant Units 1 and 3. Unit 4 was permanently shut down in December 2020 which resulted in a reduction in the amount of FGD solids generated and thus discharged to the FAP in 2021. Free water level monitoring in the FAP is being conducted to track progress in dewatering the unit. Based on the results of monthly monitoring, the level of the FAP has declined by 2.1 feet thus far in 2021 which is generally consistent with annual declines over the last three years. Pond level monitoring data trends suggest that recent decreases in free water levels are largely driven by evaporation in warmer months of the year.
- Stockpile bridge lift material at the FAP – In late 2020, APS began consolidating ash excavated from a former ash disposal unit (closed prior to promulgation of the CCR Rule) to the FAP footprint to store and use as future bridge lift material during closure of the FAP. As of November 2021, approximately 700,000 cubic yards of material had been moved to the FAP footprint.
- Land Acquisition for Closure – Decommissioning and closure planning supporting the shutdown of Cholla Power Plant has necessitated a review of property ownership in the vicinity of the facility. Work supporting this review is the first step in the land acquisition process for closure and was ongoing as of the date of this progress report.

Additional activities conducted to support FAP and BAP closure include:

- FAP Dewatering – Given the results of pond level monitoring data described above, APS is developing a strategy to promote evaporation of free water in the FAP. A pilot test involving use of mechanically enhanced evaporation equipment is scheduled for 2022.
- Seepage Collection System Improvements – In late 2020 and 2021, a series of new groundwater extraction wells were installed and tested downgradient of the FAP and BAP to enhance existing seepage collection system operations and promote pond dewatering. Based on test results, APS is currently progressing detailed design of instrumentation and controls to upgrade the FAP seepage collection system. These upgrades are currently scheduled to be installed in early 2022.

If you have any questions regarding this progress report, please contact Natalie Chrisman Lazarr at 602.316.1324 or via email at natalie.chrisman@aps.com.

Sincerely,



Richard Nicosia
Plant Manager - Cholla Power Plant

Enclosure: Attachment D(2) – Updated for 2021

ATTACHMENT D(2) – 2021 Updates in Green Text

**CHOLLA POWER PLANT
CLOSURE SCHEDULE NARRATIVE
40 CFR 257.103(f)(2)(v)(D)**

Arizona Public Service Company (APS) has been planning for the closure of the Fly Ash Pond (FAP) and Bottom Ash Pond (BAP) for some time. Figures D-1 (FAP Closure Activities) and D-2 (BAP Closure Activities) present Gantt charts depicting the tasks that must be completed as part of pond closure with the corresponding planned schedule for those tasks. This narrative supplements the Closure Plans presented as Attachment D(1) and presents supporting detail regarding the tasks and schedule identified in each Gantt chart.

1. Closure of the Fly Ash Pond

1.1 Pre-Construction

1.1.1 Minimize Discharge to the FAP

Continue implementing measures that limit discharges to the FAP; this activity has been ongoing since early 2016 and has included sale of fly ash to a local cement manufacturer, shut down of Unit 2 and Unit 4, diversion of water from seepage collection systems to general water (this flow previously discharged into the FAP), and various plant operational modifications. This activity will continue thru plant shut down.

1.1.2 Stockpile Closed Ash Pond 1 CCR Material for Bridge Lift

Move approximately 700,000 cubic yards (cy) of ash from closed Ash Pond 1 to a stockpile area located within the Fly Ash Pond footprint and store for utilization as bridge lift material for closure activities. This activity should require approximately 15 months depending upon contractor productivity. Work began during Third Quarter 2020 and was almost complete as of November 2021.

1.1.3 Stockpile Bottom Ash for Bridge Lift

Relocate approximately 600,000 cy of bottom ash from the Bottom Ash Monofill (BAM) to a stockpile area located within the FAP footprint and store for utilization as bridge lift material for closure activities. This work can start approximately one year prior to cessation of discharge of CCR material.

1.1.4 Land Acquisition for Closure (e.g. Diversion Channels)

No later than 3 years prior to starting closure activities, acquire land adjacent to the FAP for soil borrow areas and construction of diversion channels.

1.1.5 Run-On Diversions and Coffers (Push Up) Dams

Upstream in the drainage channels, build small retention coffer dams to capture precipitation run on. This work should start up to two years prior to cessation of discharge of CCR material.

