ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In Re:	)	
Four Corners Power Plant	)	**NPDES Appeal No. 19-06**
NPDES Renewal Permit: NN0000019	)	
Arizona Public Service Company (Permittee)	)	

ARIZONA PUBLIC SERVICE COMPANY'S RESPONSE TO PETITION FOR REVIEW

ATTACHMENT 24

US ENVIRONMENTAL PROTECTION AGENCY
NAVAJO NATION
COMPLIANCE EVALUATION INSPECTION
MAY 8, 2012

Facility: APS Four Corners Power Plant, NN0000019

Inspectors: Jamie Marincola, USEPA Region 9
Patrick Antonio. NNEPA
Steve Austin, NNEPA
Dorothy Redhorse, NNEPA
Novik Begay, NNEPA
Lee Anna Martinez-Silversmith, NNEPA
Melinda O'Daniel, NNEPA

Facility Representatives:

- Carl Woolfolk
- Matthew Hodge
- Arnold Slowman

Report Prepared by: Jamie Marincola

Date Prepared: August 9, 2012

Introduction

On May 8, 2012 Jamie Marincola from USEPA Region 9 and Patrick Antonio, Steve Austin, Dorothy Redhorse, Novik Begay, Lee Ann Martinez-Silversmith, and Melinda O'Daniel from NNEPA inspected APS Four Corners Power Plant. The weather at the time of the inspection was sunny and clear. The facility is located on Indian Service Road 361/N 367/Indian Service Road 5086 in Fruitland, New Mexico. Discharges from APS Four Corners via Morgan Lake to the No Name Wash, a tributary to the Choco River, are regulated by NPDES permit number NN0000019 which became effective on April 7, 2001 and expired on April 6, 2006. The expired permit was administratively extended by USEPA and currently regulates discharge from the facility. The permittee has submitted several revisions to their application, most recently on November 17, 2009.

The primary purpose of the inspection was to evaluate the facility's compliance with the NPDES permit and gather any information necessary for the re-issuance of the permit. The facility was last inspected on May 11, 2011 by NNEPA inspector Melinda O'Daniel. The primary representative during the inspection for the facility was Carl Woolfolk.

Operation Status

The permittee operates five generating units. USEPA issued a final rule to give the operators of FCPP the flexibility to choose between two compliance strategies for reducing NOx

emissions: EPA's Best Available Retrofit Technology determination requiring new NOx controls on all five generating units by 2017, or APS's alternative to retire units 1-3 by 2014 and install new NOx controls on units 4 and 5 by mid-2018. Facility representatives indicated that if they were to shut down units 1 through 3, this would lead to a cooling water reduction from approximately 1.3 million gallons per minute (GPM) to 1 million GPM. The facility does not anticipate that shutting down units 1 through 3 will have a significant effect on temperature in Morgan Lake.

On the day of the inspection, units 1, 3, and 4 were in operation. **Figure 1** shows the plume coming off of generator 3.

Combined Waste Treatment

Combined waste streams, including in plant stormwater runoff, are pumped to a combined waste treatment pond (CWTP). **Figure 2** shows the quality of the combined wastewater before treatment. A cationic polymer (flocculant) is added to the wastewater prior to being sent to the CWTP for settling. Layers of coal soot were prevalent in many areas of the facility including the flocculent containment (**Figure 3**).

The CWTP (influent pictured in **Figure 4**) is a treatment lagoon that treats 8-13 million gallons per day (MGD) with a detention time of approximately 4-6 hours. The pond includes various baffles, skimmers and segmented flows to prevent short-circuiting and remove oils that accumulate on the surface (**Figure 4, 5, and 6**). A Mudcat (**Figure 6**) is continually used to dredge solids from the bottom of the pond. Recent issues with elevated TSS due to increased solids loading from the coal ash have caused the facility to increase the baffling in the CWTP.

Effluent from the CWTP is metered and logged electronically before entering a culvert leading to the cooling water discharge canal and Outfall 01E (**Figure 7**). A representative sample of Outfall 01E may be taken before or after the culvert.

Once Through Cooling

Cooling water for all five units is drawn and discharged back into Morgan Lake. Water is drawn from the lake at a depth of 40 feet. A berm at the inlet (**Figure 8**) is approximately 30 feet deep, meaning the water is pulled from only the bottom 10 feet of the lake. This helps isolate the cooler lake water, but also decreases the amount of fish and fish larvae entering the intake canals.

