

**STATE OF ARIZONA
AQUIFER PROTECTION PERMIT NO. P- 100568
PLACE ID 447, LTF 61410
SIGNIFICANT AMENDMENT**

1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, Arizona Public Service (APS) is hereby authorized to operate the discharging facilities listed in this permit located at the Cholla Power Plant, which is located two miles east of Joseph City, Navajo County, within the Little Colorado River groundwater basin in Township 18 North, Range 19 East, Sections 13, 14, 22, 23, 24, 25, 26, and Township 18 North, Range 20 East, Sections 19 and 30 of the Gila and Salt River Baseline and Meridian.

This amendment replaces the original permit and all previous amendments listed in Section 5.0 and becomes effective on the date of the Water Quality Division Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods), unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point(s) of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant, and as determined at the applicable POC, occurs as a result of the discharge from the facility.

1.1 PERMITTEE INFORMATION

Facility Name: Arizona Public Service (APS) - Cholla Power Plant
Permitted Flow Rate: 4,658,300 gallons per day (gpd)
Facility Address: 4801 Cholla Lake Road, Joseph City, AZ 86032
County: Navajo
Permittee: Arizona Public Service
Permittee Address: P.O. Box 188, Station 4451, Joseph City, AZ 86032
Facility Contact: Ed Seal
Emergency Phone No.: (928) 386-0224
Latitude/Longitude: 34° 56' 00" N / 110° 18' 00" W
Legal Description: Township 18 North, Range 19 East, Sections 13, 14, 22, 23, 24, 25, and 26, and Township 18 North, Range 20 East, Sections 19 and 30, East of the Gila and Salt River Baseline and Meridian

1.2 AUTHORIZING SIGNATURE

Trevor Baggione, Director
Water Quality Division
Arizona Department of Environmental Quality
Signed this ____ day of _____, 2016

THIS AMENDMENT SUPERSEDES ALL PREVIOUS AMENDMENTS

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]

2.1 Facility / Site Description [A.R.S. § 49-243(K)(8)]

The APS - Cholla Power Plant is located in northern Arizona in Navajo County near Joseph City. It lies approximately 9 miles west of Holbrook, Arizona, adjacent to and north of the Little Colorado River. The plant burns low sulfur coal in three units having a total net generating capacity of 767,000 kilowatts. The permittee is authorized to discharge wastewater generated from the coal fired, steam electric power plant through seven surface impoundments: Bottom Ash Pond (BAP), Fly Ash Pond (FAP), Sedimentation Pond (SEDI), West Area Retention Pond (WARP), Storm Water Retention Pond (SWRP), Cholla Reservoir and the Bottom Ash Monofill (BAM).

2.1.1 Storm Water Retention Pond

The Storm Water Retention Pond (SWRP) is a 7.6 acre sub-grade holding pond located to the east of the coal pile. The SWRP has a storage capacity of approximately 32,000,000 gallons.

The SWRP receives discharges from the following:

- a) Surface runoff from the coal storage area;
- b) Coal Handling Reclaim Sump;
- c) Coal Handling Unloading Sump;
- d) Coal; and
- e) Abnormal Operation/Overflow of Plant Equipment.

Outflows from the SWRP include evaporation and infiltration.

2.1.2 Sedimentation Pond

The Sedimentation Pond (SEDI) is located just west of Unit 4 and has a maximum storage capacity of approximately 3,500,000 gallons.

The SEDI receives discharges from the following:

- a) West Area Retention Pond;
- b) Secondary Waste Water Treatment Plant;
- c) Flue Gas Desulfurization Wastes (solids, liquids, and slurries);
- d) Coal Combustion Product Wastes (solids, liquids, and slurries);
- e) Area Drainage Sump(s) P4 and P7;
- f) Unit 1, 2, & 3 Oil Water Separator (flow through waste water);
- g) Vehicle Wash Station;
- h) Stormwater Runoff; and
- i) Abnormal Operations/Overflows from plant equipment.

Outflows from the Sedimentation Pond include:

- a) General Water Sump;
- b) Bottom Ash Transfer Sump;
- c) Infiltration;
- d) Evaporation;
- e) Bottom Ash Pond (Sedimentation Pond Solids); and
- f) Fly Ash Pond (Sedimentation Pond Solids).

The secondary wastewater treatment plant has a flow less than 20,000 gallons per day (gpd) and is regulated under a general permit pursuant to A.A.C. R18-9-B301(I). The spray wash station is located adjacent to the Sedimentation Pond and used to wash the exterior of vehicle beds, dump truck beds and vacuum trucks. The process water shall be pumped to the General Water Sump or the Bottom Ash Transfer Sump prior to disposal.

2.1.3 Bottom Ash Pond

The Bottom Ash Pond (BAP) is located north across Interstate 40 approximately 1.5 miles northeast of the Cholla Power Plant and has a storage capacity of approximately 2300 acre feet. The BAP receives wastewater from the Bottom Ash Transfer Sump. APS has made operational changes in which Salt River Materials Group (SRMG) recovers dewatered bottom ash from within the BAP boundaries for beneficial use and that materials larger than ¾ inch are disposed in the BAP along with the remaining fines and slurry

The Bottom Ash Transfer Sump receives wastewater from the following sources:

- a) Area 1, 2, & 3 Area Drainage Sumps;
- b) Units 1, 2, 3, & 4 Bottom Ash Hoppers;
- c) Units 1, 2, 3, & 4 Bottom Ash Overflow Sumps;
- d) SEDI liquids;
- e) General Water Sump Liquids & Solids;
- f) Slurry Disposal;
- g) Units 1, 2, & 3 Oil Water Separator Solids; and
- i) Unit 4 Oil Water Separator Solids

In addition, the following are discharged directly to the BAP:

- a) Coal Combustion Product Wastes (CCPs)¹;
- b) Flue Gas Desulfurization Wastes;
- c) Unit 3 Cooling Tower Basin Solids;
- d) Unit 4 Cooling Tower Basin Solids;
- e) SEDI Solids;
- f) General Water Sump Solids;
- g) Units 1, 2, & 3 Oil Water Separator Solids;
- h) Unit 4 Oil Water Separator Solids;
- i) BAM Seepage Collection System (BAM Retention Basins);
- j) BAM Stormwater Collection System (BAM Retention Basins);
- k) BAP Seepage Collection Systems;
- l) BAP Stormwater; and
- m) WARP Solids

Outflows from the BAP include the following:

- a) BAP Siphon Line (returns water to the General Water Sump);
- b) BAP Solids to the BAM;
- c) BAP Solids sold to Salt River Materials Group (transported offsite for beneficial use);
- d) Infiltration; and
- e) Evaporation.

2.1.4 Bottom Ash Monofill and Associated Retention Basins

The Bottom Ash Monofill (BAM) shall be constructed in accordance with Arizona Department of Environmental Quality (ADEQ) approved plans. The BAM consists of approximately 55 acres, with

¹ Coal Combustion Products (CCPs) are the materials generated from the combustion of coal subject to the Beville Amendment study provision (RCRA Section 8002 (n), 42 U.S.C. Section 6982(n)). In addition to materials generated solely from the combustion of coal by electric utility power plants, when such wastes are mixed with, co- disposed, co- treated, or otherwise co- managed with other wastes generated in conjunction with the combustion of coal or other fossil fuels. See EPA, REPORT TO CONGRESS, WASTES FROM THE COMBUSTION OF FOSSIL FUELS, Vol. 2, p.1-1 (March 1999), quoting Gearhart v. Reilly, Civil No. 91-2345 (D.D.C. June 30, 1992) (Consent Decree). [CCPs also include boiler coal ash, boiler chemical cleaning wastes, and waste refractory from the boiler(s)], residuals from the combustion of coal and other fuels and materials where coal makes up at least 50 percent of the mixture, See id., Vol. 2, p3-9. [FGD wastes include, among other materials, lime contaminated with dirt, coal or ash, contaminated elemental sulfur, contaminated emulsified sulfur, and thiosulfate contaminated with dirt, coal or ash.] This description of the scope of the Beville exclusion (and hence the definition of "CCPs" in this permit) was first contained in a 1981 interpretive letter from EPA to USWAG (Letter from G. Dietrich, EPA, to P. Emler, USWAG, dated Jan. 13, 1981, pp7-8) and was later clarified in EPA's first Beville determination. See 58 Fed. Reg. 42466, 42469 n. 4 (Aug. 9, 1993).

approximately 43 acres utilized for the BAM or stockpile, and the remaining 12 acres will consist of drainage structures, access roads, or will be left undeveloped as a buffer zone. Approximately 200,000 cubic yards of bottom ash will be placed in the monofill each year.

The BAM receives the following discharges:

- a) BAP Solids; and
- b) Stormwater.

Outflows from the BAM include:

- a) BAM Stormwater pumped BAP;
- b) BAM Seepage pumped to BAP;
- c) Infiltration;
- d) Evaporation; and
- e) BAP Solids sold to Salt River Materials Group (transported offsite for beneficial use).

A sump and pump system exists for the existing retention basin, and shall be provided for the new retention basin to collect and return any discharge to the BAP.

2.1.5 West Area Retention Pond

The West Area Retention Pond (WARP) is located southwest of the Sedimentation Pond. The storage capacity of the WARP is approximately 1,855,000 gallons. Discharges to the WARP are comprised of incidental discharges of process waters such as periodic discharges caused by leaks, repair activities, and other low volume intermittent discharges.