1.1.6 Excavate Abutment Diversion Channels and Stockpile Select Soil

Start the excavation of abutment diversion channels approximately one year prior to the cessation of discharge of CCR material (as early as Second Quarter 2024).

1.1.7 Fly Ash Pond Dewatering

Design and construction of two mechanically enhanced evaporation measures for increasing the rate of evaporation and accelerating drawdown of free water within the FAP. The two enhanced evaporation measures consist of a sprinkler irrigation system and multiple floating blower fans. Planning began in 2021 and equipment will be installed as early as Second Quarter 2022.

1.2 Engineering

1.2.1 Design Engineering

Start design engineering activities in 2023; these activities will include approximately 21 months of design engineering work. The objective of these activities is to produce design drawings and specifications that will be used to procure a contractor for FAP closure activities.

1.2.2 Geotechnical and Borrow Investigations

Start the geotechnical soils evaluation after acquisition of lands adjacent to abutments. Identify usable soils for borrow materials. If possible, build roads onto the FAP beach for access of light-weight geotechnical test equipment.

1.2.3 Bridge Lift Test Fill

Start construction test fills over the CCR material exposed in the pond next to the dam embankment. Test fills to measure internal water pressures generated by bridge lift loading. Estimate techniques and materials needed to construct full-scale soil fill cap.

1.3 Permits

1.3.1 Arizona Department of Water Resources (ADWR) Dam Modifications

Anticipate that the permitting process with the ADWR Dam Safety Bureau to modify a jurisdictional high hazard dam will require nine months. Consult early with ADWR to identify if additional time is needed.

1.3.2 Arizona Department of Environmental Quality (ADEQ) or US Environmental Protection Agency (EPA) CCR Rule Closure Plan Approval

Anticipate up to six months will be required to achieve approval of proposed Closure Plan from ADEQ or US EPA if ADEQ does not have primacy.

1.4 Procurement

1.4.1 Preliminary Construction Contracts

Anticipation of six months duration for procurement of the primary construction contract (includes bid event and award of contract).

1.5 Final Boiler Closures

1.5.1 Plant Final Boiler Closures

Cease generation using coal no later than April 2025.

1.6 Construction

1.6.1 Gravity Drain Down CCR Pile

Allow up to 18 months to gravity drain the delta of CCR material adjacent to the dam. This activity may include pushing out of bridge lift material to help squeeze pore water from the CCR material. This task can begin following cessation of discharge of CCR material to the FAP.

1.6.2 Complete Diversion Channel Rock Excavations

Complete diversion channels; rock excavations started in pre-construction. Continue to segregate the selected materials for construction borrow material (activities started Second Quarter 2025).

1.6.3 Fill Remaining Water Ponds with Rockfill from Diversion Channel Cuts

Backfill remaining free water at the toe of CCR with rock fill material to entrap remaining free water this activity should coincide with the excavation of the diversion channels. Utilize rock from diversion excavation.

1.6.4 Build Rockfill Toe Buttress to Stabilize Upstream Toe of CCR Pile

Build the toe buttress with larger rock to stabilize the CCR material. This activity will coincide with the rockfill to trap the remaining free water. Can start Fourth Quarter of 2025.

1.6.5 Excavate Upstream Diversion Channels and Cofferdams

Finish excavating upstream diversions to connect with the diversion channels around the abutments. Work starts Third Quarter of 2025 and requires 21 months.

1.6.6 Build Stormwater Detention Basins and Outlet Works

Construct stormwater detention basins which will outfall into culverts that convey water under Interstate 40.

1.6.7 Build the South and North Half Bridge Lifts and Construct Evapotranspiration (ET) Cap

Construct the bridge lifts and place the ET cap material over the supporting bridge lift material as area comes available. These construction activities will be split along the north and south halves of the pond, advancing the cap materials from southwest to northeast to squeeze pore water out of the CCR pile. ET cap placement will follow the bridge lift construction activities as areas become available. Work starts Second Quarter 2026.

1.6.8 Vegetate ET Cap

Seed the ET cap as sections are completed. Finish September or October 2028.

2. Closure of the Bottom Ash Pond

2.1 Pre-Construction

2.1.1 Land Acquisition for Closure (e.g. Diversion Channels)

No later than 3 years prior to starting closure activities, acquire land adjacent to the BAP for soil borrow areas and construction of diversion channels.