After the berm, a portion of the water is pulled into the intake for units 1-3, the other portion flows down an intake canal specifically for units 4 and 5 (**Figure 9**). The intake structures for units 4 and 5 consist of four sets of traveling screens and pumps: two for each unit. Each pump is rated at 250,000 GPM. Each screen spans a depth of approximately 20 feet and is cleared once per day, at a minimum. A facility representative indicated that through-screen intake velocity for these units is typically “well above” 0.5 ft/s, however he also indicated that they frequently observe fish freely swimming around the intake screens and that the only fish that get impinged are ones that are sick or already dead. Fish that are impinged on the screens are collected in a bucket (**Figure 10**). During the time of inspection, approximately 12 fish between 1 and 6 inches appeared in the collection basket. Operators indicated that the contents of the basket were disposed of daily.

Acrylate copolymer (a corrosion inhibitor) is slowly fed though the influent on a continual basis. Chlorine powder is added once or twice per week on a slug basis (**Figure 11**).

Once-through cooling water from units 4 and 5 is then discharged into an effluent channel (**Figure 12**) to be recirculated through and cooled off in Morgan Lake. Facility representatives indicated that the canal is usually 4-5" higher when both units 4 and 5 are in operation.

Domestic Wastewater

The facility has its own domestic treatment package plant (**Figure 13**). Activated sludge treatment includes aeration and secondary clarifying for 30,000 GPD. The facility is not required to monitor discharge from the secondary package plant, so effluent quality is unknown; however, the effluent appeared to be murky and of poor quality, possibly not meeting secondary standards in 40 CFR 133.102. Effluent from the package plant is sent to the lined fly ash pond and is not discharged or permitted to be discharged to waters of the U.S. It is, however, reused as part of the desulfurization cycle.

Fly Ash

Chemical metal cleaning and flue gas desulfurization wastewater is sent to a series of two fly ash ponds. Blowdown effluent from units 1, 2 and 3 is sent through a clarifier (**Figure 14**) and then combined with underflow from units 4 and 5 (**Figure 15**), metal cleaning wastes (unloaded as a slug by a truck), and sanitary wastewater effluent before being sent to the ash ponds.

Two ash ponds operate in series. The first is a single-lined pond (**Figure 16**) where floatables are removed and sold for revenue. The effluent from the single-lined pond is sent through a gravel filter downhill to the double-lined pond (**Figure 17**). The double-lined pond serves as a retention basin holding the effluent before it is pumped for desulfurization reuse.

Around the double-lined pond is a French drain system collecting and pumping leachate to a seepage intercept (**Figure 18**) which then pumps the leachate back up to the double-lined pond. During the inspection, flow into the intercept was nontrivial and appeared to be a steady stream through approximately a 4 inch pipe. Prior to being pumped back to the double-lined pond, the intercept served as an outfall; the outfall conveyance has since been walled off.

Figure 19 shows an ash pile close to the ponds. The ash pile was covered in chemicals for both dust suppression and pH adjustment. Much of the area surrounding the ash ponds was covered in dust suppressing chemical.

Outfall and Intake from San Juan River

Outfall 001 (**Figure 20**) discharges effluent from Morgan Lake to the effluent-dependant No Name Wash which flows to the San Juan River. The facility mostly discharges in order to reduce the amount of total dissolved solids (TDS) and temperature built up in the lake. The permit does not incorporate a limit for TDS, however a facility representative indicated that TDS levels in the lake are typically 800-1,000 mg/L. Discharge is restricted by temperature. The

facility monitors for temperature and will not discharge if temperature in Morgan Lake exceeds effluent limitations. The permittee expressed an interest in increased flexibility (downstream monitoring closer to the San Juan River) or a relaxed limit on temperature discharged through Outfall 001.

Temperature, flow and grab samples are taken at the outfall structure (**Figure 21**). Temperature is metered by solar-powered logging equipment. Although the facility operates redundant logs and panels, the permittee indicated that they have sporadic issues with their temperature monitoring equipment malfunctioning. The permittee requested that they be allowed to take grab samples for temperature instead of the current continuous monitoring requirement.

In addition to the outfall, a spillway (**Figure 22**) connects the Lake to the wash. A facility representative indicated that they have never had a discharge from the spillway other than incidental blow over from heavy wind.

Morgan Lake is restocked with water from the San Juan River through an intake and diversion structure located on the side of the river (**Figure 23**). Facility representatives indicated that they pull no more than 48 MGD from the river to pump up to the lake.

The intake structure consists of two side-by-side screens on the bank of the river. Screens are cycled once per day or more frequently, if necessary (this usually happens in the spring). Slots in the screen measured 3 inches by 1.5 inches. During the inspection, an operator removed a screen to demonstrate the removal process. A recently replaced screen sat next to the active screens and did not appear to be excessively obstructed (**Figure 24**). Facility representatives estimated the through-screen intake velocity from the river to be close to 0.5 ft/s.

Morgan Lake

Morgan Lake serves as a cooling pond for the facility's cooling water. The lake is also frequently used by aquatic life and recreationally. Navajo Nation and US Fish & Wildlife stock the lake with fish. Bass thrive in the lake to the point that the lake hosts bass fishing tournaments. Conversely, catfish do not thrive in the lake due to the elevated temperatures.

Nearby residents live within 2,000 feet of the lake. Common recreational activities on the lake include fishing, wind surfing and jet skiing. A publically accessible dock and boat ramp are available on the north side of the lake (**Figure 25**).

DMR Review

Since the last inspection in May 2011, the facility has not reported any instances of violation in their Discharge Monitoring Reports.

Findings

- Total Dissolved Solids are built-up in Morgan Lake before being discharged to the receiving water. Elevated TDS may adversely impact downstream beneficial uses, however there is no criterion for TDS in the Navajo Nation Water Quality Standards.

- Sanitary, fly ash and FGD blowdown wastewater is not regulated in the NDPES Permit. Although there is no discrete outfall from the fly ash ponds, the ponds do have a potential to discharge to Waters of the U.S. through subsurface leaching.

- A NPDES permit application requires the permittee to assess whether priority pollutants are believed to be present or absent from their discharge. A priority pollutant scan to assess the presence of such pollutants has not been conducted in over five years.

- Potential discharges from a designated Morgan Lake spillway are not regulated in the NPDES Permit. Although this is not a regular outfall, provisions for potential discharge monitoring and reporting should be covered under the permit.

- Monitoring for total residual chlorine in once-through cooling discharge is not specified in the permit as being concurrent with chlorine application. Current chlorine monitoring requirements may not be indicative of chlorine spikes in effluent at 01A.

Recommendations to Permittee

- In order to ensure the accuracy of Section V. Part B of their permit application (Form 2-C), the permittee should conduct a priority pollutant scan at Outfall 001.

Requests Made by Permittee for Permit Renewal

During the inspection, the permittee requested the following adjustments be considered by the PA in the permit reissuance:

- An elevated temperature limitation, alternate compliance location (downstream of the discharge point) or consideration of a mixing zone in the San Juan River.

- Temperature monitoring at Outfall 001 to be based on grab sampling or allow for grab sampling in the event of continuous monitoring failure.

- Oil & grease and chlorine monitoring frequency be reduced.

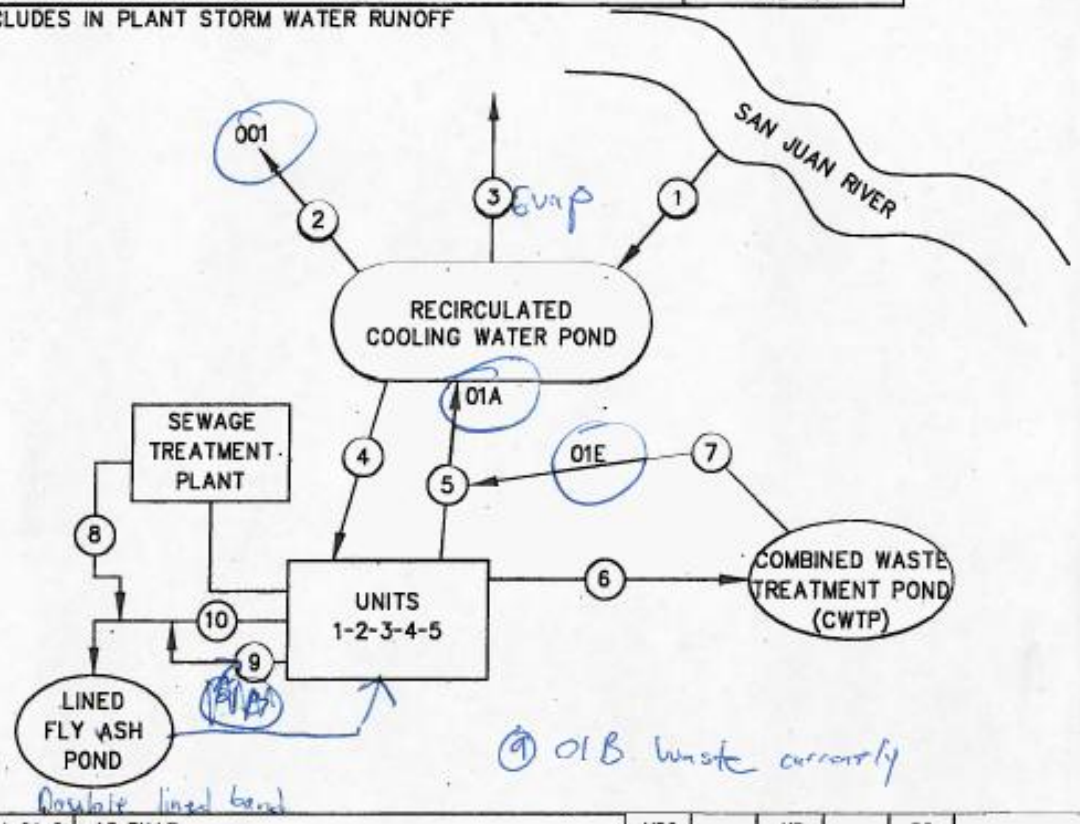
- Chlorine monitoring to be conducted using a field kit instead of the method currently specified in the permit.

- Continue annual toxicity monitoring instead of accelerated monitoring required at the onset of the previous permit.

Flow Diagram – APS Four Corners

NO.	TITLE	AVG. RATE (MGPD)
1	RIVER MAKE-UP; COOLING WATER INTAKE	17-28
2	RECIRCULATED COOLING WATER POND DISCHARGE/BLOW-DOWN	3-14.6
3	SYSTEM EVAPORATION	13.3
4	SERVICE & RECIRCULATED COOLING WATER INTAKE*	1000-1726.7
5	RECIRCULATED COOLING WATER RETURN	1000-1713.6
6	COMBINED WASTE STREAMS *	13.0
7	CWTP (L.V.W.) DISCHARGE	13.0
8	SANITARY SEWAGE	.027-.04
9	CHEMICAL METAL CLEANING WASTES	.100
10	FLUE GAS DESULFURIZATION WASTEWATER	0.8-1.4

* INCLUDES IN PLANT STORM WATER RUNOFF



NO.	DATE	REVISION	DWN	CHD	EXD	RVWD	APVD	W A
4	4-24-07	AS-BUILT	MDC		HB		BS	
3	2-23-07	GENERAL REVISIONS	MDC		HB		BS	
2	10-4-05	CHG. NO. 2 FROM 14.7 TO 14.6 MGPD	MDC		WB	WB	BS	
1	9-27-05	CHG. NO. 8 FROM .1 TO .04 MGPD & NO. 9 FROM .005 TO .100 MGPD AND REVISED TEXTS	MDC		CW	CW	BS	

FOUR CORNERS
COMMON
N.P.D.E.S PERMIT APPLICATION
WATER FLOW LINE

DATE 08-24-02
SCALE NONE
W.A. _____

APS

DWN GK\MC | EXD RDB | APPROVED
CHD WB | RVWD DB | D. BLOOMFIELD ENGINEERING SUPERVISOR

UNIT	DISC	TYPE	SYS	NUMBER	SHEET
FC	C	16	CEM	114058	1

DRAWING: T:\Logo\MonroeCharles\Checkin\FC-C-16-CEM-114058-1.dwg

Photos taken during Inspection of APS Four Corners Power Plant

May 8, 2012

Figure 1: APS Four Corners Power Plant. Close up of plume coming off unit 3.

Figure 2: Sump pumping drainage from facility to Combined Waste Treatment Pond (CWTP).

Figure 3: Flocculant for sump with containment. Ash build-up prevalent on the premises.

Figure 4: Influent to CWTP

Figure 5: CWTP with oil along bank.

Figure 6: CWTP with berming to control flow and skim grease before outfall (bottom left).

Figure 7: Flow from CWTP metered (left) goes through culvert before discharging to cooling water effluent canal (right).

Figure 8: Berm wall before intake channel to draw only bottom water from Lake Morgan.

Figure 9: Cooling water intake channel and screens for units 4 and 5.

Figure 10: Fish return from traveling screens disposed of once/day. Approximately 12 fish between 1" and 6" observed in basket.

Figure 11: Corrosion inhibitor, acrylate copolymer (left) and chlorine powder addition (right).

Figure 12: Cooling water discharge from unit 4; unit 5 not discharging at time of inspection.

Figure 13: Domestic wastewater treatment package plant; final effluent (bottom) murky.

Figure 14: Thickeners from blowdown to be sent to fly ash ponds.

Figure 15: Thickener from blowdown (left stream) and underflow sulfate/sulfite solution (right).

Figure 16: Single-lined fly ash pond. Floatables removed (bottom) and sold.

Figure 17: Double-lined fly ash bond; influent from single-lined pond (above).

Figure 18: Fly Ash Pond seepage intercept with former leachate outfall (right).

Figure 19: Fly Ash Pile (back) next to single-lined pond (left) with dust-suppression (white) and pH adjustment (green).

Figure 20: Outfall 001 from Morgan Lake to No Name Wash.

Figure 21: Temperature meter and log and flow gage at Outfall 001.

Figure 22: Morgan Lake Spillway.

Figure 23: Diversion structure and intake screens along bank of San Juan River.

Figure 24: Intake screen before, during and after daily removal and replacement.

Figure 25: Morgan Lake. Above: Residences on left within 2,000 feet of lake.
Below: Publically accessible dock and fisherman in lake.