The following is a list of discharges to the WARP:

- a) Area Drainage;
- b) Circulating Water;
- c) Process Water;
- d) Wash-down Water; and
- e) Abnormal Operations/Overflows of Plant Equipment.

Outflows from the WARP are as follows:

- a) SEDI Pond;
- b) WARP Solids to the BAP;
- c) WARP Solids to the FAP;
- d) Infiltration; and
- e) Evaporation.

2.1.6 Fly Ash Pond

The Fly Ash Pond (FAP) is located north of Interstate 40 approximately 2.5 miles east of the Cholla Power Plant and went into operation in 1978. It shall have a maximum area of about 430 acres and a storage capacity of approximately 18,000 acre-feet.

The FAP receives the following discharges:

- a) Slurry Disposal;
- b) General Water Sump;
- c) FAP Seepage Collection System;
- d) SEDI Pond Solids;
- e) Unit 3 & Unit 4 Cooling Tower(s) Basin Solids;
- f) General Water Sump Solids;
- g) Unit 1, 2, 3, & Unit 4 Oil Water Separator Solids;
- h) WARP Solids;
- i) Coal Combustion Product Wastes;
- j) Flue Gas Desulfurization Wastes; and

- k) FAP Area Stormwater.

Outflows from the FAP are from evaporation and infiltration.

Boiler cleaning waste generated at Cholla Power Plant can be disposed of in the FAP and shall not exceed 200,000 gallons per year averaged over the life of the facility.

2.1.7 Cholla Reservoir

The Cholla Reservoir is located to the east/southeast of the Cholla Power Plant. The Reservoir is approximately 300 acres with a storage capacity of approximately 2,200 acre-feet.

Cholla Reservoir receives discharge from the following:

- a) Make-up Water (production wells & Joseph City Irrigation);
- b) Circulating Water (from Units 1 & 2);
- c) Cholla Reservoir Seepage Retention Basin Overflow;
- d) Lake Dike Sump;
- e) Service Water;
- f) Unit 1 & 2 Lake Intake Sumps;
- g) Abnormal Operations/Overflows of Cooling Water Equipment; and
- i) Stormwater.

Outflows from Cholla Reservoir include:

- a) Circulating Water (to Units 1 & 2);
- b) Infiltration;
- c) Evaporation; and
- d) Service & Make-up Water to Units 1, 2, 3, & 4.

Specific discharge limits are specified in Section 4.2, Tables 1 (A) through 1 (G). The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Bottom Ash Pond	34° 57' 16" N	110° 17' 17" W
Bottom Ash Monofill	34° 57' 50" N	110° 17' 10" W
Fly Ash Pond	34° 55' 55" N	110° 15' 50" W
Storm Water Retention Pond	34° 56' 27.087" N	110° 17' 43.474" W
Sedimentation Pond	34° 56' 29.108" N	110° 18' 16.921" W
West Area Retention Pond	34° 56' 28.929" N	110° 18' 21.345" W
Cholla Reservoir	34° 56' 00" N	110° 17' 15" W

Annual Registration Fee [A.R.S. § 49-242]

The annual registration fee for this permit is established by A.R.S. § 49-242 and is payable to ADEQ each year. The design flow for the facility is 4,658,300 gpd.

Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203]

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated closure and post-

closure cost for the facility is \$29,612,136. The financial assurance mechanism was demonstrated through a financial test for self-assurance and a statement by permittee's chief financial officer in accordance with A.A.C. R18-9-A203(C)(1)(b) and (c).

2.2 Best Available Demonstrated Control Technology [A.R.S. §49-243(B) and A.A.C. R18-9-A202(A)(5)]

2.2.1 Engineering Design

The best available demonstrated control technology (BADCT) designs for the discharging facilities listed in Section 2.1 shall be based on the existing construction design, operation and maintenance procedures. The BADCT for each discharging facility shall be maintained as described in this permit. Any modifications to the approved BADCT shall be submitted to ADEQ for approval prior to construction or upgrade of a new or existing feature.

2.2.1.1 Storm Water Retention Pond

The SWRP is a 7.6 acre sub-grade holding pond. It is located just to the east of the coal pile and collects storm water from the coal pile and surrounding area.

The coal storage area covers approximately 25 acres and contains approximately 880,000 tons of western sub-bituminous and bituminous coal, depending on the need. The coal storage area is divided into distinct sections. Runoff from the northern and eastern sides of the coal storage area (about half of the total runoff) is collected in the Storm Water Retention Pond. Runoff from the southern and western sides of the coal storage area is collected in the plant drainage system and pumped to the Sedimentation Pond or would drain to the SWRP under heavy precipitation events or accidental line breaks. There is approximately 5 feet of natural clay beneath the coal pile and the coal reclaim areas; the clay layer may or may not be continuous.

Water is lost from the SWRP through evaporation. The basin is formed from compacted native clayey soil. There is approximately 5 feet of natural clay beneath the basin; the clay layer may or may not be continuous. Maximum useable water storage capacity is about 32,000,000 gallons. The rainfall associated with a 100-year flood would raise the level of the Storm Water Retention Basin by about 10 inches over a 24-hour period.

The compacted clayey soil that forms the SWRP forms a good barrier to the aquifers below. Because of the high evaporation to precipitation ratio, the head of water on this basin remains very low. This pond is empty much of the time. BADCT for the Storm Water Retention Pond should be to maintain the existing unlined pond in good condition.

2.2.1.2 Sedimentation Pond

The SEDI is a 1/2 acre sub-grade holding pond (top of berm is above grade to prevent direct storm water runoff from entering the pond). The SEDI has a two-foot-thick compacted clay liner with a permeability of approximately 1×10^{-7} centimeters per second (cm/sec). Water is pumped from the SEDI to the General Water Sump or to the Bottom Ash Transfer Sump. The solids are removed periodically with earthmoving equipment and transferred to the BAP or the FAP. Maximum water storage capacity is about 3,500,000 gallons. Taking area drains into account, the rainfall associated with a 100-year, 24-hour storm event would raise the level in the pond 134 inches (overflowing) if it were not discharging to the General Water Sump or the Bottom Ash Transfer Sump. The Sedimentation Pond discharge pump is rated at about 400 gallons per minute (gpm) less than the combined area drain pumps that feed it. Therefore, at worse case, the SEDI could gain 0.12 in/hr during a 100-year, 24-hour storm event. If the discharge pumps should fail, the area drain pumps shall be shut down to avoid overflowing the pond.

2.2.1.3 West Area Retention Pond

The BADCT description for this facility is from information provided in the Other Amendment application received June 28, 2002. The WARP is an unlined retention basin (approximate permeability ranges from 4×10^{-6} cm/sec to 8×10^{-7} cm/sec) located southwest of the SEDI. The WARP is an enlargement of the previously existing west area drainage storm detention channel, which was completed when Units 2 through 4 were constructed and is designed to collect surface drainage of stormwater, plant wash water, and incidental discharges of process wastewater. The maximum operating level of the WARP shall be 5,001.6 feet above mean sea level (amsl), which shall be maintained by pumping the contents into the SEDI. The WARP is designed for a 100-year, 24-hour storm event and has an approximate storage capacity of 1,885,000 gallons with a 2 foot freeboard at 5,012 feet amsl. The maximum pond elevation is at an elevation of 5,014 feet amsl.

2.2.1.4 Bottom Ash Pond

The BAP is an unlined retention basin that went into operation in 1978. Impoundment is provided by a clay core dam (permeability of 1×10^{-7} cm/sec) with rip-rap sides at the southeast end of the pond, as approved by the Arizona Department of Water Resources (ADWR). An impervious cut-off slurry wall anchors part of the dam. The BAP covers about 70 acres, of which about 30 acres are active wet storage and 40 acres are old ash storage. The storage capacity of the BAP is approximately 2,300 acre-feet. It collects runoff from 128 acres. Four seepage collection systems are constructed and operated to collect and return the seepage back to the BAP. These include seepage collection systems for the West Abutment Seep, the Petroglyph Seep, the P-226 Seep, and the Tanner Wash Seep. Bottom ash from the hoppers under the units is sluiced to the Bottom Ash Transfer Sump, whereas the mill rejects, including pyrites, from the coal mills are trucked to the BAP. From there, the slurry is pumped via two 12-inch diameter pipes to the northwest end of the BAP. The bottom ash settles forming an alluvial fan in the BAP. Boiler cleaning waste generated at Cholla Power Plant may also be disposed of in the BAP and shall not exceed 200,000 gallons per year averaged over the life of the facility. Water is collected from the south end of the pond near the dam through four 8-inch diameter siphon lines and is returned to the General Water Sump for continued use in the plant. The rainfall associated with a 100-year, 24-hour storm event would raise the level in the BAP about 12 inches over a 24-hour period.