2.1.2 Stop Mining of Bottom Ash from BAP (to Bottom Ash Monofill)

Suspend removal of bottom ash from the BAP with placement of the ash in the BAM so that the material can be used in closure activities.

2.1.3 Allow Sluice of Bottom Ash into Decant Area to fill with BA

Allow ash from the plant to fill in the decant west and east cells in the BAP.

2.2 Engineering

2.2.1 Design Engineering

Design engineering activities starting in 2023 approximately 21 months of design engineering work.

2.2.2 Geotechnical and Borrow Investigations

Start the geotechnical soils evaluation after acquisition of lands adjacent to abutments. Identify usable soils for borrow materials. Build roads onto bottom ash beach areas to access light-weight geotechnical test equipment.

2.3 Permits

2.3.1 ADWR Dam Modifications

Anticipate that the permitting process with the ADWR Dam Safety Bureau to modify a jurisdictional high hazard dam will require nine months. Consult early with ADWR to identify if additional time is needed.

2.3.2 ADEQ or US EPA CCR Rule Closure Plan Approval

Anticipate up to six months will be required to achieve approval of proposed Closure Plan from ADEQ or US EPA if ADEQ does not have primacy.

2.4 Procurement

2.4.1 Preliminary Construction Contracts

Anticipation of six months duration for procurement of the primary construction contract (includes bid event and award of contract).

2.5 Final Boiler Closures

2.5.1 Plant Final Boiler Closures

Cease generation using coal no later than April 2025.

2.6 Construction Activities

2.6.1 Transfer Remaining Decant Water to General Sump for Use during Decommissioning

Siphon or pump extensively sending all free water possible to the plant for use in decommissioning [activities](#).

2.6.2 Gravity Drain-Down CCR Pile

Allow up to 18 months to gravity drain the delta of CCR material. Activities may include the pushing out of bridge lift material to help squeeze pore water from the CCR material. Starts with the cessation of discharge of CCR material.

2.6.3 Grade Pond Using Drained Bottom Ash

Grade cut and fill utilizing drained bottom ash material to achieve the final surface configuration. This activity should start as soon as possible with the gravity drain down of the bottom ash material.

2.6.4 Excavate Upstream Diversion Channels and Retention Pond

Excavate upstream diversion channels to connect with the diversion channels around the abutments. Work will start First Quarter of 2026 and continue for 15 months.

2.6.5 Build ET Cap Using Stockpiled Soil from Diversion Channel Cuts

ET cap placement will follow the grade cut and fill construction activities as areas become available. Activities will start in Third Quarter of 2027.

2.6.6 Vegetate ET Cap

Seed the ET cap as sections are completed. Finish September or October 2028.

Figure D-1

Planned Schedule for FAP Closure Activities

Last Updated: 11.23.2021 (2021 Updates in Green Text)

- NOTES:
- 1. Does not describe any removal of free water to Evaporation Pond or unlined basins
 - 2. Does not describe any measures for enhancing drain down or pore pressure relief within CCR pile.
 - 3. For cap construction, a south/north distinction has been made to allow an extra year for drain down of the more fine-grained northern half.