2.2.1.5 Bottom Ash Monofill

The maximum elevation of the BAM shall be no greater than 5,261 feet amsl.. The BAM foundation shall be constructed using native on-site soils that are compacted to have a 95 percent standard Proctor dry density (ASTM D698).The BAM shall receive only the dewatered bottom ash materials that are permitted for disposal at the BAP. Every 1 to 2 years, or as necessary, the dewatered bottom ash materials shall be transported from the BAP into the BAM

The BAM shall be constructed in accordance with ADEQ approved plans. The BAM will be constructed in three phases. During Phase I, the BAM will be expanded to the north. On-site storm water will be conveyed via channels to the existing retention basin located south of the existing BAM. During Phase II, the BAM will be expanded to the east. On-site storm water will be routed to a new retention basin that will be constructed at the southeast corner of the BAM. The existing retention basin will remain in use for accepting storm water from portions of the BAM that cannot be conveyed to the new retention basin. During Phase III, the BAM will be expanded to the northeast to cover the final approved BAM footprint. Every 1 to 2 years, or as necessary, the dewatered bottom ash materials shall be transported from the BAP into the BAM. Approximately 200,000 cubic yards of bottom ash will be placed in the monofill each year. The final slopes will be 3(horizontal):1(vertical). A majority of the on-site storm water will be conveyed to the new retention basin. The maximum elevation of the BAM shall be no greater than 5,261 feet amsl. The existing retention basin will collect storm

water from a small area at the southwest corner of the BAM. During all phases, on-site storm water from portions of the BAM will drain back to the BAP. Off-site, non-contact, uncontaminated storm water shall be routed around the BAM facility to be released to the east of the BAM area.

The BAM is situated over more than 300 feet of partly fractured Moenkopi Formation which has a permeability ranging between 1×10^{-5} to 1×10^{-6} cm/sec. The Moqui Member of the Moenkopi Formation forms a low permeability barrier to the groundwater of the Coconino Formation below. The BAM foundation shall be constructed using native on-site soils that are compacted to have a 95percent standard Proctor dry density (ASTM D698). The BAM shall receive only the dewatered bottom ash materials that are permitted for disposal at the BAP. On-site stormwater will be conveyed to the existing retention basin and to a new retention basin that will be constructed during Phase 2 operations. A sump and pump system exists for the existing retention basin, and shall be provided for the new retention basin to collect and return any discharge to the BAP, as need with a portable pump. The new retention basin will have a capacity of approximately 8.2 acre-feet with an overall depth of 12 feet and side slopes of 3H:1V. Modeling results indicated low percolation rate through the foundation layer of the BAM and no likely impact to the underlying aquifer. A separate sump pump and discharge line is located at the south end of the BAM to collect and convey any seepage back into the BAP. A surface intercept trench to collect subsurface seepage flow and intercept off-site storm water runoff from entering the BAM is connected to the BAM sump. The BAM sump is tied into the existing seepage intercept system constructed for the BAP, and operated following the existing operation/maintenance requirements for the BAP seepage intercept system.

At closure, a 6-inch clay soil cover shall be provided over the entire BAM footprint and compacted to have a permeability of less than 1×10^{-6} cm/sec. An additional layer of one foot thick soil shall be placed over the compacted clay layer. Over this final cover, native vegetation shall be planted.

2.2.1.6 Fly Ash Pond

The FAP is an unlined retention basin with a maximum area of about 430 acres. It collects runoff from 1,230 acres. Original storage capacity is about 18,000 acre-feet. The rainfall associated with a 100-year, 24-hour event would raise the level in the FAP about 11 inches over a 24-hour period. Impoundment is provided by a clay core dam with rip-rap sides at the south end of the pond. Fly ash and scrubber slurry from the slurry disposal tanks is pumped to the FAP via three 8-inch outside diameter (OD) pipes that discharge near the center of the dam along the southern FAP perimeter. Two are dedicated to ash slurry, while one is for transferring wastewater from the General Water Sump to the FAP and flushing the slurry disposal sump for clean-out purposes. Water is not returned from the pond.

A seepage collection system for the Geronimo Seep and Hunt Seep is constructed, maintained, and operated to collect and return the seepage back into the FAP. A seepage collection system for the I-40 Seep has been constructed. It terminates in a shallow basin and is observed regularly to ensure that the small amount of water collected evaporates.

2.2.1.7 Cholla Reservoir

The Cholla Reservoir is an ADWR Jurisdictional Dam that was constructed and put in service in 1962. The Cholla Reservoir was constructed in a natural low lying depression north of the Little Colorado River. Cholla Reservoir circulates approximately 190,000 gpm (273.6 million gallons per day [MGD]). The Cholla Reservoir has an area of approximately 360 acres with an approximate capacity of 2,220 acre-feet and comprised of a hot pond and a cold pond which are separated by an earthen dike. The mean depth of the hot pond is

approximately 4 feet and the mean depth of the cold pond is approximately 7 feet. The hot pond is approximately 100 acres, and the cold pond is approximately 260 acres. The Primary discharge to the reservoir is non-contact, once-through condenser cooling water return from Units 1 and 2. The subsurface is classified as firm clay soils over the entire reservoir area to a depth of approximately 40 feet. The permeability of the silty-clay formation beneath the reservoir ranges from 1×10^{-4} to 1×10^{-7} cm/sec. The Cholla Reservoir has an engineered earthen embankment having a permeability of 1×10^{-7} cm/sec. The dikes are constructed of homogenous clay core embankment compacted on native high clay, low permeability soils. The subsurface clay material was compacted to achieve a minimum of 95 percent of the maximum dry density below the dike.

The Cholla Reservoir maintains an ADWR approved minimum freeboard of 3 feet. The freeboard level is maintained by controlling the addition of make-up water from the production wells, and increasing the usage of reservoir water as process make-up water to the cooling towers, absorber demister pumps, or blowdown process water to the FAP. The final destination of the water from the reservoir is the FAP.

The Cholla Reservoir is equipped with a 1,300 feet long seepage collection and recovery system constructed along the southwest toe of the embankment dike. The seepage trench is sloped to drain into two collection sumps, approximately 5 feet deep. Each sump is equipped with a pump and an auxiliary sump pump as a backup, and piping which return seepage water into the Cholla Reservoir. Seepage south of the railway track is being monitored by using a series of piezometers. Seepage along the western edge of the Cholla Reservoir is collected in a newly constructed seepage basin that is located at the southwest corner of the reservoir. The basin is sized to accommodate an estimated seepage rate of 1.25 gpm and the runoff collected within the basin boundary for the 100-year, 24-hour storm event. An outlet pipe is located near the southeast corner of the seepage basin. Overflow from the outlet pipe flows into the existing seepage trench located south of the reservoir. The seepage basin is designed to have a freeboard of 2.34 feet.

2.2.2 Site-specific Characteristics

Site specific characteristics are a component of BADCT for the discharging facilities located at this site. These discharging facilities are underlain by the Moenkopi Formation, which overlies the Coconino Formation, a regional drinking water aquifer. The Moqui Member of the Moenkopi is comprised of low-permeability evaporite deposits and mudrocks with a permeability of 1×10^{-5} to 1×10^{-6} cm/sec and is considered to be an aquitard separating facility discharges from the Coconino.

2.2.3 Pre-operational Requirements

Not Applicable

2.2.4 Operational Requirements

If damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed.

2.2.4.1 Oil/Water Separator Maintenance and Capacity

Oil and sludge from the oil/water separator shall be routinely removed and adequately characterized for off-site disposal. The influent to the separator shall meet the requirements of the manufacturer specifications with respect to pH, flow and influent concentrations. Exceedance of the pretreatment capacity of the oil/water separator shall be a permit violation.

2.2.4.2 Drainage or Seepage Collection Failure

If a drainage structure such as a ditch or diversion berm, or seepage collection systems, fails or is blocked, prompt action shall be taken immediately to temporarily repair the structures



with readily available materials, to minimize impacts on or discharges from the facility. The temporary repairs shall be replaced by permanent repairs to be performed as soon as conditions allow. The repairs or permanent replacement of the temporary structure shall be designed in accordance with accepted engineering standards.

2.3 Discharge Limitations [A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]

The permittee is authorized to discharge wastewater generated from the 3 unit, coal fired, steam electric power plant. The plant shall be operated in such a manner that the AWQS are not violated at the POC(s), maintaining all disposal ponds in good operational condition. Wastewater generated from plant operations shall be disposed of through six surface impoundments; Bottom Ash Pond, Fly Ash Pond, Sedimentation Pond, West Area Retention Pond, Storm Water Retention Pond and Cholla Reservoir. The discharge from the power plant shall be monitored according to Section 4.2, Table 1 (A) through 1 (E).

2.4 Points of Compliance [A.R.S. § 49-244]

The POC designated for this facility shall be located downgradient of the property boundary or respective surface impoundment in the uppermost, intermediate, and regional aquifers and are established by the following monitoring location(s):

Well Identification	Latitude	Longitude
CR-1 (LCR Alluvium)	34° 56' 24" N	110° 18' 39" W
W-124 (Wupatki)	34° 55' 42" N	110° 16' 00" W
W-125 (Coconino)	34° 55' 43" N	110° 16' 00" W
W-126 (Alluvium)	34° 55' 41" N	110° 16' 00" W
W-304 (T.W. Alluvium)	34° 56' 55" N	110° 17' 22" W
W-310 (Wupatki)	34° 57' 03" N	110° 17' 17" W
W-312 (Wupatki)	34° 57' 13" N	110° 17' 01" W
W-313 (Coconino)	34° 57' 13" N	110° 17' 01" W
DM-4R (LCR Alluvium)	34° 55' 43" N	110° 17' 23" W
M-60 (northwest of the BAM; Coconino, location only)	34° 57' 47.78" N	110° 17' 09.55" W
MW-1 (Wupatki, location only)	34° 57' 45.823" N	110° 17' 04.901" W
MW-2 (Coconino, location only)	34° 57' 45.554" N	110° 17' 04.198" W
M-44D (Coconino)	34° 56' 29.90" N	110° 16' 04.35" W

Monitoring requirements for each POC are listed in Section 4.2, Tables 3 (A) through 3 (C). The Director may amend this permit to designate additional POCs if information on groundwater gradients or groundwater usage indicates the need.