TASK	START	END	Duration	2020				2021				2022				2023				2024				2025				2026				2027				2028			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pre-Construction																																							
Minimize discharge to FAP	20Q1	25Q2	63 months	[Blue bar spanning 20Q1 to 25Q2]																																			
Stockpile 700,000 cy existing fly ash for bridge lift	20Q3	22Q1	18 months	[Blue bar spanning 20Q3 to 22Q1]																																			
Stockpile 600,000 cy of BAM BA for bridge lift	24Q1	25Q1	12 months	[Blue bar spanning 24Q1 to 25Q1]																																			
Land acquisition for closure (e.g. diversion channels)	22Q1	23Q2	15 months	[Blue bar spanning 22Q1 to 23Q2]																																			
Run-on diversions and coffer (push up) dams	23Q2	24Q2	12 months	[Blue bar spanning 23Q2 to 24Q2]																																			
Excavate abutment diversion channel, stockpile select soils	24Q2	25Q2	12 months	[Blue bar spanning 24Q2 to 25Q2]																																			
FAP dewatering	22Q2	25Q2	36 months	[Blue bar spanning 22Q2 to 25Q2]																																			
Engineering																																							
Design engineering (SG2)	23Q1	24Q4	21 months	[Red bar spanning 23Q1 to 24Q4]																																			
Geotechnical and borrow investigations	23Q2	23Q4	6 months	[Red bar spanning 23Q2 to 23Q4]																																			
Bridge lift test fill	24Q2	24Q4	6 months	[Red bar spanning 24Q2 to 24Q4]																																			
Permits																																							
ADWR dam modifications	23Q4	24Q3	9 months	[Green bar spanning 23Q4 to 24Q3]																																			
ADEQ/USEPA CCR closure plan approval	24Q2	24Q4	6 months	[Green bar spanning 24Q2 to 24Q4]																																			
Procurement																																							
Primary construction contract(s)	24Q2	24Q4	6 months	[Purple bar spanning 24Q2 to 24Q4]																																			
Final Boiler Closures																																							
Plant final boiler closures	25Q2	25Q2	0 months	[Orange bar at 25Q2] Coal Fired Boiler Shutdown																																			
Construction																																							
Gravity drain-down CCR pile	25Q2	26Q4	18 months	[Yellow bar spanning 25Q2 to 26Q4]																																			
Complete diversion channel rock excavations	25Q2	26Q4	18 months	[Yellow bar spanning 25Q2 to 26Q4]																																			
Fill remaining water ponds with rockfill from diversion channel cuts	25Q2	25Q4	6 months	[Yellow bar spanning 25Q2 to 25Q4]																																			
Build rockfill toe buttress to stabilize upstream toe of CCR pile	25Q4	26Q2	6 months	[Yellow bar spanning 25Q4 to 26Q2]																																			
Excavate upstream diversion channels and coffer dams	25Q3	27Q2	21 months	[Yellow bar spanning 25Q3 to 27Q2]																																			
Build stormwater detention basins and outlet works	27Q2	28Q2	12 months	[Yellow bar spanning 27Q2 to 28Q2]																																			
Build south half of bridge lift using stockpiled fly ash	26Q2	27Q1	9 months	[Yellow bar spanning 26Q2 to 27Q1]																																			
Build south half of ET Cap using stockpiled soil from diversion cuts	27Q2	27Q4	6 months	[Yellow bar spanning 27Q2 to 27Q4]																																			
Build north half of bridge lift using stockpiled fly ash	27Q1	27Q4	9 months	[Yellow bar spanning 27Q1 to 27Q4]																																			
Build north half of ET Cap using stockpiled soil from diversion channel cuts	28Q1	28Q3	6 months	[Yellow bar spanning 28Q1 to 28Q3]																																			
Vegetate ET cap	28Q3	28Q4	3 months	[Yellow bar spanning 28Q3 to 28Q4]																																			

Figure D-2

Planned Schedule for BAP Closure Activities

Last Updated: 04.16.2020

NOTES:

1. Does not describe any removal of free water to Evaporation Pond or unlined basins.
2. Does not describe any measures for enhancing drain down or pore pressure relief within CCR pile.

TASK	START	END	Duration	2020				2021				2022				2023				2024				2025				2026				2027				2028							
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Pre-Construction																																											
Land acquisition for closure (e.g. diversion channels)	21Q1	23Q2	27 months																																								
Stop mining of bottom ash from BAP (to Bottom Ash Monofill)	23Q1	25Q2	27 months																																								
Allow sluice of bottom ash into decant area to fill with BA	23Q1	25Q2	27 months																																								
Engineering																																											
Design engineering (SG2)	23Q1	24Q4	21 months																																								
Geotechnical and borrow investigations	23Q2	24Q1	9 months																																								
Permits																																											
ADWR dam modifications	23Q4	24Q3	9 months																																								
ADEQ/USEPA CCR closure plan approval	24Q2	24Q4	6 months																																								
Procurement																																											
Primary construction contract(s)	24Q2	24Q4	6 months																																								
Final Boiler Closures																																											
Plant final boiler closures	25Q2	25Q2	0 months																																								
Construction																																											
Transfer remaining decant water to general sump for use during decommissioning	25Q2	26Q4	18 months																																								
Gravity drain-down CCR pile	25Q2	26Q4	18 months																																								
Grade pond using drained bottom ash	26Q4	27Q3	9 months																																								
Excavate upstream diversion channels and retention pond	26Q1	27Q2	15 months																																								
Build ET Cap using stockpiled soil from diversion channel cuts	27Q3	28Q1	6 months																																								
Vegetate ET cap	28Q1	28Q2	3 months																																								