2.5 Monitoring Requirements [A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]

Unless otherwise specified in this permit, all monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. Monitoring shall commence the first full monitoring period following permit issuance. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and Chain-of-Custody procedures shall be followed, in accordance with currently accepted standards of professional practice. Copies of laboratory analyses and Chain-of-Custody forms shall be maintained at the permitted facility. Upon request, these documents shall be made immediately available for review by ADEQ personnel.

2.5.1 Discharge Monitoring

The permittee shall monitor the wastewater semi-annually according to Section 4.2, Table 1 (A) through 1 (E). A representative sample of the wastewater shall be collected from the BAP, FAP, West Area Retention Pond, Storm Water Retention Pond and Sedimentation Pond.

2.5.1.1 Seepage Monitoring

The permittee shall maintain seepage monitoring annually in accordance with Section 4.2, Table 1 (F) at the following locations. The monitoring report shall be maintained and kept at the facility site in the event that a hydrogeological study is required as per the contingency requirements in Section 2.6.2.3.

Seep Identification	Latitude	Longitude
<u>Bottom Ash Pond Seep Intercept System</u> 1. West abutment toe drain (West Abutment Seep) 2. East Bottom Ash Pond seepage collection system (The Petroglyph Seep, P-226 Seep, Tanner Wash Seep)	34° 57' 04" N	110° 17' 26" W
<u>Fly Ash Pond Seep Intercept System</u> (Geronimo and Hunt Seep) W-123 (Seepage)	34° 55' 42" N 34° 55' 41" N	110° 15' 60" W 110° 15' 59" W

The permittee shall maintain the seepage collection systems operated for the FAP and the BAP according to the submitted operational and maintenance plan, as approved by ADEQ.

2.5.1.2 Wetting Front Monitoring

The permittee shall monitor well W-127 monthly for the detection of water migrating from the FAP in accordance with Section 4.2, Table 1 (G). If fluid is detected in the well and determined to be water migrating from the FAP based on the sampling data collected in accordance with Section 4.2, Table 1 (F), the permittee shall increase the frequency of monitoring and implement the contingency plan outlined in Section 2.6.2.3.

2.5.1.3 Sedimentation Pond Sediment and Oil/Water Separators Sampling

The permittee shall monitor all the Sedimentation Pond solids and oil/water separator solids prior to disposal in the BAP and FAP according to the requirements specified in Section 4.2, Table 2 and if sediments exceed the discharge limit or are classified as a hazardous waste, they shall be properly disposed of at a treatment, storage and disposal, hazardous waste facility.

2.5.2 Operational Monitoring

The permittee shall inspect the pollution control structures in Section 4.2, Tables 4 (A) through 4 (I) to verify that all components are functioning properly.

The permittee shall document facility monitoring activities, inspection results, and all repair procedures, methods and materials used to return the system or structure to operating condition as described in Section 2.7.2 of this permit. A log of the inspections and related monitoring activities shall be kept at the facility for 10 years from the date of each inspection or the life time of the facility, and made available for review by ADEQ personnel as necessary. A summary of facility monitoring activities, inspection results, facility repairs or any other corrective actions shall be submitted annually in accordance with Section 2.7.4 of this permit.

The permittee shall comply with the ADWR Dam License safety requirements and ADWR monitoring/reporting requirements, and make these reports available to the ADEQ Water Permits Section.

2.5.3 Groundwater Monitoring and Sampling Protocols

2.5.3.1 POC Well Locations

All monitoring wells shall be installed and located according to plans approved by ADEQ Water Permits Section.

2.5.3.2 Groundwater Quality Monitoring For Information Purposes

Groundwater monitoring specified in Section 4.2, Table 3 (D) shall be intended for informational purposes only to provide background data to support additional hydrogeologic studies as part of a contingency plan.

2.5.3.3 Groundwater Compliance Monitoring

APS shall maintain the groundwater impact monitoring using the wells listed in Section 4.2, Table 3 (A) through 3 (C), and according to the frequency and parameters specified in Section 4.2, Table 3 (A) through 3 (C). The permittee may request amendments to the monitoring requirements for specific pollutants 2 years after permit issuance if at least 2 years of monitoring data demonstrate that concentrations of those pollutants are non-detectable or below AWQS. Any requests for changes in the sampling frequency and/or parameters shall be reviewed and approved by the ADEQ Water Permits Section prior to implementation. Approved changes in the sampling frequency and/or parameters shall be considered as a permit amendment.

2.5.3.4 Groundwater Sampling Protocol

Static water levels shall be measured and recorded prior to sampling. The permittee may conduct the sampling using the low-flow purging method as described in the Arizona Water Resources Research Center, March 1995 Field Manual for Water Quality Sampling. The well must be purged until indicator parameters stabilize. Indicator parameters shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

2.5.3.5 POC Well Replacement

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, insufficient water in the well for more than 2 consecutive sampling events, submerged screens for more than 2 consecutive sampling events, or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is 50 feet or less from the original well, the alert levels (ALs) and/or aquifer quality limits (AQLs) calculated for the designated POC well shall apply to the replacement well.

2.5.4 Surface Water Monitoring and Sampling Protocols

Surface water monitoring is not required at this time.

2.5.5 Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state-approved methods. If no state-approved method exists, then any appropriate EPA-approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. If all methods have detection limits higher than the applicable limit, the permittee shall follow the contingency requirements of Section 2.6 and may propose "other actions" including amending the permit to set higher limits. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification unless exempted under A.R.S. § 36-495.02.. For results to be

considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state-certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

2.5.6 Installation and Maintenance of Monitoring Equipment

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the ADEQ Water Permits Section for approval prior to installation and the permit shall be amended to include any new points.

2.6 Contingency Plan Requirements

[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

2.6.1 General Contingency Plan Requirements

At least one copy of the approved contingency and emergency response plan(s) submitted in the application shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any AL that is exceeded or any violation of an AQL, discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition.

2.6.2 Exceeding of Alert Levels

2.6.2.1 Exceeding Alert Levels for Discharge Monitoring

If discharge monitoring indicates that an AL specified in Section 4.2, Tables 1 (A) through 1 (E) has been exceeded, the permittee shall:

1. Within 5 days of discovery of an exceedance of an AL, notify ADEQ as specified in Section 2.7.3.
2. Within 5 days of becoming aware of an AL being exceeded, the permittee may conduct verification sampling.
3. Within 5 days of receipt of the laboratory report for verification sampling, notify ADEQ Water Quality Compliance Section of the results of verification sampling.
 - a. If the results of verification sampling indicate that an AL was not exceeded, resume routine discharge monitoring as specified in Section 2.5.1.
 - b. If the results of verification sampling confirm that an AL was exceeded, the permittee shall:
 - i. Immediately initiate an evaluation to determine the cause for exceeding the AL. Assess the condition of treatment processes and systems to identify equipment

damage or system failure. Evaluate operational conditions to identify problem areas. Immediately modify operational practices as necessary to prevent future exceedances. Repair any failed or damaged equipment or system as necessary to restore proper functioning and to resolve problems identified in the evaluation.

4. Within 30 days of discovery of an AL exceedance, the permittee shall submit a written report to ADEQ Water Quality Water Compliance Section in accordance with Section 2.7.3 of this permit. The report shall include the findings of the evaluation, monitoring results, assessment of the malfunction or operational problem, any corrective actions taken to address the problem area, repair procedures and methods used to restore the system to proper operational condition, and system or operational modifications to eliminate future occurrences of the incident.
5. Upon review of the submitted report, ADEQ may amend the permit to require additional action if necessary to address problems identified in the evaluation, including monitoring or remedial activities beyond those specified in this permit.

2.6.2.2 Exceeding Alert Levels for Operational Monitoring

If an operational AL (Performance Standards) set in Section 4.2, Tables 4 (A) through 4 (I) has been exceeded the permittee shall:

1. Within 5 days of discovery of an exceedance, notify ADEQ as specified in Section 2.7.3 of this permit.
2. Within 5 days of discovery of an exceedance, initiate an evaluation to determine the cause of the problem and assess the condition of the impaired system(s) or structure(s). Immediately adjust operational conditions if needed to avoid future occurrences.
3. Within 30 days of discovery, perform necessary repairs or maintenance to return the affected system, structure, or other component as necessary to return the system to operating condition and compliance with this permit. With the exception of the seepage system, the permittee shall not operate the system(s) or structure (resume discharging) until the repairs have been performed to restore proper functioning of the system and/or the problems identified in the evaluation are resolved. Record any repair procedures, methods, and materials used to restore the facility to operating condition in the facility log/recordkeeping file. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 of this permit.
4. Submit records documenting each incident and actions taken to correct the problem in the Annual Report as required in Section 2.7.4 of this permit. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
5. The facility is no longer on alert status once the operational indicator no longer indicates that an AL is being exceeded, the permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

2.6.2.3 Wetting Front Monitoring Well Alert Level Exceedance

In the event that water is detected in wetting front monitoring well W-127, the permittee shall:

1. Notify the ADEQ Water Quality Compliance Section within five days of the detection. The permittee shall observe site conditions for potential nearby sources of water (i.e. recent local irrigation recharge, rain water, etc.) and increase the water level monitoring frequency from monthly to weekly for one month to better define the source of water. If observation of local irrigation or rainfall along with the water level data indicate a short term recharge event (rising then falling water levels), the water level monitoring will return to the normal monthly frequency after one month of weekly measurements. If the water levels continue to rise throughout the month or level off with no decline, weekly measurements shall continue for an additional month and a sample shall be collected to

analyze for the parameters indicated in Section 4.2, Table 1 (F). The water level gradient between wells W-126 and W-127 will be calculated and used to evaluate the potential time frame for the Hunt Seep water to impact the Little Colorado River.

2. A report shall be submitted to the ADEQ Water Quality Compliance Section for review within 30 days of receiving the laboratory results. The report shall include a determination whether the water quality represents the water seepage from the FAP.
3. If it is determined that the water level data shows a trend of expansion of the seep, at a minimum, the permittee shall evaluate the need for installation of an additional monitor well south of the I-40 Seep. The locations of any additional wells shall be approved by ADEQ prior to construction. In addition, an intercept system shall be installed to control seep migration.
4. Upon review of the submitted report, ADEQ may require a hydrogeological study for uranium migration as a result of the seep expansion.

2.6.2.4 Exceeding Alert Levels for Groundwater Monitoring

2.6.2.4.1 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.2, Tables 3 (A) through 3 (C) has been exceeded; the permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL being exceeded or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the ADEQ Water Permits Section, that, although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the ADEQ Water Permits Section.
4. Within 30 days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the ADEQ Water Quality Compliance Section, along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring required as a result of an AL being exceeded may be reduced to annually if the results of 4 sequential sampling events demonstrate that no parameters exceed the AL.
7. If the increased monitoring required as a result of an AL exceedance continues for more than six sequential sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the sixth sampling event.

2.6.3 Discharge Limitations Violations

If a DL set in Section 4.2, Tables 1 (A) through 1 (E) has been violated, the permittee shall immediately investigate to determine the cause of the violation. The investigations shall include the following:

1. Within 5 days of discovery of a DL violation, notify ADEQ as specified in Section 2.7.3.
2. Immediately initiate an evaluation to determine the cause for violating the DL. Assess the condition of all treatment processes and systems to identify equipment damage or system failure. Evaluate operational conditions to identify problem areas. Immediately modify operational practices as necessary to prevent future exceedances. Repair any failed or damaged equipment or system as necessary to restore proper functioning and to resolve problems identified in the evaluation.
3. Increase discharge monitoring to monthly until all parameters specified in Section 4.2, Tables 1 (A) through 1 (E) are maintained below the discharge limits and alert levels for at least 4 consecutive months. If the parameters listed in Section 4.2, Tables 1 (A) through 1 (E) are maintained below the DL for 4 consecutive months, the permittee may resume routine discharge monitoring on a semiannual basis.
4. Within 30 days of discovery of violating a DL, the permittee shall submit a written report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. The permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.
5. Within 60 days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident. If soil or groundwater is impacted, submit to ADEQ, for approval, a corrective action plan to address problems identified in the assessment, including identification of releases to the environment, remedial actions and/or monitoring, and a schedule for completion of activities. At direction of the ADEQ, the permittee shall implement the approved plan.
6. Within 30 days of completion of corrective actions, submit to the ADEQ, a written report as specified in Section 2.6.6.
7. In the event of a DL violation, the Department may require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

2.6.3.1 Sedimentation Pond Solids Monitoring

1. The permittee shall monitor the sedimentation pond solids prior to disposal in the BAP and FAP according to the requirements specified in Section 4.2, Table 2. If sediments exceed the DL or are classified as a hazardous waste, they shall be properly disposed of at a treatment, storage and disposal hazardous waste (TSD) facility.
2. APS shall provide a copy of the completed hazardous waste manifest to the ADEQ Water Quality Compliance Section within 35 days of the waste being received by an approved TSD facility.

2.6.3.2 Oil/Water Separator Solids Monitoring

1. The permittee shall monitor all the O/W separator solids prior to disposal to the Bottom Ash and Fly Ash Ponds according to the requirements specified in Section 4.2, Table 2 and if sediments exceed the DL or are classified as a hazardous waste, they will be properly disposed of at an approved TSD facility.
2. APS shall provide a copy of the completed hazardous waste manifest to the ADEQ Water Quality Compliance Section within 35 days of the waste being received by an approved TSD facility.

2.6.4 Aquifer Quality Limit Violation

1. If an AQL set in Section 4.2, Table 3 (A) through 3 (C) has been exceeded; the permittee may conduct verification sampling within 5 days of becoming aware of an AQL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for any parameter or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to quarterly. In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee shall also submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.

2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. § 49-201(12) and pursuant to A.R.S. § 49-241

2.6.5.1 Duty to Respond

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12) if that condition could pose an imminent and substantial endangerment to public health or the environment.

2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(19)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Water Quality Compliance Section within 24 hours upon discovering the discharge of hazardous material which: a) has the potential to cause an AWQS or AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

2.6.5.3 Discharge of Non-hazardous Materials

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed and the site cleaned up as soon as possible. The permittee shall notify the ADEQ Water Quality Compliance Section within 24 hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

2.6.5.4 Reporting Requirements

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to ADEQ Water Quality Compliance Section and the ADEQ Northern Regional Office within 30 days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in that notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

2.6.6 Corrective Actions

Specific contingency measures identified in Section 2.6 have already been approved by ADEQ and do not require written approval to implement. With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the ADEQ Water Permits Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding an AL or violation of an AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer;
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the ADEQ Water Quality Compliance Section, a written report describing the causes, impacts, and actions taken to resolve the problem.

2.7 Reporting and Recordkeeping Requirements

[A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

2.7.1 Self-monitoring Report Forms

1. When submitting hard copy, the permittee shall complete the Self-monitoring Report Form (SMRF) provided by ADEQ including contact information for the person completing the Form. Submit the completed Form to the Water Quality Compliance Data and Enforcement Unit.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the Form. If no information is required during a reporting period, the permittee shall enter "not required" on the Form and include an explanation, and submit the Form to the Water Quality Compliance Data and Enforcement Unit
3. The tables contained in Section 4.0 list the monitoring parameters and the frequencies for reporting results on the SMRF:

Tables 1 (A) through 1 (E)
Table 1 (G)
Table 2
Tables 3 (A) through (C)
Table 3 (D)
Tables 4 (A) through (I)

The parameters listed in the above identified tables from Section 4.0 are the only parameters for which SMRF reporting is required.

4. In addition to the SMRF, the information contained in A.A.C. R18-9-A206(B)(1) shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

2.7.2 Operation Inspection / Log Book Recordkeeping

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for ten years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;
3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book, and
7. Monitoring records for each measurement shall comply with A.A.C. R18-9-A206(B)(2).

2.7.3 Permit Violation and Alert Level Status Reporting

1. The permittee shall notify the Water Quality Compliance Section in writing within 5 days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an alert level being exceeded.
2. The permittee shall submit a written report to the Water Quality Compliance Section within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
 - a. Identification and description of the permit condition for which there has been a violation and a description of its cause.
 - b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
 - c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
 - d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an AWQS.
 - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
 - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

2.7.4 Operational, Other or Miscellaneous Reporting

The permittee shall complete the SMRF provided by the Department to reflect facility inspection requirements designated in Section 4.2, Table 4 (A) through 4 (I) and shall submit the forms to the ADEQ Water Quality Compliance Section, Data Unit annually, along with other reports required by this permit. Facility inspection reports shall be submitted no less frequently than annually, regardless of operational status.

2.7.4.1 Annual Report

The permittee shall submit an annual report in narrative and/or tabular form to the ADEQ Water Quality Compliance Section, which briefly summarizes the status of compliance under this permit. A copy of the report shall also be submitted to the ADEQ Water Permits Section. The report shall identify any contingency actions taken, violations of this permit, or any AL or DL that has been exceeded; shall summarize the findings of the monitoring identified in Section 2.5, Section 2.6, and Section 4.0; and shall include any information specifically requested by permit condition to be submitted in the annual report. The annual report is to be submitted by April 30 of each year to cover activities from January 1 through December 31 of the previous year.



2.7.5 Reporting Location

All SMRFs shall be submitted to:
 Arizona Department of Environmental Quality
 Water Quality Compliance Section, Data Unit
 Mail Code: 5415B-1
 1110 W. Washington Street
 Phoenix, AZ 85007
 Phone: (602) 771-4681

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Arizona Department of Environmental Quality
 Water Quality Compliance Section
 Mail Code: 5415B-1
 1110 W. Washington Street
 Phoenix, AZ 85007
 Phone: (602) 771-4497

2.7.6 Reporting Deadline

The following table lists the quarterly report due dates:

Monitoring conducted during quarter:	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

The following table lists the annual report due date:

Monitoring conducted during the year:	Annual Report due by:
January 1–December 31	April 30

2.7.7 Changes to Facility Information in Section 1.0

The Water Permits Section and Water Quality Compliance Section shall be notified within 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

2.8 Temporary Cessation [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]

The permittee shall give written notice to the Water Quality Compliance Section before ceasing operation of the facility for a period of 60 days or greater. The permittee shall take the following measures upon temporary cessation:

1. At the time of notification the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation.
2. Immediately, following ADEQ approval, the permittee shall implement the approved plan.

3. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation.
4. During the period of temporary cessation, the permittee shall provide written notice to the Water Quality Compliance Section of the operational status of the facility every three years.
5. If the permittee intends to permanently cease operation of any facility, the permittee shall submit closure notification, as set forth in Section 2.9 below.

2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]

For a facility addressed under this permit, the permittee shall give written notice of closure to the Water Quality Compliance Section of the permittee's intent to cease operation without resuming activity for which the facility was designed or operated.

2.9.1 Closure Plan

Within 90 days following notification of closure, the permittee shall submit for approval to the Water Permits Section, a closure plan which meets the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B). Furthermore, the plan shall include the following specific activities:

1. The approximate quantities and the chemical, biological, and physical characteristics of the materials to be removed from the facility;
2. The destination of the materials to be removed from the facility and an indication that placement of the materials at that destination is approved;
3. The approximate quantities and the chemical, biological, and physical characteristics of the materials that will remain at the facility;
4. The methods to be used to treat any materials remaining at the facility;
5. The methods to be used to control the discharge of pollutants from the facility;
6. Any limitations on future land or water uses created as a result of the facility's operations or closure activities;
7. The methods to be used to secure the facility;
8. An estimate of the cost of closure; and
9. A schedule for implementation of the closure plan and the submission of a post-closure plan.

If the closure plan achieves clean closure immediately, ADEQ shall issue a letter of approval to the permittee. If the closure plan contains a schedule for bringing the facility to a clean closure configuration at a future date, ADEQ may incorporate any part of the schedule as an amendment to this permit.

2.9.2 Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Water Permits Section indicating that the approved closure plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of post-closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;
5. Further action is necessary to meet property use restrictions.



2.10 Post-closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9 A209(C)]

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Water Permits Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Water Permits Section a post-closure plan that addresses post-closure maintenance and monitoring actions at the facility. The post-closure plan shall meet all requirements of A.R.S. §§ 49-201(30) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the post-closure plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the post-closure plan.



3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Water Permits Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section, Data Unit.

No	Description	Due by:	Amend. Required
1	Provide updated closure strategy/plans and closure and post-closure cost estimates for all APP facilities.	November 30, 2016	Yes
2	Evaluate all POC locations and POC well construction as related to groundwater monitoring at each POC.	Within two years of permit issuance, submit an evaluation of POC locations based on previous studies and, if necessary, propose changes to the POCs and/or monitoring requirements in the permit.	No

4.0 TABLES OF MONITORING REQUIREMENTS

4.1 PRE-OPERATIONAL MONITORING REQUIREMENTS

Not Applicable

4.2 COMPLIANCE MONITORING

Table 1 (A) Discharge Monitoring

Table 1 (B) Discharge Monitoring

Table 1 (C) Discharge Monitoring

Table 1 (D) Discharge Monitoring

Table 1 (E) Discharge Monitoring

Table 1 (F) Seepage Monitoring

Table 1 (G) Wetting Front Monitoring

Table 2 Sediment Monitoring

Table 3 (A) Compliance Groundwater Monitoring

Table 3 (B) Compliance Groundwater Monitoring

Table 3 (C) Compliance Groundwater Monitoring

Table 3 (D) Groundwater Monitoring

Table 4 (A) Storm Water Retention Pond Inspection

Table 4 (B) Sedimentation Pond Inspection

Table 4 (C) Bottom Ash Pond Inspection

Table 4 (D) Bottom Ash Monofill Inspection

Table 4 (E) West Area Retention Pond Inspection

Table 4 (F) Fly Ash Pond Inspection

Table 4 (G) Cholla Reservoir Inspection

Table 4 (H) General Water Sump Inspection

Table 4 (I) Oil/Water Separator Inspection

4.2 COMPLIANCE MONITORING

TABLE 1 (A)
DISCHARGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
1	Bottom Ash Pond (Composite)	34° 57' 16" N	110° 17' 17" W

Parameter	AL ²	DL ³	Sampling Frequency	Reporting Frequency
Chloride	Not Established ⁴	Not Established	Semiannual	Semiannual
Fluoride	8.0 mg/l	Not Established	Semiannual	Semiannual
Total Nitrogen ⁵	10 mg/l	Not Established	Semiannual	Semiannual
Nitrate (as N)	10 mg/l	Not Established	Semiannual	Semiannual
Nitrite (as N)	1 mg/l	Not Established	Semiannual	Semiannual
TKN	See Footnote 5	Not Established	Semiannual	Semiannual
pH	Not Established	Not Established	Semiannual	Semiannual
Sulfate (SO ₄)	Not Established	Not Established	Semiannual	Semiannual
Total Dissolved Solids (TDS)	Not Established	Not Established	Semiannual	Semiannual

Metals:

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Total Dissolved Chromium	0.10 mg/l	Not Established	Semiannual	Semiannual

² AL= Alert Levels.

³ DL= Discharge Limit.

⁴ Not established means monitoring is required but no limits have been specified.

⁵ Total Nitrogen is the sum of Nitrate (as N), plus Nitrite (as N), plus TKN. The concentration of Total Nitrogen shall not exceed the limit for Nitrate (as N).

TABLE 1 (B)
DISCHARGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
2	Fly Ash Pond (Composite)	34° 55' 55" N	110° 15' 50" W

Parameter	AL ⁶	DL ⁷	Sampling Frequency	Reporting Frequency
Chloride	Not Established ⁸	Not Established	Semiannual	Semiannual
Fluoride	36.0 mg/l	Not Established	Semiannual	Semiannual
Total Nitrogen ⁹	10 mg/l	Not Established	Semiannual	Semiannual
Nitrate (as N)	10 mg/l	Not Established	Semiannual	Semiannual
Nitrite (as N)	1 mg/l	Not Established	Semiannual	Semiannual
TKN	See Footnote 9	Not Established	Semiannual	Semiannual
pH	Not Established	Not Established	Semiannual	Semiannual
Sulfate (SO ₄)	Not Established	Not Established	Semiannual	Semiannual
Total Dissolved Solids (TDS)	Not Established	Not Established	Semiannual	Semiannual

Metals:

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Total Dissolved Chromium	0.90 mg/l	Not Established	Semiannual	Semiannual
Lead	0.45 mg/l	Not Established	Semiannual	Semiannual
Cadmium	0.045 mg/l	Not Established	Semiannual	Semiannual
Thallium	0.018 mg/l	Not Established	Semiannual	Semiannual
Boron	Not Established	Not Established	Semiannual	Semiannual

Radiochemicals

Parameters
Uranium (total) ¹⁰

⁶ AL= Alert Levels.

⁷ DL= Discharge Limit.

⁸ Not established means monitoring is required but no limits have been specified.

⁹ Total Nitrogen is the sum of Nitrate (as N), plus Nitrite (as N), plus TKN. The concentration of Total Nitrogen shall not exceed the limit for Nitrate (as N).

¹⁰ Uranium (total) is the sum of the individual uranium isotopes, U-234, U-235, and U-238. AL is set based on the EPA proposed Maximum Contaminant Level (MCL) for uranium. Concentration should be reported in µg/L.



TABLE 1 (C)
DISCHARGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
3(a)	West Area Retention Pond (grab)	34° 56' 22" N	110° 17' 41" W

Parameter	AL¹¹	DL¹²	Sampling Frequency	Reporting Frequency
Chloride for the Storm Water Retention Pond	Not Established ¹³	Not Established	Semiannual	Semiannual
Fluoride	12 mg/l	16 mg/l	Semiannual	Semiannual
pH	Not Established	Not Established	Semiannual	Semiannual
Sulfate (SO ₄)	Not Established	Not Established	Semiannual	Semiannual
Total Dissolved Solids (TDS)	Not Established	Not Established	Semiannual	Semiannual

Metals:

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Total Dissolved Chromium	0.08 mg/l	0.10 mg/l	Semiannual	Semiannual

Radiochemicals

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Gross Alpha including Radium-226 excluding Radon and Uranium	15 pCi/l	Not established	Annually	Annually
Radium-226 and Radium-228	5 pCi/l	Not Established	Annually	Annually

¹¹ AL= Alert Levels.

¹² DL= Discharge Limit.

¹³ Not established means monitoring is required but no limits have been specified.

TABLE 1 (D)
DISCHARGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
3(b)	Storm Water Retention Pond (East) (grab)	34° 56' 55" N	110° 17' 41" W

Parameter	AL¹⁴	DL¹⁵	Sampling Frequency	Reporting Frequency
Chloride for the Storm Water Retention Pond	Not Established ¹⁶	Not Established	Semiannual	Semiannual
Fluoride	16 mg/l	Not Established	Semiannual	Semiannual
pH	Not Established	Not Established	Semiannual	Semiannual
Sulfate (SO ₄)	Not Established	Not Established	Semiannual	Semiannual
Total Dissolved Solids (TDS)	Not Established	Not Established	Semiannual	Semiannual

Metals:

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Total Dissolved Chromium	0.10 mg/l	Not Established	Semiannual	Semiannual

Radiochemicals

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Gross Alpha including Radium-226 excluding Radon and Uranium	15 pCi/l	Not Established	Annually	Annually
Radium-226 and Radium-228	5 pCi/l	Not Established	Annually	Annually

¹⁴ AL= Alert Levels.

¹⁵ DL= Discharge Limit.

¹⁶ Not established means monitoring is required but no limits have been specified.

TABLE 1 (E)
DISCHARGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
4	Sedimentation Pond (grab)	34° 56' 28" N	110° 17' 15" W

Parameter	AL ¹⁷	DL ¹⁸	Sampling Frequency	Reporting Frequency
Chloride	Not Established ¹⁹	Not Established	Semiannual	Semiannual
Fluoride	12 mg/l	16 mg/l	Semiannual	Semiannual
pH	None	None	Semiannual	Semiannual
Sulfate (SO ₄)	Not Established	Not Established	Semiannual	Semiannual
Total Dissolved Solids (TDS)	Not Established	Not Established	Semiannual	Semiannual

Metals:

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Total Dissolved Chromium	0.08 mg/l	0.10 mg/l	Semiannual	Semiannual

Radiochemicals

Parameters	AL	DL	Sampling Frequency	Reporting Frequency
Gross Alpha including Radium-226 excluding Radon and Uranium	15 pCi/l	Not Established	Annually	Annually
Radium-226 and Radium-228	5 pCi/l	Not Established	Annually	Annually

¹⁷ AL= Alert Levels.

¹⁸ DL= Discharge Limit.

¹⁹ Not established means monitoring is required but no limits have been specified.

TABLE 1 (F)
SEEPAGE MONITORING

Sampling Point Number	Identification	Latitude	Longitude
5	W-123	34° 56' 24" N	110° 15' 59" W
6	West Abutment Toe Drain	34° 57' 04" N	110° 17' 26" W
7	East Bottom Ash Pond Seepage Collection System	34° 57' 04" N	110° 17' 09" W
8	Fly Ash Pond Seepage System	34° 55' 42" N	110° 15' 60" W

Parameter	Sampling Frequency	Reporting Frequency
Chloride	Annually	Maintain Records at the site
Fluoride	Annually	Maintain Records at the site
Boron	Annually	Maintain Records at the site
pH	Annually	Maintain Records at the site
Sulfate (SO ₄)	Annually	Maintain Records at the site
Total Dissolved Solids (TDS)	Annually	Maintain Records at the site
Uranium (total) ^{20, 21} for W-123	Annually	Maintain Records at the site

²⁰ Radiochemical analyses shall be for the total fraction and shall not be filtered.

²¹ Uranium (total) is the sum of the individual uranium isotopes, U-234, U-235, and U-238. Concentration should be reported in µg/L.

TABLE 1 (G)
WETTING FRONT MONITORING FOR FLUID DETECTION (MONTHLY)

Sampling Point Number	Identification	Latitude	Longitude
9	W-127*	34° 55' 27" N	110° 16' 10" W

Parameter	AL²²	DL²³	Sampling Frequency	Reporting Frequency
Fluid Monitoring	Fluid Detected	Not established	Monthly	Quarterly

*W-127 If fluid is detected in excess of one borehole volume of the well, water samples shall be collected and tested for the constituents listed in Table 1 (F) to determine whether the fluid is water migrating from the FAP. If the sampling results indicate that the fluid is water migrating from the FAP, the appropriate contingency plan as described in 2.6.2.3 shall be followed.

²² AL= Alert Levels.

²³ DL= Discharge Limit.

TABLE 2
SEDIMENT MONITORING

Sampling Point Number	Identification	Latitude	Longitude
10	Prior to disposal to the bottom ash pond, bottom ash monofill or fly ash ponds	N/A	N/A

Parameter²⁴	AL²⁵	DL²⁶	Sampling Frequency	Reporting Frequency
Arsenic	Not Established ²⁷	5 mg/l	As required	Quarterly
Barium	Not Established	100 mg/l	As required	Quarterly
Cadmium	Not Established	1 mg/l	As required	Quarterly
Total Chromium	Not Established	5 mg/l	As required	Quarterly
Lead	Not Established	5 mg/l	As required	Quarterly
Mercury	Not Established	0.2 mg/l	As required	Quarterly
Silver	Not Established	5 mg/l	As required	Quarterly
Selenium	Not Established	1 mg/l	As required	Quarterly

²⁴ A TCLP metals analysis is required prior to disposal of sludge from the sedimentation pond and oil/water separators. The method used shall be the toxicity characteristics leaching procedures (TCLP).

²⁵ AL= Alert Levels.

²⁶ DL= Discharge Limit.

²⁷ Not established means monitoring is required but no limits have been specified.

TABLE 3 (A)
COMPLIANCE GROUNDWATER MONITORING

Sampling Point Number	Well Number	Well ID	Cadastral Location	ADWR Registration Number	Latitude	Longitude
11	CR-1	TW	(18-19)22ddb	55-540672	34°56'24"N	110° 18' 39"W
12	DM-4R ²⁸	LCR	<i>To Be Provided per Section 3.0</i> (18-19)26dab	<i>To Be Provided per Section 3.0</i> 55-910008	34° 55' 43" N	110° 17' 23" W

Parameter	AL ²⁹	AQL ³⁰	Sampling Frequency	Reporting Frequency
Chloride for CR-1	1,300 mg/l	Not Established ³¹	Annually	Annually
Chloride for DM-4R	Not Established	Not Established	Annually	Annually
Fluoride	3.2 mg/l	4.0	Annually	Annually
Nitrate (as N)	8 mg/l	10 mg/l	Annually	Annually
Nitrite (as N)	0.8 mg/l	1.0 mg/l	Annually	Annually
pH	Not Established	Not Established	Annually	Annually
Sulfate (SO ₄)	Not Established	Not Established	Annually	Annually
Total Dissolved Solids (TDS)	Not Established	Not Established	Annually	Annually
Boron	Not Established	Not Established	Annually	Annually
Total Dissolved Chromium	0.08 mg/l	0.10 mg/l	Annually	Annually

²⁸ DM-4R limits are set to reserved until ambient groundwater monitoring has been completed as specified in Section 3.0.

²⁹ AL= Alert Levels.

³⁰ AQL= Aquifer Quality Limit.

³¹ Not established means monitoring is required but no limits have been specified.

TABLE 3 (B)
COMPLIANCE GROUNDWATER MONITORING

Sampling Point Number	Well Number	Well ID	Cadastral Location	ADWR Registration Number	Latitude	Longitude
13	W-124	FAP	(18-20)30cba	55-533820	34°55'43"N	110° 16' 01"W
14	W-125	FAP	(18-20)30dba	55-533827	34°55'43"N	110° 16' 01"W
15	W-126	FAP	(18-20)30cca	55-553268	34° 55' 37" N	110° 16' 02" W
16	M-44D	FAP	<i>To Be Provided per Section 3.0</i> (18-20)30bba2	<i>To Be Provided per Section 3.0</i> 55-909988	34° 56' 29.90" N	110° 16' 04.35" W

Parameter	AL ³²	AQL ³³	Sampling Frequency	Reporting Frequency
Chloride for W-124	6,875 mg/l	Not Established ³⁴	Annually	Annually
Chloride for W-125	1,000 mg/l	Not Established	Annually	Annually
Chloride for M-44D	Monitor Only	Not Established	Annually	Annually
Fluoride	3.2 mg/l	4.0	Annually	Annually
Nitrate (as N)	8 mg/l	10 mg/l	Annually	Annually
Nitrite (as N)	0.8 mg/l	1.0 mg/l	Annually	Annually
pH	Not Established	Not Established	Annually	Annually
Sulfate (SO ₄)	Not Established	Not Established	Annually	Annually
Total Dissolved Solids (TDS)	Not Established	Not Established	Annually	Annually
Boron	Not Established	Not Established	Annually	Annually
Lead	0.04 mg/l	0.05mg/l	Annually	Annually
Cadmium	0.004 mg/l	0.005 mg/l	Annually	Annually
Thallium*	0.002 mg/l	0.002 mg/l	Annually	Annually
Total Chromium	0.08 mg/l	0.1 mg/l	Annually	Annually

*The AL for Thallium is set equal to the AQL in this monitoring Table. The alert level of 0.002 mg/l is reported to be the lowest method reporting limit can be reasonable achieved by a state certified laboratory. In the event that concentration of thallium is detected at 0.002 mg/l, the contingency requirements for both the AL and AQL shall be initiated. If the detection limit for thallium is greater than 0.002 mg/l, then the AL and AQL exceedence shall not be triggered, as there is no proof that the thallium concentration exceeds the AL or AQL.

³² AL= Alert Levels.

³³ AQL= Aquifer Quality Limit

³⁴ Not established means monitoring is required but no limits have been specified.

TABLE 3 (C)
GROUNDWATER COMPLIANCE MONITORING

Sampling Point Number	Well Number	Well ID	Cadastral Location	ADWR Registration Number	Latitude	Longitude
17	W-304	BAP	(18-19)23abd	55-506370	34°56'24"N	110° 17' 17"W
18	W-310	BAP	(18-19)23abd	55-533816	34°57'03"N	110° 17' 22"W
19	W-312	BAP	(18-19)13cdb	55-533815	34°57'13"N	110° 17' 00"W
20	W-313	BAP	(18-19)13cdb	55-533814	34°57'13"N	110° 17' 01"W

Parameter	AL ³⁵	AQL ³⁶	Sampling Frequency	Reporting Frequency
Chloride for W-310 and W-312	Not Established	Not Established ³⁷	Annually	Annually
Chloride for W-313	1625 mg/l	Not Established	Annually	Annually
Fluoride	3.2 mg/l	4.0 mg/l	Annually	Annually
Nitrate (as N)	8 mg/l	10 mg/l	Annually	Annually
Nitrite (as N)	0.8 mg/l	1.0 mg/l	Annually	Annually
pH	None	None	Annually	Annually
Sulfate (SO ₄) for W-313	462 mg/l	Not Established	Annually	Annually
Sulfate (SO ₄) for W-312 and W-310	Not Established	Not Established	Annually	Annually
Total Dissolved Solids (TDS) for W-313	3625 mg/l	Not Established	Annually	Annually
Total Dissolved Solids (TDS) for W-310 and W-312	Not Established	Not Established	Annually	Annually
Boron	Not established	Not Established	Annually	Annually
Total Chromium	0.08 mg/l	0.1 mg/l	Annually	Annually

³⁵ AL= Alert Levels.

³⁶ AQL= Aquifer Quality Limit

³⁷ Not established means monitoring is required but no limits have been specified.

TABLE 3 (D)
GROUNDWATER MONITORING (For Information Purposes Only)

Sampling Point Number	Well Number	Well ID	Cadastral Location	ADWR Registration Number	Latitude	Longitude
22	W-227	BAP	(18-19)23aba	55-506586	34° 57' 08"N	110° 17' 33"W
23	W-301	BAP	(18-19)23aca	55-506372	34° 56' 51"N	110° 17' 38"W
24	W-302	BAP	(18-19)23abd	55-506271	34° 56' 42"N	110° 17' 23"W
25	W-303	BAP	(18-19)23abd	55-506369	34° 57' 00"N	110° 17' 28"W
26	W-305	BAP	(18-19)23aba	55-506364	34° 57' 03"N	110° 17' 22"W
27	W-306	BAP	(18-19)23aba	55-506365	34° 57' 03"N	110° 17' 04"W
28	W-307	BAP	(18-19)24bbd	55-506366	34° 56' 59"N	110° 17' 14"W
29	W-308	BAP	(18-19)13cdd	55-506368	34° 57' 11"N	110° 16' 50"W
30	W-309	BAP	(18-19)13dbc	55-506367	34° 57' 20"N	110° 16' 30"W
31	W-311	BAP	(18-19)23aad	55-533813	34° 57' 03"N	110° 17' 17"W
32	W-314	BAP	(18-19)13cdb	55-533812	34° 57' 14"N	110° 17' 00"W
33 ³⁸	M-44S	FAP	(18-19)30bba1	55-909987	34° 56' 29.82"N	110° 16' 03.64"W
34	M-63A	LCR	(18-19)25cdc	55-918638	34° 55' 28.56"N	110° 16' 57.48"W
35	Bud Hunt	LCR	(18-20)31baa	NA(1940's)	34°55'22"N	110° 11' 54"W
36	Boyce Hunt	Coconino	(18-20)31bbb	55-539986	34°55'06"N	110° 15' 55"W

³⁸ M-44S will be monitored for water levels only.

TABLE 3 (D) (Continued)
GROUNDWATER MONITORING (For Information Purposes Only)

Parameter	Sampling Frequency	Reporting Frequency
Chloride	Annually	Annually
Fluoride	Annually	Annually
Boron	Annually	Annually
Nitrate (as N)	Annually	Annually
Nitrite (as N)	Annually	Annually
pH	Annually	Annually
Sulfate (SO ₄)	Annually	Annually
Total Dissolved Solids (TDS)	Annually	Annually
Calcium	Annually	Annually
Magnesium	Annually	Annually
Sodium	Annually	Annually
Chromium	Annually	Annually
Thallium	Annually	Annually
Beryllium	Annually	Annually

TABLE 4 (A)
STORM WATER RETENTION POND INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Freeboard	Minimum of 3 feet	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually

TABLE 4 (B)
SEDIMENTATION POND INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Freeboard	Minimum of 3 feet	Monthly	Annually
Pump integrity	Good working condition	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually
Liner integrity	No visible damage	Monthly	Annually
Pipeline integrity from the Sedimentation Pond to the General Water Sump and the Bottom Ash Transfer Sump	No leaks or visible damage, good working condition	Monthly	Annually

TABLE 4 (C)
BOTTOM ASH POND INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Dam integrity	No noticeable structural weakness, seepage erosion, or other hazardous conditions such as sloughing, movement of the toe or rip-rap failures	Monthly	Annually
Freeboard	Minimum of 3 feet	Monthly	Annually
Siphon lines integrity	No leaks or visible damage, good working condition	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually
Pipeline integrity from the Bottom Ash Transfer Sump to the Bottom Ash Pond	No leaks or visible damage, good working condition	Daily	Annually
Bottom Ash Transfer Sump integrity	No structural damage	Monthly	Annually
West Abutment Seep	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Bottom Ash Pond	Monthly	Annually
Petroglyph Seep	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Bottom Ash Pond	Monthly	Annually
P-226 Seep	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Bottom Ash Pond	Monthly	Annually
Tanner Wash Seep	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Bottom Ash Pond	Monthly	Annually

TABLE 4 (D)
BOTTOM ASH MONOFILL INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Ash covered by natural alluvial materials	Minimum 6 inches	Monthly	Annually
Surface intercept trench	Good working condition. Seepage volume does not exceed capacity of collection system to divert seepage to the Bottom Ash Pond seepage intercept system.	Monthly	Annually
Seep collection system	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Bottom Ash Pond	Monthly	Annually

TABLE 4(E)
WEST AREA RETENTION POND INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Freeboard	Minimum of 2 feet	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually
Pump integrity	Good working condition	Monthly	Annually
Pipeline integrity from the West Area Retention Pond to the Sedimentation Pond	No leaks or visible damage, good working condition	Monthly	Annually

TABLE 4 (F)
FLY ASH POND INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Dam integrity	No noticeable structural weakness, seepage erosion, or other hazardous conditions such as sloughing, movement of the toe or rip-rap failures	Monthly	Annually
Freeboard	Minimum of 3 feet	Monthly	Annually
Hunt Seep collection system	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Fly Ash Pond	Monthly	Annually
Geronimo Seep collection system	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system to return seepage to Fly Ash Pond	Monthly	Annually
I- 40 Seep collection system	Good working condition	Monthly	Annually
Integrity of pipeline from seep collection systems to Fly Ash Pond	No leaks or visible damage, good working condition	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually

TABLE 4 (G)
CHOLLA RESERVOIR INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Dam integrity	No noticeable structural weakness, seepage erosion, or other hazardous conditions such as sloughing, movement of the toe or rip-rap failures	Monthly	Annually
Freeboard	Minimum of 3 feet	Monthly	Annually
Embankment integrity	No impairment or excessive erosion	Monthly	Annually
Pump integrity	Good working condition	Monthly	Annually
Seepage Collection System	Good working condition including pumps, flow meters, pipes and sumps. Seepage volume does not exceed capacity of collection system, which includes the trench located south of the reservoir and the retention basin located to return seepage to Cholla Reservoir	Monthly	Annually

TABLE 4 (H)
GENERAL WATER SUMP INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Sump integrity	No structural damage	Monthly	Annually

TABLE 4 (I)
OIL/WATER SEPARATOR INSPECTION

Parameter	Performance Standards	Inspection Frequency	Reporting Frequency
Oil/Water Separator integrity	No leaks or visible damage, good working condition	Monthly	Annually

5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

5.1 Original Permit

1. Aquifer Protection Permit Application received by ADEQ on September 28, 1992
2. Aquifer Protection Permit issued on February 27, 1998

5.2 Significant Amendment

1. Application received on January 20, 1999
2. Permit issued on June 26, 2000

5.3 Other Amendment

1. Application received on October 3, 2001
2. Permit issued on March 5, 2002

5.4 Other Amendment

1. Application received on June 28, 2002.
2. Permit issued on August 21, 2003.

5.5 Minor Amendment

1. Request received on September 24, 2004
2. Permit issued on October 2, 2006

5.6 Significant Amendment

1. Application received on April 23, 2007
2. Permit issued May 15, 2008

5.7 Significant Amendment

1. Application for a Significant Amendment received June 27, 2008.
2. Permit issued July 28, 2010.

5.8 Significant Amendment (this permit)

1. Application for a Significant Amendment received November 6, 2015.

6.0 NOTIFICATION PROVISIONS

6.1 Annual Registration Fees

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242(D).

6.2 Duty to Comply [A.R.S. §§ 49-221 through 49-263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

6.5 Technical and Financial Capability

[A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§49-241 through 49-252.

6.8 Inspection and Entry [A.R.S. §§ 41-1009, 49-203(B) and 49-243(K)(8)]

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices specified by this permit.

6.10 Permit Action: Amendment, Transfer, Suspension & Revocation

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Water Permits Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

7.0 ADDITIONAL PERMIT CONDITIONS

7.1 Other Information [A.R.S. § 49-243(K)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

7.2 Severability

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

7.3 Permit Transfer

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements.