

Permit Number: AR0051136
AFIN: 29-00506

**AUTHORIZATION TO DISCHARGE WASTEWATER UNDER
THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND
THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT**

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act, Ark. Code Ann. §8-4-101 *et seq.*, and the Clean Water Act, 33 U.S.C. §1251 *et seq.*,

The applicant's mailing address is:

Southwestern Electric Power Company
John W. Turk, Jr. Power Plant
1201 Elm Street, Suite 4100
Dallas, TX 75270

The facility physical address is:

Southwestern Electric Power Company
John W. Turk, Jr. Power Plant
3711 Highway 355 South
Fulton, AR 71838

is authorized to discharge cooling tower blowdown, low volume wastewater, coal pile runoff, ash landfill leachate, and stormwater from a treatment system at a facility located as follows: exit 18 off of I-30 at Fulton, then 0.1 miles north on Red Lake Road, then 0.6 miles west on US 67, then 6 miles north on Hwy 355 to plant gate on right in Hempstead County, Arkansas.

Latitude: 33° 38' 45.3"; Longitude: 93° 49' 45.3"

to receiving waters named:

Outfall 001: Little River thence to the Red River in Segment 1C of the Red River Basin.

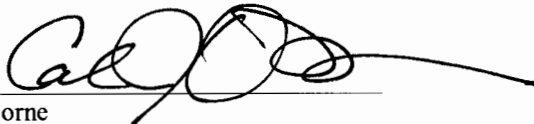
Outfall 002: unnamed tributary, thence to Bridge Creek, thence to the Red River in Segment 1C of the Red River Basin.

The outfalls are located at the following coordinates:

Outfall 001:	Latitude: 33° 36' 56.4"	Longitude: 93° 50' 54.8"
Outfall 002:	Latitude: 33° 39' 2.4"	Longitude: 93° 48' 11.0"
Internal Outfall 101:	Latitude: 33° 38' 59.0"	Longitude: 93° 48' 37.5"
Internal Outfall 201:	Latitude: 33° 38' 58.6"	Longitude: 93° 48' 38.9"
Internal Outfall 301:	Latitude: 33° 38' 58.6"	Longitude: 93° 48' 38.9"
Internal Outfall 401:	Latitude: 33° 39' 0.0"	Longitude: 93° 48' 37.6"
Internal Outfall 501:	Latitude: 33° 38' 24.3"	Longitude: 93° 48' 47.1"
Internal Outfall 601:	Latitude: 33° 38' 24.3"	Longitude: 93° 48' 47.1"

Discharge shall be in accordance with effluent limitations, monitoring requirements, and other conditions set forth in this permit. Per Part III.D.10, the permittee must re-apply on or before 180 days prior to the expiration date for permit coverage past the expiration date.

Effective Date: January 1, 2019
Expiration Date: December 31, 2023



Caleb Osborne
Associate Director, Office of Water Quality
Arkansas Department of Environmental Quality

11.30.18

Issue Date

- ¹ See Condition No. 18 of Part II (WET Testing Requirements).
- ² **CONDITIONAL REPORTING:** Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permit may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, report NODI=9 (Conditional Monitoring – Not Required This Period) under retest parameters.
- ³ See Condition No. 8 of Part II.
- ⁴ Neither TRC or FAC may be discharged for more than two hours in any one day.
- ⁵ See Condition No. 5 of Part II.
- ⁶ See Condition No. 17 of Part II.

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen as defined in Part IV of this permit. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the point of discharge from the wastewater pond to the piping that conveys the effluent to the Little River.

**PART I
PERMIT REQUIREMENTS**

SECTION A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 002 – discharge to an unnamed tributary of Bridge Creek from the emergency overflow spillway at the coal pile runoff pond consisting of stormwater runoff from the coal pile and low volume wastewater from the coal handling area sumps and vehicle wash station.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 002. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil-water separator and a sedimentation pond.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day ¹	calculated ⁵
Total Suspended Solids (TSS)	N/A	N/A	30	50	once/day ¹	grab
Oil and Grease (O & G)	N/A	N/A	10	15	once/day ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/day ¹	grab
Chronic WET Testing ^{1,2}						
<u>Pimephales promelas (Chronic)</u> ^{1,2} Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C Pass/Fail Retest 1 (7-day NOEC) 22418 Pass/Fail Retest 2 (7-day NOEC) 22419 Pass/Fail Retest 3 (7-day NOEC) 51444			Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1)	once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/month ³ once/month ³ once/month ³	composite composite composite composite composite composite composite composite
<u>Ceriodaphnia dubia (Chronic)</u> ^{1,2} Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B Pass/Fail Retest 1 (7-day NOEC) 22415 Pass/Fail Retest 2 (7-day NOEC) 22416 Pass/Fail Retest 3 (7-day NOEC) 51443			Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report (Pass=0/Fail=1)	once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/quarter ⁴ once/month ³ once/month ³ once/month ³	composite composite composite composite composite composite composite composite

¹ When discharging from this outfall.

² See Condition No. 18 of Part II.

³ **CONDITIONAL REPORTING:** Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, report NODI=9 (Conditional Monitoring – Not Required This Period) under retest parameters.

⁴ WET Testing shall be performed at the first discharge of each calendar quarter.

⁵ Flow is calculated based on pipe size and amount of time valve is open.

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen as defined in Part IV of this permit. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the spillway of the coal pile runoff pond.

PART I
PERMIT REQUIREMENTS

SECTION A3. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 101 - discharge from the process water pond to the wastewater pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 101. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil/water separator, sedimentation pond, Lamella inclined plate clarifiers, and multimedia filtration.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	measured ²
Total Suspended Solids (TSS)	291.2	483.8	30	50	once/week ¹	grab
Oil and Grease (O & G)	144.4	193.7	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.

² Flow is measured by flow meter and pump run time.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge from the process water pond to the wastewater pond.

**PART I
 PERMIT REQUIREMENTS**

SECTION A4. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 201 - discharge from the coal pile runoff pond to the make-up water pond consisting of stormwater runoff from the coal pile, low volume wastewater from the coal handling area sumps and coal handling area vehicle wash station.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 201. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil/water separator, sedimentation pond, Lamella inclined plate clarifiers, and multimedia filtration.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	measured ²
Total Suspended Solids (TSS)	N/A	N/A	30	50	once/week ¹	grab
Oil and Grease (O & G)	N/A	N/A	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.
² Flow is measured by flow meter and pump run time.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge of the coal pile runoff pond to the make-up water pond.

**PART I
 PERMIT REQUIREMENTS**

SECTION A5. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 301 - discharge from the process water pond to the make-up water pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

During the period beginning on the modification effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 301. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil/water separator, sedimentation pond, Lamella inclined plate clarifiers, and multimedia filtration.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	measured ²
Total Suspended Solids (TSS)	291.2	483.8	30	50	once/week ¹	grab
Oil and Grease (O & G)	144.4	193.7	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.
² Flow is measured by flow meter and pump run time.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge of the process water pond to the make-up water pond.

PART I
PERMIT REQUIREMENTS

SECTION A6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 401 - discharge from the intake water pretreatment system to the wastewater pond consisting of low volume wastewater (reject water from the intake water pretreatment system).

During the period beginning on the modification effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 401. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of clarifiers and water softeners.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	calculated ²
Total Suspended Solids (TSS)	N/A	N/A	30	100	once/week ¹	grab
Oil and Grease (O & G)	N/A	N/A	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.

² Flow is calculated based on pump run time in conjunction with pump capacity.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge from the make-up water treatment system to the wastewater pond.

**PART I
 PERMIT REQUIREMENTS**

SECTION A7. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 501 - discharge from the landfill leachate pond to the make-up water pond consisting of low volume wastewater (stormwater runoff and leachate from ash landfill).

During the period beginning on the modification effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 501. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of a sedimentation pond.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	calculated ²
Total Suspended Solids (TSS)	N/A	N/A	30	100	once/week ¹	grab
Oil and Grease (O & G)	N/A	N/A	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.

² Flow is calculated based on pump run time in conjunction with pump capacity.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge from the landfill leachate pond to the make-up water pond.

**PART I
 PERMIT REQUIREMENTS**

SECTION A8. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 601 - discharge from the landfill leachate pond to the wastewater pond consisting of low volume wastewater (stormwater runoff and leachate from ash landfill).

During the period beginning on the modification effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 601. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of a sedimentation pond.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/week ¹	calculated ²
Total Suspended Solids (TSS)	N/A	N/A	30	100	once/week ¹	grab
Oil and Grease (O & G)	N/A	N/A	15	20	once/week ¹	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/week ¹	grab

¹ When discharging from this internal outfall.

² Flow is calculated based on pump run time in conjunction with pump capacity.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken at the discharge from the landfill leachate pond to the wastewater pond.

SECTION B. PERMIT COMPLIANCE SCHEDULE

No compliance schedule is included. The permittee shall achieve compliance with the effluent limitations on the effective date of the permit.

PART II OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall hold a Basic Industrial license from the State of Arkansas in accordance with APC&EC Regulation No. 3.
2. In accordance with 40 C.F.R. §§ 122.62(a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.
3. Other Specified Monitoring Requirements

The permittee may use alternative appropriate monitoring methods and analytical instruments other than as specified in Part I.A. of the permit without a major permit modification under the following conditions:

- The monitoring and analytical instruments are consistent with accepted scientific practices;
- The requests shall be submitted in writing to the Permits Section of the Water Division of the ADEQ for use of the alternate method or instrument.
- The method and/or instrument is in compliance with 40 C.F.R. § 136 or approved in accordance with 40 CFR 136.5; and
- All associated devices are installed, calibrated, and maintained to insure the accuracy of the measurements and are consistent with the accepted capability of that type of device. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

Upon written approval of the alternative monitoring method and/or analytical instruments, these methods or instruments must be consistently utilized throughout the monitoring period. ADEQ must be notified in writing and the permittee must receive written approval from ADEQ if the permittee decides to return to the original permit monitoring requirements.

4. Best Management Practices (BMPs), as defined in Part IV.6, must be implemented for the facility to prevent or reduce the pollution of waters of the State from stormwater runoff, spills or leaks, and/or waste disposal. The permittee must amend the BMPs whenever there is a change in the facility or a change in the operation of the facility.

Stormwater runoff commingling with other process wastewater discharged from Outfall 001 and Outfall 002 shall be managed in accordance with Best Management Practices (BMPs) to control the quality of stormwater discharges associated with industrial activity that are

authorized by this permit. Use of BMPs in lieu of numeric effluent limitations in NPDES permits is authorized under 40 C.F.R. § 122.44(k) when the Permitting Authority finds numeric effluent limitations to be infeasible to carry out the purposes of the Clean Water Act. All spilled products and other spilled wastes must be immediately cleaned up and properly disposed. The permittee must amend the BMPs whenever there is a change in the facility or a change in the operation of the facility.

5. The permittee may use any EPA approved method based on 40 C.F.R. § 136 provided the MQL for the chosen method is equal to or less than what has been specified in chart below:

Pollutant	MQL
Total Recoverable Chromium	10 µg/l
Total Recoverable Zinc	20 µg/l
Oil & Grease	5 mg/l
Total Residual Chlorine	33 µg/l

The permittee may develop a matrix specific method detection limit (MDL) in accordance with Appendix B of 40 C.F.R. § 136. For any pollutant for which the permittee determines a site specific MDL, the permittee shall send to ADEQ, NPDES Permits Branch, a report containing QA/QC documentation, analytical results, and calculations necessary to demonstrate that a site specific MDL was correctly calculated. A site specific minimum quantification level (MQL) shall be determined in accordance with the following calculation:

$$\text{MQL} = 3.3 \times \text{MDL}$$

Upon written approval by Permits Branch, the site specific MQL may be utilized by the permittee for all future Discharge Monitoring Report (DMR) calculations and reporting requirements.

6. Pursuant to 40 C.F.R. § 423.15(b), there shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid.
7. Pursuant to 40 C.F.R. § 423.15(g), there shall be no discharge of wastewater pollutants from fly ash transport water.
8. The permittee may use any of the “chlorine-total residual” methods in Table 1B in 40 CFR 136.3(a), or other methods approved by the permitting authority, to measure the total residual chlorine (TRC) levels in the effluent at Outfall 001. The permittee may use any of the “chlorine-free available” methods in Table 1B in 40 CFR 136.3(a) where the method has the capability of measuring free available chlorine, or other methods approved by the permitting authority, to measure the free available chlorine (FAC) levels in the effluent at Outfall 001.
9. The term “coal pile runoff” means the rainfall runoff from or through any coal storage pile.

10. The term “blowdown” means the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practices.
11. The term “low volume wastewater sources” means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in 40 C.F.R. § 423. Low volume sources include, but are not limited to, the following: Wastewaters from ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, recirculating house service water systems, and wet scrubber air pollution control systems whose primary purpose is particulate removal. Sanitary wastes, air conditioning wastes, and wastewater from carbon capture or sequestration systems are not included in this definition.
12. A minimum of two (2) feet of freeboard shall be maintained in the process water pond, coal pile runoff pond, landfill leachate pond, and wastewater pond. Pond level increases associated with storm events shall be promptly managed to reestablish the two-foot freeboard. The freeboard shall be determined at least once per month. The monitoring records shall be retained by the permittee pursuant to Part III.C.7. and must be made available to the Department upon request.
13. In accordance with 40 C.F.R. § 423.15(j)(1), the permittee shall not discharge detectable amounts of priority pollutants that are contained in chemicals used for cooling tower maintenance, except for chromium and zinc. The priority pollutants are listed in Appendix A of 40 C.F.R. § 423. Prior to the use of any cooling tower maintenance chemical, the permittee shall comply with the submittal requirements in condition 14 below.
14. In order to demonstrate compliance with 40 C.F.R. § 423.15(j)(3), for each cooling tower maintenance chemical that contains any priority pollutant(s) listed in Appendix A of 40 C.F.R. § 423, except for chromium and zinc, the permittee shall comply with either Part II. 14.A or 14.B below:
 - A. Submit an engineering calculation which demonstrates that the priority pollutant(s) in the cooling tower maintenance chemical will not be detectable in the final discharge by the analytical methods in 40 C.F.R. § 136. The engineering calculation shall be submitted and approved by the Department prior to using the chemical.
 - B. Perform analytical testing which demonstrates that the priority pollutant(s) in the cooling tower maintenance chemical is not detectable in the final discharge by the analytical methods in 40 C.F.R. § 136. Composite samples shall be used for this testing and shall be performed no sooner than 96 hours but no later than 10 days after the facility begins using the chemical.

If a cooling tower maintenance chemical does not contain any priority pollutant listed in Appendix A of 40 C.F.R. § 423, the permittee shall submit written certification stating that

the chemical does not contain any of these priority pollutants, and is not required to submit an engineering calculation for that chemical.

15. Compliance with Section 316(b) of Clean Water Act

To the extent this facility obtains cooling water from its intake structure and not a public water system, the permittee shall comply with the requirements of 40 C.F.R. § 125, Subpart I for "Track I" facilities (implementing the requirements of Section 316(b) of the clean water Act). Satisfaction of the following conditions shall be deemed compliance with such requirements:

1. Cooling Water Intake Structure Requirements

The permittee shall design and construct the cooling water intake structure in accordance with the following performance standards:

- a. Intake flow shall be limited to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system.
- b. The maximum through-screen design intake velocity shall be 0.5 feet per second.
- c. The total design intake flow shall not exceed five (5) percent of the annual mean flow of the Little River in the vicinity of the cooling water intake structure.

2. Monitoring

a. Biological Monitoring

In accordance with 40 CFR 125.85, the permittee shall conduct the following alternative monitoring procedures when the cooling water intake structure is in operation to demonstrate compliance with the biological monitoring requirements of Section 316b of the Clean Water Act:

- (i) As an alternative to conducting monthly impingement sampling, the permittee shall operate the air burst system on the intake screen at least once per week during operation of the intake structure and perform impingement sampling at least once per year in April, May, or June. The impingement sampling shall be performed no sooner than 24 hours after the previous air burst operation so that the impingement sampling results are representative of at least a 24 hour time period. During the annual impingement sampling the facility shall perform a visual observation of the intake screen in accordance with 2.c. listed below. If conditions are unsafe for divers to conduct the annual impingement sampling, then the permittee shall attempt to reschedule the impingement sampling at a time when conditions allow for safe performance of the impingement sampling, and shall keep a record of the conditions which preclude safe performance of the impingement sampling. If conditions do not allow for safe performance of the impingement sampling during April, May, or June,

then impingement sampling shall be performed at the next available time when conditions allow. The permittee shall include the results of the impingement sampling in each annual report submitted in accordance with Part II.15.3 of this permit. This annual report shall also state when impingement sampling was not conducted in April, May, or June, the reasons it was not conducted during this time period, and when the impingement sampling was conducted.

(ii) The permittee shall conduct entrainment sampling over a 24-hour period at a frequency of no less than once per month in April, May, and June (the primary period of reproduction, larval recruitment, and peak abundance). For the purposes of this permit and based upon the location of the intake structure and results of entrainment sampling performed in previous permit term, this primary period of reproduction has been determined to be April through June. The purpose of the supporting impingement and entrainment data is to demonstrate that operation of the weekly air burst technology will ensure that the intake screen is functioning as designed.

b. Velocity Monitoring

In accordance with 40 CFR 125.85, as an alternative to measuring the through-screen velocity to demonstrate compliance with the maximum through-screen design intake velocity of 0.5 ft/sec, the permittee shall: (i) conduct a weekly air burst through the intake screen during operation of the intake structure; (ii) perform impingement sampling in the manner and frequency stated in Part II.15.2.a; and (iii) conduct visual or remote inspection of the intake screen in the manner and frequency stated in Part II.15.2.c.

c. Visual or Remote Inspections

The permittee shall conduct visual inspections of the submerged cooling water intake structure and associated above-ground components at least annually during April, May, or June during periods in which the cooling water intake structure is in operation or employ remote monitoring devices. The annual visual inspection of the intake screen may be performed at the same time as the annual impingement sampling. If conditions are unsafe for divers to conduct the annual visual observation, then the permittee shall attempt to reschedule the visual observation at a time when conditions allow for safely observing the submerged screen, and shall keep a record of the conditions which preclude safe observation of the submerged screen. If conditions do not allow for safe observation of the submerged screen during April, May, or June, then visual observation of the submerged screen shall be performed at the next available time when conditions allow. The permittee shall include the dates of visual observations of the intake screen and associated above-ground components on each annual report submitted in accordance with Part II.15.3 of this permit. This annual report shall also state if visual observations were conducted in April, May, or June, or the reasons it was not conducted during this time period, and when the visual observations were conducted. The purpose of the visual inspections is to demonstrate

that operation of the weekly air burst technology will ensure that the intake screen is functioning as designed.

3. Record Keeping and Reporting

The permittee shall keep records of all the data used to complete the permit application and any supplemental information developed under 40 C.F.R. § 125.86 for a period of at least three years from the date of permit issuance unless instructed by the Department within such three year period to keep such data for a longer period. The permittee shall keep records of all compliance monitoring data submitted under Part II.15.2 above for a period of at least three years from the date such data is collected unless instructed by the Department within such three year period to keep such data for a longer period. The permittee shall prepare and submit to the Department an annual report containing records collected pursuant to Part II.15.2 above during each calendar year. All monitoring records and results from each calendar year shall be submitted in an annual report to the Department by March 31 of the following year. Each annual monitoring report shall include the results of monitoring performed during the previous calendar year.

16. Dust Suppression

The permittee is authorized to utilize water from the stormwater ponds, coal pile runoff pond, or make-up water pond for on-site dust suppression at the John W. Turk Jr. Power Plant. With respect to utilization of this water for dust suppression, the permittee shall comply with the following requirements:

- a. Dust suppression practices shall be designed and managed so as to prevent runoff, ponding of water, or contamination of ground and surface waters and to prevent the occurrence of nuisance conditions in the area.
- b. With the exception of roads at the facility, the application of water for dust suppression shall be accomplished only when the area specified is not in use.
- c. Spray fixtures for dust suppression systems shall be of such design that they cannot be operated by unauthorized personnel.
- d. With the exception of dust suppression activities conducted in the coal yard at the facility, the permittee shall keep records of volumes, times, and areas where water is used for dust suppression. These records shall be updated daily and maintained onsite for review by Department personnel upon request.

17. Revised Temperature Limit at Outfall 001:

A final Use Attainability Analysis (UAA) dated January 17, 2014 entitled “Southwestern Electric Power Company Technical Justification for a Site-Specific Temperature Criterion in the Little River Hempstead & Little River Counties, Arkansas” was approved on October 23, 2015 by the Arkansas Pollution Control & Ecology Commission, adopted into Regulation No. 2 (Reg. 2) on November 14, 2015, and EPA approved on May 16, 2016. As

stated in the EPA approval letter, this approval of the revised temperature standard in the Little River is subject to the results of consultation between EPA and USFWS under section 7(a)(2) of the Endangered Species Act (ESA). ADEQ retains the discretion to reopen this permit to revise the temperature limit in the event that this ESA consultation identifies any deficiencies in the revised water quality standard that requires a more stringent permitting action.

18. WHOLE EFFLUENT TOXICITY TESTING (7-DAY CHRONIC NOEC FRESHWATER)

A. SCOPE AND METHODOLOGY

- i. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALL(S):	001 and 002
REPORTED ON DMR AS FINAL OUTFALL:	001 and 002
CRITICAL DILUTION (%):	9% (Outfall 001) 100% (Outfall 002)
EFFLUENT DILUTION SERIES (%):	4%, 5%, 7%, 9%, 12% (Outfall 001) 32%, 42%, 56%, 75%, 100% (Outfall 002)
TESTING FREQUENCY:	once/quarter
COMPOSITE SAMPLE TYPE:	Defined at PART I
TEST SPECIES/METHODS:	40 CFR Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA-821-R-02-013, or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013, or the most recent update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

- ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically

- significant sub-lethal effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.
- iii. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. PERSISTENT LETHAL and/or SUB-LETHAL EFFECTS

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution. The purpose of retests is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

If a frequency reduction, as specified in Item F, has been granted and any valid test demonstrates significant lethal or sub-lethal effects to a test species at or below the critical dilution, the frequency of testing for that species is automatically increased to once per quarter for the life of the permit. In addition:

i. Part I Testing Frequency Other Than Monthly

- a. The permittee shall conduct a total of three (3) retests for any species that demonstrates significant toxic effects at or below the critical dilution. The retests shall be conducted monthly during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test. A full report shall be prepared for each test required by this section in accordance with procedures outlined in Item D of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.
- b. **IF LETHAL EFFECTS HAVE BEEN DEMONSTRATED** If any of the retests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item E of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest. A TRE may also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests. A TRE required based on lethal effects should consider any sub-lethal effects as well.
- c. **IF SUB-LETHAL EFFECTS ONLY HAVE BEEN DEMONSTRATED** If any two of the three retests demonstrates significant sub-lethal effects at 75% effluent or lower, the permittee shall initiate the Sub-Lethal Toxicity Reduction Evaluation (TRE_{SL}) requirements as specified in Item E of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest,

and the Sub-Lethal Effects TRE initiation date will be the test completion date of the first failed retest. A TRE may be also be required for failure to perform the required retests.

- d. The provisions of Item B.i.a are suspended upon submittal of the TRE Action Plan.

C. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

- a. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
- b. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.
- c. 60% of the surviving control females must produce three broods.
- d. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.
- e. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test.
- f. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test.
- g. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- h. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

- i. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for Ceriodaphnia dubia reproduction;
 - j. A PMSD range of 12 - 30 for Fathead minnow growth.
- ii. Statistical Interpretation
- a. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA/821/R-02-013 or the most recent update thereof.
 - b. For the Ceriodaphnia dubia reproduction test and the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA/821/R-02-013 or the most recent update thereof.
 - c. If the conditions of Test Acceptability are met in Item C.i above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item D below.
- iii. Dilution Water
- a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for:
 - (1) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - (2) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.
 - b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item C.i), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - (1) a synthetic dilution water control which fulfills the test acceptance requirements of Item C.i was run concurrently with the receiving water control;

- (2) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);
- (3) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item D below; and
- (4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iv. Samples and Composites

- a. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item A.i above. Unless otherwise stated in this section, a composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.
- b. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples, on use, are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.
- c. The permittee must collect all three flow-weighted composite samples within the monitoring period. Second and/or third composite samples shall not be collected into the next monitoring period; such tests will be determined to not meet either reporting period requirements. Monitoring period definitions are listed in Part IV.
- d. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.
- e. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the

abbreviated sample collection must be documented in the full report required in Item D of this section.

- f. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item A.i. above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.
- g. If chlorination is part of the treatment process, the permittee shall not allow the sample to be dechlorinated at the laboratory. At the time of sample collection the permittee shall measure the TRC of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

D. REPORTING

- i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA/821/R-02-013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test or retest which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.
- ii. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. The full reports for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.
- iii. The permittee shall submit the results of each valid toxicity test and retest on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Only results of valid tests are to be reported on the DMR.
 - a. Pimephales promelas (Fathead minnow)
 - (1) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TLP6C
 - (2) Report the NOEC value for survival, Parameter No. TOP6C
 - (3) Report the NOEC value for growth, Parameter No. TPP6C

- (4) If the NOEC for growth is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP6C
- (5) Report the highest (critical dilution or control) Coefficient of Variation for growth, Parameter No. TQP6C
- (6) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):
 - (A) Consecutive Monthly Retest 1: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22418;
 - (B) Consecutive Monthly Retest 2: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22419;
 - (C) Consecutive Monthly Retest 3: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51444;
 - (D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test;
 - (E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22418, 22419, 51444

b. Ceriodaphnia dubia

- (1) If the NOEC for survival is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TLP3B
- (2) Report the NOEC value for survival, Parameter No. TOP3B
- (3) Report the NOEC value for reproduction, Parameter No. TPP3B
- (4) If the NOEC for reproduction is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP3B
- (5) Report the higher (critical dilution or control) Coefficient of Variation for reproduction, Parameter No. TQP3B
- (6) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):

- (A) Consecutive Monthly Retest 1: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22415;
- (B) Consecutive Monthly Retest 2: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 22416;
- (C) Consecutive Monthly Retest 3: If the NOEC (lowest lethal or sub-lethal) for *C. dubia* is less than the critical dilution, enter a '1'; otherwise, enter a '0' under Parameter No. 51443;
- (D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test;
- (E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22415, 22416, and 51443

E. TOXICITY REDUCTION EVALUATIONS (TREs)

TREs for lethal and sub-lethal effects are performed in a very similar manner. EPA Region 6 is currently addressing TREs as follows: a sub-lethal TRE (TRE_{SL}) is triggered based on three sub-lethal test failures while a lethal effects TRE (TRE_L) is triggered based on only two test failures for lethality. In addition, EPA Region 6 will consider the magnitude of toxicity and use flexibility when considering a TRE_{SL} where there are no effects at effluent dilutions of 75% or lower.

- i. Within ninety (90) days of confirming toxicity, as outlined above, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The goal of the TRE is to maximally reduce the toxic effects of effluent at the critical dilution and includes the following:
 - a. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures the permittee shall perform

multiple characterizations and follow the procedures specified in the documents 'Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures' (EPA-600/6-91/003) and 'Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I' (EPA-600/6-91/005F), or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents 'Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity' (EPA/600/R-92/080) and 'Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity' (EPA/600/R-92/081), as appropriate.

The documents referenced above may be obtained through the National Technical Information Service (NTIS) by phone at (703) 487-4650, or by writing:

U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

- b. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;
 - c. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 48 hours of test initiation, each composite sample shall be analyzed independently. Otherwise the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;
 - d. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
 - e. Project Organization (e.g., project staff, project manager, consulting services, etc.).
- ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve

the required toxicity reduction.

- iii. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity reduction evaluation activities including:
 - a. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - b. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - c. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at the critical dilution.
- iv. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming toxicity in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant toxicity at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.
- v. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).

F. MONITORING FREQUENCY REDUCTION

- i. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters or first twelve consecutive months (in accordance with Item A.i.) of the current permit term of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the *Ceriodaphnia dubia*).
- ii. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in Item C.i. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and

the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.

- iii. SUB-LETHAL OR SURVIVAL FAILURES - Monthly retesting is not required if the permittee is performing a TRE.
- iv. Any monitoring frequency reduction granted applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Water Act and the Arkansas Water and Air Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; and/or for denial of a permit renewal application. **Any values reported in the required Discharge Monitoring Report (DMR) which are in excess of an effluent limitation specified in Part I shall constitute evidence of violation of such effluent limitation and of this permit.**

2. Penalties for Violations of Permit Conditions

The Arkansas Water and Air Pollution Control Act provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than twenty-five thousand dollars (\$25,000) or by both such fine and imprisonment for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to civil penalty in such amount as the court shall find appropriate, not to exceed ten thousand dollars (\$10,000) for each day of such violation. The fact that any such violation may constitute a misdemeanor shall not be a bar to the maintenance of such civil action.

3. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to the following:

- A. Violation of any terms or conditions of this permit.
- B. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.
- C. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- D. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
- E. Failure of the permittee to comply with the provisions of APC&EC Regulation No. 9 (Permit fees) as required by Part III.A.11 herein.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

4. **Toxic Pollutants**

Notwithstanding Part III.A.3, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under APC&EC Regulation No. 2, as amended, or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the permittee so notified.

The permittee shall comply with effluent standards, narrative criteria, or prohibitions established under APC&EC Regulation No. 2, as amended, or Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. **Civil and Criminal Liability**

Except as provided in permit conditions for “Bypass of Treatment Facilities” (Part III.B.4), and “Upset” (Part III.B.5), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

6. **Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

7. **State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

8. **Property Rights**

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

9. **Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions 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.

10. **Applicable Federal, State or Local Requirements**

Permittees are responsible for compliance with all applicable terms and conditions of this permit. Receipt of this permit does not relieve any operator of the responsibility to comply with any other applicable federal requirements such as endangered species, state or local statute, ordinance or regulation.

11. **Permit Fees**

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for wastewater discharge permits as described in APC&EC Regulation No. 9 (Regulation for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 CFR Parts 122.64 and 124.5(d), as adopted in APC&EC Regulation No. 6 and the provisions of APC&EC Regulation No. 8.

SECTION B – OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. **Proper Operation and Maintenance**

- A. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- B. The permittee shall provide an adequate operating staff which is duly qualified to carryout operation, maintenance, and testing functions required to insure compliance with the conditions of this permit.

2. **Need to Halt or Reduce not a Defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control

production or discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment or the water receiving the discharge.

4. Bypass of Treatment Facilities

“Bypass” means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 CFR 122.41(m)(1)(i).

A. Bypass not exceeding limitation

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.B.4.B and 4.C.

B. Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
2. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part III.D.6 (24-hour notice).

C. Prohibition of bypass

1. Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal or preventive maintenance.
 - (c) The permittee submitted notices as required by Part III.B.4.B.
2. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in Part III.B.4.C(1).

5. Upset Conditions

- A. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Part III.B.5.B of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- B. Conditions necessary for demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
1. An upset occurred and that the permittee can identify the specific cause(s) of the upset.
 2. The permitted facility was at the time being properly operated.
 3. The permittee submitted notice of the upset as required by Part III.D.6.
 4. The permittee complied with any remedial measures required by Part III.B.3.
- C. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

- A. Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State. The Permittee must comply with all applicable state and Federal regulations governing the disposal of sludge, including but not limited to 40 CFR Part 503, 40 CFR Part 257, and 40 CFR Part 258.
- B. Any changes to the permittee's disposal practices described in the Fact Sheet, as derived from the permit application, will require at least 180 days prior notice to the Director to allow time for additional permitting. Please note that the 180 day notification requirement may be waived if additional permitting is not required for the change.

7. Power Failure

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators, or retention of inadequately treated effluent.

SECTION C – MONITORING AND RECORDS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified,

before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharge shall be monitored.

2. **Flow Measurement**

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than +/- 10% from true discharge rates throughout the range of expected discharge volumes and shall be installed at the monitoring point of the discharge.

Calculated Flow Measurement

For calculated flow measurements that are performed in accordance with either the permit requirements or a Department approved method (i.e., as allowed under Part II.3), the +/- 10% accuracy requirement described above is waived. This waiver is only applicable when the method used for calculation of the flow has been reviewed and approved by the Department.

3. **Monitoring Procedures**

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted. An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory. At a minimum, spikes and duplicate samples are to be analyzed on 10% of the samples.

4. **Penalties for Tampering**

The Arkansas Water and Air Pollution Control Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year or a fine of not more than ten thousand dollars (\$10,000) or by both such fine and imprisonment.

5. **Reporting of Monitoring Results**

40 CFR 127.11 (a)(1) and 40 CFR 127.16 (a) require that monitoring reports must be reported on a Discharge Monitoring Reports (DMR) and filed electronically. Signatory Authorities must initially request access for a NetDMR account. Once a NetDMR account is

established, access to electronic filing should use the following link <https://netdmr.epa.gov>. Permittees who are unable to file electronically may request a waiver from the Director in accordance with 40 CFR 127.15. Monitoring results obtained during the previous monitoring period shall be summarized and reported on a DMR dated and submitted no later than the 25th day of the month, following the completed reporting period beginning on the effective date of the permit.

6. **Additional Monitoring by the Permittee**

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated on the DMR.

7. **Retention of Records**

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

8. **Record Contents**

Records and monitoring information shall include:

- A. The date, exact place, time and methods of sampling or measurements, and preservatives used, if any.
- B. The individual(s) who performed the sampling or measurements.
- C. The date(s) and time analyses were performed.
- D. The individual(s) who performed the analyses.
- E. The analytical techniques or methods used.
- F. The measurements and results of such analyses.

9. **Inspection and Entry**

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:

- A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
- B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.
- C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

- D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D – REPORTING REQUIREMENTS

1. Planned Changes

The Permittee shall give notice to the Director as soon as possible but no later than 180 days prior to any planned physical alterations or additions to the permitted facility [40 CFR 122.41(l)]. Notice is required only when:

- A. The alteration or addition to a permitted facility may meet one of the criteria for new sources at 40 CFR 122.29(b).
- B. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants subject to effluent limitations in the permit, or to the notification requirements under 40 CFR 122.42(b).

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

The permit is nontransferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

4. Monitoring Reports

Monitoring results shall be reported at the intervals and in the form specified in Part III.C.5. **Discharge Monitoring Reports must be submitted even when no discharge occurs during the reporting period.**

5. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

6. Twenty-four Hour Report

- A. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:
1. A description of the noncompliance and its cause.
 2. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue.
 3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- B. The following shall be included as information which must be reported within 24 hours:
1. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 2. Any upset which exceeds any effluent limitation in the permit.
 3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit to be reported within 24 hours to the Enforcement Section of the Office of Water Quality of the ADEQ.
- C. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours to the Enforcement Section of the Office of Water Quality of the ADEQ.

7. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Parts III.D.4, 5, and 6, at the time monitoring reports are submitted. The reports shall contain the information listed at Part III.D.6.

8. Changes in Discharge of Toxic Substances for Industrial Dischargers

The Director shall be notified as soon as the permittee knows or has reason to believe:

- A. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(1).
- B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(2).

9. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, 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. Information shall be submitted in the form, manner and time frame requested by the Director.

10. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The complete application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated in APC&EC Regulation No. 6.

11. Signatory Requirements

All applications, reports, or information submitted to the Director shall be signed and certified as follows:

A. All **permit applications** shall be signed as follows:

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation.
 - (b) The manager of one or more manufacturing, production, or operation facilities, provided: the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively.

3. For a municipality, State, Federal, or other public agency, by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(a) The chief executive officer of the agency.

(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

B. All **reports** required by the permit and **other information** requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above.

2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

3. The written authorization is submitted to the Director.

C. Certification. Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

12. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2 and APC&EC Regulation No. 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. Penalties for Falsification of Reports

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit shall be subject

to civil penalties specified in Part III.A.2 and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

14. **Other Information**

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, it shall promptly submit such facts or information.

PART IV DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act and 40 CFR 122.2 shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
2. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
3. **“APC&EC”** means the Arkansas Pollution Control and Ecology Commission.
4. **“Applicable effluent standards and limitations”** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
5. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (APC&EC) Regulation No. 2, as amended.
6. **“Best Management Practices (BMPs)”** are activities, practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the State. BMPs also include treatment technologies, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw sewage. BMPs may include structural devices or nonstructural practices.
7. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 CFR 122.41(m)(1)(i).
8. **“Composite sample”** is a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of 4 effluent portions collected at equal time intervals (but not closer than one hour apart) during operational hours, within the 24-hour period, and combined proportional to flow or a sample collected at more frequent intervals proportional to flow over the 24-hour period.
9. **“Daily Discharge”** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.
 - A. **Mass Calculations:** For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total mass of pollutant discharged over the sampling day.
 - B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
10. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month.
11. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
12. **“Director”** means the Director of the Arkansas Department of Environmental Quality.

13. **“Dissolved oxygen limit”** shall be defined as follows:
 - a. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month.
 - b. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
14. **“E-Coli”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For E-Coli, report the Daily Maximum as the highest “daily discharge” during the calendar month, and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
15. **“Fecal Coliform Bacteria (FCB)”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For FCB, report the Daily Maximum as the highest “daily discharge” during the calendar month, and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
16. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
17. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
18. **“Instantaneous flow measurement”** means the flow measured during the minimum time required for the flow-measuring device or method to produce a result in that instance. To the extent practical, instantaneous flow measurements coincide with the collection of any grab samples required for the same sampling period so that together the samples and flow are representative of the discharge during that sampling period.
19. **“Instantaneous Maximum”** when limited in the permit as an instantaneous maximum value, shall mean that no value measured during the reporting period may fall above the stated value.
20. **“Instantaneous Minimum”** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
21. **“Monthly Average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or E-Coli, report the Monthly Average as the geometric mean of all “daily discharges” within a calendar month.
22. **“Monitoring and Reporting”**

When a permit becomes effective, monitoring requirements are of the immediate period of the permit effective date. Where the monitoring requirement for an effluent characteristic is monthly or more frequently, the Discharge Monitoring Report (DMR) shall be submitted by the 25th of the month following the sampling. Where the monitoring requirement for an effluent characteristic is Quarterly, Semi-Annual, Annual, or Yearly, the DMR shall be submitted by the 25th of the month following the monitoring period end date.

 - A. **MONTHLY:**

is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.
 - B. **BI-MONTHLY:**

is defined as two (2) calendar months or any portion of 2 calendar months for monitoring requirement frequency of once/2 months or more frequently.

C. QUARTERLY:

1. is defined as a **fixed calendar quarter** or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December.
2. is defined as a **fixed three month period** (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not coincide with the fixed calendar quarter. Seasonal calendar quarters are: May through July, August through October, November through January, and February through April.

D. SEMI-ANNUAL:

is defined as the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/6 months or twice/year.

E. ANNUAL or YEARLY:

is defined as a fixed calendar year or any portion of the fixed calendar year for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.

23. **“National Pollutant Discharge Elimination System”** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under Sections 307, 402, 318, and 405 of the Clean Water Act.
24. **“POTW”** means Publicly Owned Treatment Works;
25. **“Reduction of CBOD5/BOD5 and TSS in mg/l Formula”**
$$[(\text{Influent} - \text{Effluent}) / \text{Influent}] \times 100$$
26. **“Severe property damage”** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in products.
27. **“Sewage sludge”** means the solids, residues, and precipitate separated from or created in sewage by the unit processes at a POTW. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and stormwater runoff that are discharged to or otherwise enter a POTW.
28. **“7-Day Average”** Also known as “average weekly” means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week. The 7-Day Average for Fecal Coliform Bacteria (FCB) or E-Coli is the geometric mean of the “daily discharges” of all effluent samples collected during a calendar week in colonies per 100 ml.
29. **“Treatment works”** means any devices and systems used in storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes, of a liquid nature to implement section 201 of the Act, or necessary to recycle reuse water at the most economic cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any

works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

30. **Units of Measure:**

“**MGD**” shall mean million gallons per day.

“**mg/l**” shall mean milligrams per liter or parts per million (ppm).

“**µg/l**” shall mean micrograms per liter or parts per billion (ppb).

“**cfs**” shall mean cubic feet per second.

“**ppm**” shall mean parts per million.

“**s.u.**” shall mean standard units.

31. “**Upset**” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operations.

32. “**Visible sheen**” means the presence of a film or sheen upon or a discoloration of the surface of the discharge. A sheen can also be from a thin glistening layer of oil on the surface of the discharge.

33. “**Weekday**” means Monday – Friday.

Fact Sheet

This Fact Sheet is for information and justification of the permit limits only. Please note that it is not enforceable. This final permitting decision is for renewal of the discharge Permit Number AR0051136 with Arkansas Department of Environmental Quality (ADEQ) Facility Identification Number (AFIN) 29-00506 to discharge to Waters of the State.

1. PERMITTING AUTHORITY

The issuing office is:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT

The applicant's mailing address is:

Southwestern Electric Power Company
John W. Turk, Jr. Power Plant
1201 Elm Street, Suite 4100
Dallas, TX 75270

The facility physical address is:

Southwestern Electric Power Company
John W. Turk, Jr. Power Plant
3711 Highway 355 South
Fulton, AR 71838

3. PREPARED BY

The permit was prepared by:

Shane Byrum
Staff Engineer
NPDES Discharge Permits Section
Office of Water Quality
(501) 682-0618
E-mail: byrum@adeq.state.ar.us

Carrie McWilliams, P.E.
Engineer Supervisor
NPDES Discharge Permits Section
Office of Water Quality
(501) 682-0915
E-mail: mcwilliamsc2@adeq.state.ar.us

4. PERMIT ACTIVITY

Previous Effective Date:	11/1/2011
Previous 1 st Modification Effective Date:	11/1/2012
Previous 2 nd Modification Effective Date:	9/1/2014
Previous 3 rd Modification Effective Date:	8/12/2016
Previous Expiration Date:	10/31/2016

The permittee submitted a permit renewal application on 4/27/2016. It is proposed that the current discharge permit be reissued for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

Section 5 has a complete listing of significant changes from the previously issued permit.

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management plan
BOD₅ - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
CBOD₅ - carbonaceous biochemical oxygen demand
CD - critical dilution
C.F.R. - Code of Federal Regulations
cfs - cubic feet per second
COD - chemical oxygen demand
COE - United States Corp of Engineers
CPP - continuing planning process
CWA - Clean Water Act
CWIS – Cooling Water Intake Structure
DMR - discharge monitoring report
DO - dissolved oxygen
ELG - effluent limitation guidelines
EPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FCB - fecal coliform bacteria
gpm - gallons per minute
MGD - million gallons per day
MQL - minimum quantification level
NAICS - North American Industry Classification System
NH₃-N - ammonia nitrogen
NO₃ + NO₂-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System

O&G - oil and grease
Reg. 2 - APC&EC Regulation No. 2
Reg. 6 - APC&EC Regulation No. 6
Reg. 8 - APC&EC Regulation No. 8
Reg. 9 - APC&EC Regulation No. 9
RP - reasonable potential
SIC - standard industrial classification
TDS - total dissolved solids
TMDL - total maximum daily load
TP - total phosphorus
TRC - total residual chlorine
TSS - total suspended solids
UAA - use attainability analysis
USFWS - United States Fish and Wildlife Service
WET - Whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

Compliance and Enforcement History:

The compliance and enforcement history for this facility can be reviewed by using the following web link:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Compliance%20Summary_20170206.pdf

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT

The permittee is responsible for carefully reading the permit in detail and becoming familiar with all of the changes therein:

1. Part III.C.5 of the permit now requires that DMRs be submitted electronically via NetDMR.
2. Low volume wastewater definition in Part II.11 of the permit is being made consistent with the 2015 revised effluent limitation guideline for steam electric power plants.
3. Regulatory citations throughout the permit and fact sheet are being made consistent with the citations in the 2015 revised effluent limitation guideline for steam electric power plants found in 40 CFR Part 423.
4. Stormwater ponds are being added as an acceptable source of water used for dust suppression in Part II.16 of the permit.

5. Biological monitoring frequencies on the cooling water intake structure are being made consistent with the reduced frequencies granted in a letter dated May 28, 2015 in accordance with 40 CFR 125.87(a) and Part II.15 of previous permit. In addition, the language allowing a reduction in biological monitoring frequency is now being removed from Part II.15 of the permit since a reduction has been granted. The letter granting the monitoring frequency reduction can be viewed at the following weblink:
https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Letter%20Re%20Second%20Annual%20CWIS%20Biological%20Monitoring%20Report_20150528.pdf
6. Monitoring frequencies at Internal Outfall 101 are being made consistent with the frequencies specified for Internal Outfalls 301, 401, 501, and 601. This evaluation can be viewed at the following weblink:
https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf
7. Monitoring frequencies at Internal Outfall 201 are being made consistent with the frequencies specified for Internal Outfalls 301, 401, 501, and 601. This evaluation can be viewed at the following weblink:
https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf
8. Monitoring frequencies at Outfall 001 for Oil & Grease, Chromium, Zinc, and Chloride are being reduced based on an evaluation of reported effluent concentrations. This evaluation can be viewed at the following weblink:
https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf
9. WET testing retest reporting codes are being added to Parts IA and Part II of the permit.
10. In accordance with the CPP, Acute WET testing was changed to Chronic WET testing at Outfall 002 because the calculated dilution ratio is less than 100:1 since the critical low flow (7Q10) of Bridge Creek is zero. See section 13 of this fact sheet for more details and calculation.
11. The upstream and downstream temperature monitoring requirement in the Little River is being discontinued. In the previous five monitoring seasons (May-September), the monthly average temperature increase measured in the Little River above and below the outfall has been shown to be minimal. The highest monthly average increase in temperature over the past 5 years of monitoring was measured at 1 degree Fahrenheit, which occurred in 2016. The summary of results of each monitoring season from 2012-2016 can be viewed using the following links:

2012 Stream Temperature Monitoring Summary

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Response%20to%202012%20Stream%20Temperature%20Monitoring%20Report_20130409.pdf

2013 Stream Temperature Monitoring Summary

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Response%20to%202013%20Stream%20Temperature%20Monitoring%20Report_20140117.pdf

2014 Stream Temperature Monitoring Summary

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Response%20to%202014%20Stream%20Temperature%20Monitoring%20Report_20150206.pdf

2015 Stream Temperature Monitoring Summary

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Letter%20Re%202015%20Stream%20Temperature%20Monitoring%20Report_20151119.pdf

2016 Stream Temperature Monitoring Summary

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_2016%20Stream%20Temperature%20Monitoring%20Report_20161003.PDF

12. The TDS limit at Outfall 001 was revised from an end-of-pipe water quality standard of the Red River to a limit that will allow the facility to achieve optimum operating efficiency and cycling of cooling water in accordance with the original plant design, based on the withdrawal of twenty (20) TMDLs for Chloride, Sulfate, and TDS previously assigned to the Red River. On November 9, 2018, EPA Region VI approved the withdrawal of twenty (20) TMDLs for Chloride, Sulfate, and TDS. This action did not affect the TMDLs for McKinney Bayou and Sulphur River. These TMDL withdrawals underwent a thirty (30) day public notice period from August 29, 2018 through September 28, 2018. No comments were received.

The public notice on August 29, 2018 of the proposed TMDL withdrawals can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/Water/WQMP/Public%20Notice%20of%20WQMP%20Updates/208%20Update%20PN_20180829.pdf

The package sent to EPA on October 10, 2018 for approval can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/Water/WQMP/208%20Update%20Letters%20to%20EPA/20181010_208%20update_EPA.pdf

The EPA approval letter dated November 9, 2018 can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/Water/WQMP/EPA%20technically%20acceptable%20208%20updates/EPA%20approval%20208%20Plan%20Update_20181109.pdf

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfalls are located at the following coordinates based on the application using North American 1927 map datum:

Outfall 001:	Latitude: 33° 36' 56.4"	Longitude: 93° 50' 54.8"
Outfall 002:	Latitude: 33° 39' 2.4"	Longitude: 93° 48' 11.0"
Internal Outfall 101:	Latitude: 33° 38' 59.0"	Longitude: 93° 48' 37.5"
Internal Outfall 201:	Latitude: 33° 39' 6.7"	Longitude: 93° 48' 22.1"
Internal Outfall 301:	Latitude: 33° 38' 58.6"	Longitude: 93° 48' 38.9"
Internal Outfall 401:	Latitude: 33° 39' 0.0"	Longitude: 93° 48' 37.6"
Internal Outfall 501:	Latitude: 33° 38' 24.3"	Longitude: 93° 48' 47.1"
Internal Outfall 601:	Latitude: 33° 38' 24.3"	Longitude: 93° 48' 47.1"

The receiving waters named:

Little River thence to the Red River in Segment 1C of the Red River Basin. The receiving stream with USGS Hydrologic Unit Code (H.U.C) of 11140109 and reach # 001 is a Water of the State classified for primary and secondary contact recreation, raw water source for domestic (public and private), industrial, and agricultural water supplies, propagation of desirable species of fish and other aquatic life, and other compatible uses.

7. 316(B) REQUIREMENTS FOR COOLING WATER INTAKE STRUCTURE

These requirements are applicable to a new facility if it has an intake structure that uses at least 25 percent of the water it withdraws for cooling purposes and has a design intake flow greater than 2 MGD unless the facility obtains cooling water from a public water system (40 C.F.R. § 125.81(b)). The intake structure owned by the applicant has a design intake flow of 6,500 gpm (9.36 MGD) of which approximately 5,330 gpm (82%) will be used for cooling purposes. Therefore, to the extent this facility obtains cooling water from its intake structure and not a public water system, it is subject to 40 C.F.R. § 125, Subpart I – Requirements Applicable to Cooling Water Intake Structures for New Facilities Under Section 316(b) of the Clean Water Act. This subpart establishes requirements that apply to the location, design, construction, and capacity of cooling water intake structures at new facilities. The purpose of these requirements is to establish the best technology available for minimizing adverse environmental impact associated with the use of cooling water intake structures. The facility has chosen to comply with these regulations for its intake structure under Track I (40 C.F.R. § 125.84(b)).

Track I includes the following requirements:

- A. Reduction of intake flow to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system.

This facility utilizes a closed-cycle, recirculating cooling water system.

- B. Design and construct the intake structure to have a maximum through-screen design intake velocity of 0.5 ft/sec.

This facility utilizes a cooling water intake structure consisting of a cylindrical wedgewire screen approximately 33 inches in diameter and 11 feet long, with a 0.125 inch slot size. The engineering calculations indicate a maximum through-screen velocity of 0.455 ft/sec at the design intake withdrawal rate of 6,500 gpm (14.5 cfs).

- C. Design intake flow must be no greater than 5% of the source water annual mean flow.

The annual mean flow of the source water (Little River) is 5,690 cfs at Millwood Dam. The design intake withdrawal rate of 6,500 gpm (14.5 cfs) is 0.25% of the mean annual flow of the source water.

- D. Information listed in 40 C.F.R. §§ 122.21(r) and 125.86(b), including source water physical data, intake structure data, source water biological characterization, source water flow data, and a design and construction technology plan.

This information was submitted in a report submitted by AEP entitled, "CWA Section 316(b) Informational Report" dated November 2010.

- E. Monitoring and recordkeeping found in 40 C.F.R. §§ 125.87 and 125.88.

This facility's cooling water intake structure (CWIS) consists of a cylindrical wedgewire intake screen that is completely submerged near the bottom of the Little River. This intake screen is cylindrical in shape and is oriented so that the screen surface is parallel to the direction of river flow which is designed to maximize the potential for the sweep velocity of the river to overcome the approach velocity created by the intake of water through the screen. The river water flows through the wedgewire screen through a 36-inch pipe and gravity feed into a caisson located in an on-shore pump house structure. Vertical pumps located within the pump house extend into the caisson from which they draw the water and pump it approximately two miles via underground piping to the facility's Make-up Water Pond for subsequent treatment and use in the power plant. The intake structure is equipped with an "air-burst" technology in which periodic bursts of high pressure air is used to backwash the submerged intake screen to remove debris or aquatic life that may have become impinged to the surface of the screen.

Due to the design and operational characteristics of the facility's cooling water intake structure, alternative monitoring requirements are being granted pursuant to 40 C.F.R. § 125.85. These alternative monitoring and recordkeeping requirements are included in Condition 15 of Part II of this permit and are discussed below:

Biological Monitoring

In accordance with 40 CFR 125.85, the permittee shall conduct the following alternative monitoring procedures when the cooling water intake structure is in operation to demonstrate compliance with the biological monitoring requirements of Section 316b of the Clean Water Act:

- (i) As an alternative to conducting monthly impingement sampling, the permittee shall operate the air burst system on the intake screen at least once per week during operation of the intake structure and perform impingement sampling at least once per year in April, May, or June. The impingement sampling shall be performed no sooner than 24 hours after the previous air burst operation so that the impingement sampling results are representative of at least a 24 hour time period. During the annual impingement sampling the facility shall perform a visual observation of the intake screen in accordance with 2.c. listed below. If conditions are unsafe for divers to conduct the annual impingement sampling, then the permittee shall attempt to reschedule the impingement sampling at a time when conditions allow for safe performance of the impingement sampling, and shall keep a record of the conditions which preclude safe performance of the impingement sampling. If conditions do not allow for safe performance of the impingement sampling during April, May, or June, then impingement sampling shall be performed at the next available time when conditions allow. The permittee shall include the results of the impingement sampling in each annual report submitted in accordance with Part II.15.3 of this permit. This annual report shall also state when impingement sampling was not conducted in April, May, or June, the reasons it was not conducted during this time period, and when the impingement sampling was conducted.
- (ii) The permittee shall conduct entrainment sampling over a 24-hour period at a frequency of no less than once per month in April, May, and June (the primary period of reproduction, larval recruitment, and peak abundance). For the purposes of this permit and based upon the location of the intake structure and results of entrainment sampling performed in previous permit term, this primary period of reproduction has been determined to be April through June. The purpose of the supporting impingement and entrainment data is to demonstrate that operation of the weekly air burst technology will ensure that the intake screen is functioning as designed.

Velocity Monitoring

Based on the design of the CWIS, through-screen velocity determination using head loss would be impracticable because there would not be a significant amount of head loss between the water level in the pump house caisson and the water level of the river surface unless the open surface area of the intake screen was reduced to a surface area less than the cross-sectional area of the intake pipe connecting the intake screen to the caisson. This intake pipe has a cross-sectional area of 7 ft² and the intake screen has an open surface area of 40 ft² with no blockage. Thus, the intake screen would have to be approximately 82% obstructed before a measureable head loss would occur between the river surface and the water surface level in the caisson. The regular use of the air burst technology is designed to maintain the open area of the screen so that through-screen velocity is maintained at or below 0.5 ft/sec. During development of the Clean Water Act 316(b) rules, EPA concluded that reducing the through-screen velocity to less than 0.5 ft/sec will enable a majority of aquatic organisms to escape the hydraulic zone of influence around the intake screen. Therefore, the regular use of the air burst technology combined with the design features and location of the intake screen and periodic visual inspections will ensure that the screen open area is maintained so that through screen velocity is maintained at or below 0.5 ft/sec.

Visual or Remote Inspections

The permittee shall conduct visual inspections of the submerged cooling water intake structure and associated above-ground components at least annually during April, May, or June during periods in which the cooling water intake structure is in operation or employ remote monitoring devices. The annual visual inspection of the intake screen may be performed at the same time as the annual impingement sampling. If conditions are unsafe for divers to conduct the visual observation, then the permittee shall attempt to reschedule the visual observation at a time when conditions allow for safely observing the submerged screen, and shall keep a record of the conditions which preclude safe observation of the submerged screen. If conditions do not allow for safe observation of the submerged screen during April, May, or June, then no visual observation of the screen is required for that time period. The permittee shall include the dates of visual observations of the intake screen and associated above-ground components on each annual report submitted in accordance with Part II.15.3 of the permit. This annual report shall also state if visual observations were conducted in April, May, or June, or the reasons it was not conducted during this time period, and when the visual observations were conducted. The purpose of the visual inspections is to demonstrate that operation of the weekly air burst technology will ensure that the intake screen is functioning as designed.

Record Keeping and Reporting

The permittee shall keep records of all the data used to complete the permit application and any supplemental information developed under 40 C.F.R. § 125.86 for a period of at least three years from the date of permit issuance unless instructed by the Department within such three year period to keep such data for a longer period. The permittee shall keep records of all compliance monitoring data submitted under Part II.15.2 of the permit for a period of at least three years from the date such data is collected unless instructed by the Department within such three year period to keep such data for a longer period. The permittee shall prepare and submit to the Department an annual report containing records collected during each calendar year pursuant to Part II.15.2 of the permit. All monitoring records and results from each calendar year shall be submitted in an annual report to the Department by March 31 of the following year. Each annual monitoring report shall include the results of monitoring performed during the previous calendar year.

8. 303(d) LIST, TOTAL MAXIMUM DAILY LOADS, ENDANGERED SPECIES, ANTI-DEGRADATION CONSIDERATIONS

A. 303(d) List:

The direct receiving stream (Little River) is not listed on the 2016 303(d) list. The effluent travels approximately 1.5 miles in the Little River before the confluence with Assessment Unit (AU) 11140201-011 of the Red River. This AU is listed on the 2016 303(d) list as impaired for TDS. However, this AU is listed on the draft 2018 303(d) list for TDS in Category 1 (non-impaired). A TDS TMDL was finalized on October 5, 2012 to address the original TDS impairment, but was withdrawn on November 9, 2018. The TDS limits are being revised from the previous permit based on the withdrawal of the TMDL. See Section 8.B below for further discussion on the TDS limits and TMDL withdrawal.

B. Applicable Total Maximum Daily Load (TMDL) Reports

A TMDL entitled “TMDLs for Chloride, Sulfate, and TDS for the Red River, Sulphur River, and McKinney Bayou, Arkansas” was finalized on October 5, 2012. This 2012 TMDL set forth a wasteload allocation (WLA) for this facility for TDS of 500 mg/L and 9,020 lb/day. On November 9, 2018, EPA Region VI approved the withdrawal of twenty (20) TMDLs for Chloride, Sulfate, and TDS. This action did not affect the TMDLs for McKinney Bayou and Sulphur River. These TMDL withdrawals underwent a thirty (30) day public notice period from August 29, 2018 through September 28, 2018. No comments were received. The TDS limit at Outfall 001 was revised from an end-of-pipe water quality standard of the Red River to a limit that will allow the facility to achieve optimum operating efficiency and cycling of cooling water in accordance with the original plant design. An evaluation of the revised TDS limit is shown in Section 12.C.15 of this fact sheet to demonstrate that the revised limit is protective of the direct receiving stream, the Little River.

C. Endangered Species:

No comments on the NPDES permit application were submitted to ADEQ from the U.S. Fish and Wildlife Service (USFWS). The draft NPDES permit and Fact Sheet were sent to the USFWS for their review and no comments were received.

The U.S. Corps of Engineers permit (404 permit) was issued on 12/17/2009 for the construction of the intake and outfall structures. During the public notice period, the USFWS identified species of conservation concern. The actions taken by SWEPCO to address these identified species are discussed below.

Interior Least Tern

The permittee modified the plant design to move the water intake and outfall further upstream to avoid entering into a 1000 foot buffer area around the nesting birds. The USFWS considered possible direct and indirect effects of the intake and outfall structures and concluded that the revised location of the intake structure and outfall will have no effect on the Interior Least Tern.

Ouachita Rock Pocketbook

At the request of the USFWS, the permittee performed mussel surveys upstream and downstream of the water intake and discharge structures on March 2-3, 2007 with follow up surveys conducted on March 28, 2007, May 31, 2007, and June 1, 2007. The USFWS malacologist stated that the level of effort on the survey was more than adequate to determine presence of the Ouachita Rock Pocketbook and it extended far enough above and below the zone of disturbance. No live specimens of this endangered species were observed during the surveys. The USFWS considered possible direct and indirect effects of the intake and outfall structures and concluded in a letter dated August 3, 2010 from USFWS to USACOE that “the permitted action may affect but is not likely to adversely affect the Ouachita Rock Pocketbook.”

Paddlefish and Shovelnose Sturgeon

The USFWS and AGFC expressed concerns that possible elevated temperatures from the facility’s discharge could have a negative impact on spawning Paddlefish and Shovelnose Sturgeon in the Little River, and recommended water temperature monitoring on the discharge to ensure protection of these species. In the previous permit effective November 1, 2011, ADEQ included temperature monitoring and limitation on the discharge to maintain the temperature criteria in the receiving stream as set forth in Reg. 2.502. The upstream and downstream temperature monitoring requirement in the Little River is being discontinued in this 2018 permit. In the previous five monitoring seasons (May-September), the monthly average temperature increase measured in the Little River above and

below the outfall has been shown to be minimal. The highest monthly average increase in temperature over the past 5 years of monitoring was measured at 1 degree Fahrenheit, which occurred in 2016.

The limits imposed in this NPDES permit are designed to maintain the existing beneficial uses of the receiving stream, including the propagation of desirable species of aquatic life which include the species of conservation concern identified above.

The Department of Arkansas Heritage stated that the following additional species of conservation concern are known to occur in the Little River within five miles downstream of Outfall 001:

Ammocrypta clara, Western Sand Darter – state concern
Cycleptus elongates, Blue Sucker – state concern
Hiodon alosoides, Goldeye – state concern
Notropis bairdi, Red River Shiner – state concern
Notropis potteri, Chub Shiner – state concern
Quadrula apiculata, Southern Mapleleaf – state concern
Sternula antillarum athalassos, Interior Least Tern – federal concern (endangered)

The limits in the permit are designed to protect all beneficial uses of the receiving waters, including propagation of desirable species of fish and other aquatic life as well as other species which are directly or indirectly affected by the receiving waters, which includes the above species of concern. Therefore, ADEQ has determined that the final permit limits will serve to help protect the species of concern identified above.

D. Anti-Degradation:

The effluent limitations in this permit will maintain the level of water quality necessary to protect and maintain the existing and designated uses of the Little River and the Red River. Therefore, the limitations and requirements set forth in this permit for discharge into waters of the State are consistent with the Antidegradation Policy and all other applicable water quality standards found in APC&EC Regulation No. 2.

9. OUTFALL, TREATMENT PROCESS DESCRIPTION, AND FACILITY CONSTRUCTION

The following is a description of the facility described in the application:

A. Design Flow: 2.16 MGD

B. Type of Treatment: two (2) oil/water separators, process water pond, coal pile runoff pond, landfill leachate pond, make-up water pond, and a wastewater pond with a design flow of 2.16 MGD. Treatment associated with Internal Outfalls 101, 201, and 301 consists of Lamella inclined plate clarifiers and multimedia filtration.

C. Discharge Description:

Outfall 001 - discharge to the Little River from the wastewater pond consisting of cooling tower blowdown and previously monitored internal wastestreams from the process water pond (Internal Outfalls 101 and 301), coal pile runoff pond (Internal Outfall 201), water pre-treatment system (Internal Outfall 401), and landfill leachate pond (Internal Outfalls 501 and 601).

Outfall 002 - discharge to an unnamed tributary of Bridge Creek from the emergency overflow spillway at the coal pile runoff pond consisting of stormwater runoff from the coal pile and low volume wastewater from the coal handling area sumps and vehicle wash station.

Internal Outfall 101 - discharge from the process water pond to the wastewater pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

Internal Outfall 201 - discharge from the coal pile runoff pond to the make-up water pond consisting of stormwater runoff from the coal pile, low volume wastewater from the coal handling area sumps and coal handling area vehicle wash station.

Internal Outfall 301 – discharge from the process water pond to the make-up water pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

INTERNAL OUTFALL 401 - discharge from the intake water pretreatment system to the wastewater pond consisting of low volume wastewater (reject water from the intake water pretreatment system).

INTERNAL OUTFALL 501 - discharge from the landfill leachate pond to the make-up water pond consisting of low volume wastewater (stormwater runoff and leachate from ash landfill).

INTERNAL OUTFALL 601 - discharge from the landfill leachate pond to the wastewater pond consisting of low volume wastewater (stormwater runoff and leachate from ash landfill).

D. Facility Status: This facility was evaluated using the NPDES Permit Rating Worksheet (MRAT) to determine the correct permitting status. Since the facility's MRAT score of 600 is greater than 80, this facility is classified as a major industrial. The rating worksheet can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_NPDES%20Permit%20Rating%20Sheet_20100503.pdf

E. Facility Construction: This permit does not authorize or approve the construction or modification of any part of the treatment system or facilities. Approval for such construction must be by permit issued under Reg. 6.202.

10. ACTIVITY

Under the Standard Industrial Classification (SIC) code of 4911 or North American Industry Classification System (NAICS) code of 221112, the applicant's activities are the operation of a coal-fired power generation facility. This facility will have a rated generating capacity of 600 MW and will produce electricity using a single unit ultra-supercritical steam generator powering a single reheat steam turbine generator. The primary fuel for the plant will be sub-bituminous coal, shipped in by rail, from the Powder River Basin in Wyoming.

11. SEWAGE SLUDGE PRACTICES

All domestic wastewater from this facility is routed to the City of Fulton wastewater treatment facility, therefore no sewage sludge is generated at this facility. Various wastewater ponds are used at this facility to settle out suspended solids in the process generated wastewater. These process wastewater generated solids remain in the ponds at the facility and the solids will be cleaned out of the ponds as necessary.

12. DEVELOPMENT AND BASIS FOR PERMIT CONDITIONS

The Arkansas Department of Environmental Quality has made a determination to issue a draft permit for the discharge described in the application. Permit requirements are based on federal regulations (40 CFR Parts 122, 124, and Subchapter N), and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. 8-4-101 et. seq.). All of the information contained in the application, including all of the submitted effluent testing data, was reviewed to determine the need for effluent limits and other permit requirements.

The following is an explanation of the derivation of the conditions of the draft permit and the reasons for them or, in the case of notices of intent to deny or terminate, reasons suggesting the decisions as required under 40 CFR Part 124.7.

Technology-Based Versus Water Quality-Based Effluent Limitations And Conditions

Following regulations promulgated at 40 C.F.R. § 122.44, the draft permit limits are based on either technology-based effluent limits pursuant to 40 C.F.R. § 122.44 (a) or on State water quality standards and requirements pursuant to 40 C.F.R. § 122.44 (d), whichever are more stringent as follows:

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
OUTFALL 001								
Total Residual Chlorine	N/A	0.115	N/A	< 0.1	N/A	< 0.1	N/A	< 0.1
Free Available Chlorine	N/A	N/A	0.2	0.5	0.2	0.5	0.2	0.5
Temperature	N/A	98.6 °F	N/A	N/A	N/A	98.6 °F	N/A	98.6 °F
Chromium, Total Rec.	N/A	N/A	0.2	0.2	0.2	0.2	0.2	0.2
Zinc, Total Rec.	0.652	1.309	1.0	1.0	0.652	1.0	0.652	1.0
Chloride	N/A	N/A	250	375	250	375	250	375
TDS	N/A	N/A	2,500	3,750	500	750	2,500	3,750
Oil & Grease	10	15	N/A	N/A	10	15	10	15
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
OUTFALL 002								
Total Suspended Solids	N/A	N/A	30	50	30	50	30	50
Oil & Grease	10	15	15	20	10	15	10	15
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 101								
Total Suspended Solids	N/A	N/A	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day
Oil & Grease	N/A	N/A	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
INTERNAL OUTFALL 201								
Total Suspended Solids	N/A	N/A	30	50	30	50	30	50
Oil & Grease	N/A	N/A	15	20	15	20	15	20
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 301								
Total Suspended Solids	N/A	N/A	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day	30 mg/l and 291.2 lb/day	50 mg/l and 483.8 lb/day
Oil & Grease	N/A	N/A	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day	15 mg/l and 144.4 lb/day	20 mg/l and 193.7 lb/day
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 401								
Total Suspended Solids	N/A	N/A	30	100	30	100	30	100
Oil & Grease	N/A	N/A	15	20	15	20	15	20
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 501								
Total Suspended Solids	N/A	N/A	30	100	30	100	30	100
Oil & Grease	N/A	N/A	15	20	15	20	15	20
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 601								
Total Suspended Solids	N/A	N/A	30	100	30	100	30	100
Oil & Grease	N/A	N/A	15	20	15	20	15	20
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	

A. Justification for Limitations and Conditions of the permit:

OUTFALL 001		
Parameter	Water Quality or Technology	Justification
Total Residual Chlorine ¹	Technology	Best Engineering Judgement and Reg. 2.508
Free Available Chlorine ²	Technology	40 C.F.R. § 423.15(a)(10)
Temperature ³	Water Quality	Reg. 2, Appendix A, Page A-31, Site Specific Standards Variations Supported by Use Attainability Analysis, Little River from Millwood Lake to the Red River (EPA approved on 5/16/2016)
Chromium ⁴	Technology	40 C.F.R. § 423.15(a)(10)
Zinc ⁵ (daily maximum)	Technology	40 C.F.R. § 423.15(a)(10)
Zinc ⁵ (monthly average)	Water Quality	Reg. 2.508
126 Priority Pollutants ⁶ listed in Appendix A of Part 423, except for Chromium and Zinc	Technology	40 C.F.R. § 423.15(a)(10)
Chloride	Technology	Previous permit, Best Engineering Judgement, Reg. 2.511
Total Dissolved Solids ⁷	Technology	Permit limit that will enable the facility to achieve optimum operating efficiency and cycling of cooling water in accordance with the original plant design. See footnote number 7 below this table for more details.
Oil & Grease ⁸	Water Quality	Reg. 2.510
pH ⁹	Water Quality	Reg. 2.504, 40 C.F.R. § 423.15(a)(1)
Chronic WET Testing ¹⁰	Water Quality	Arkansas Continuing Planning Process

- 1 Because the facility uses continuous chlorination in the cooling tower to control biofouling and maintain system performance, a daily maximum Total Residual Chlorine (TRC) limit of 0.1 mg/l with a daily sampling requirement is continued from previous permit to ensure that the facility dechlorinates the effluent to a non-toxic level. The facility operates a continuous dechlorination process using Sodium Bisulfite. Reg. 2.508 states that discharges shall not be allowed into any waterbody which, after consideration of the zone of initial dilution, the mixing zone and critical flow conditions, will cause toxicity to human, animal, plant or aquatic life, or interfere with the normal propagation, growth, and survival of aquatic biota. EPA considers concentrations at the edge of the mixing zone higher than 0.011 mg/l to be toxic to aquatic organisms, therefore an effluent limit of 0.1 mg/l would not result in a concentration at the edge of the mixing zone higher than 0.009 mg/l (0.1 x critical dilution of 9%) which is less than the EPA criteria.
- 2 The federal technology-based limits for cooling tower blowdown are expressed as Free Available Chlorine (FAC) limits of 0.2 mg/L (monthly average) and 0.5 mg/L (daily

maximum). The effluent limit guideline also limits the quantity of FAC discharged to 2 hours per day. Therefore, the mass limits were calculated from these technology-based concentration values as follows:

Monthly Average mass = $(0.2 \text{ mg/l})(8.34)(2.16 \text{ mgd})(2 \text{ hr/day}) / 24 \text{ hr/day} = 0.3 \text{ lb/day}$

Daily Maximum mass = $(0.5 \text{ mg/l})(8.34)(2.16 \text{ mgd})(2 \text{ hr/day}) / 24 \text{ hr/day} = 0.75 \text{ lb/day}$

- 3 A daily maximum temperature limit of 98.6 °F (daily maximum) with a requirement to operate a continuous temperature monitor in the effluent is included in the permit to ensure that the discharge from the wastewater pond receiving cooling tower blowdown will not violate the temperature criteria set forth in Reg. 2.502. Calculations demonstrating that an effluent temperature of 98.6 °F will not violate water quality criteria are shown in Section 13.C.12 of this fact sheet.
- 4 The federal technology-based limits for cooling tower blowdown establishes the effluent limits for Total Chromium in 40 C.F.R. § 423.15(a)(10). Arkansas does not have water quality standards for Total Chromium, but does have water quality standards for Trivalent Chromium and Hexavalent Chromium. The Arkansas water quality standard for Trivalent Chromium is less stringent than the technology-based limit for Total Chromium. Therefore, technology-based limits for Total Chromium are included in the permit.
- 5 The technology-based total zinc limits for cooling tower blowdown from the effluent limitation guidelines were compared to the State's water quality-based criteria, and it was determined that the water quality-based limit for the monthly average was more stringent, while the technology-based limit for the daily maximum was more stringent. Therefore the most stringent limit for each average period was included in the permit. Refer to the first table in this section for a comparison of the water quality-based vs. technology-based values. Calculations of the water quality-based limits are shown in Section 13.C.13 of this fact sheet.
- 6 The federal technology-based limits for cooling tower blowdown sets the effluent limits for the priority pollutants listed in Appendix A of 40 C.F.R. § 423 to non-detectable values, except for chromium and zinc. Therefore, as detailed in Part II.14 of the permit, if the permittee uses any cooling tower maintenance chemical that contains any of the priority pollutants listed in Appendix A of 40 C.F.R. § 423, the permittee must demonstrate that the pollutant is not present in the final discharge in detectable quantities resulting from the use of the cooling tower maintenance chemical by either (1) performing analytical testing on the discharge or (2) submitting engineering calculations. If the permittee chooses the analytical testing option, this testing must be performed no sooner than 96 hours but no later than 10 days after use of the chemical begins. A minimum waiting period of 96 hours was selected because this is the retention time of the wastewater pond receiving the cooling tower blowdown at the design flow rate of 2.16 MGD.
- 7 The previous TDS limits were based on a TMDL dated September 27, 2012 which established a TDS wasteload allocation for this facility. These TDS limits are revised in this permit due to the TMDL being withdrawn on November 9, 2018. This action did not affect the TMDLs established for Sulphur River and McKinney Bayou in the same document. The

monthly average TDS value of 2,500 mg/l TDS limit at Outfall 001 will allow the facility to achieve optimum operating efficiency and cycling of cooling water in accordance with the original plant design. The facility did not have any comments on the value of this “conditional” limit in the draft permit, therefore this value was used for the final limit in this permit based on the TMDL being withdrawn after the draft permit was public noticed.

- 8 Oil & Grease limits are based on Reg. 2.510. These limits are included in the permit because the effluent at this outfall could contain water from the process water pond during extreme storm events and/or extended outage. The process water pond collects various wastestreams that are known to contain oil and grease, based on the fact that several of these wastestreams are sent through an oil-water separator prior to discharging to the process water pond.
- 9 pH limits of 6.0-9.0 s.u. with a requirement to install and operate continuous pH monitors are included in the permit to ensure compliance with Reg. 2.504. The facility stated in the application that continuous pH monitors would be used.
- 10 Whole Effluent Testing (WET) requirements are included in the permit based on the classification of this facility as a major industrial. The Arkansas Continuing Planning Process document states that all major facilities are subject to WET testing requirements. WET testing will be used to assess potential toxic effects of the effluent on the receiving stream using the fathead minnow and the water flea test species.

OUTFALL 002		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ¹¹	Technology	40 C.F.R. § 423.15(a)(3) (monthly average) 40 C.F.R. § 423.15(a)(11) (daily maximum)
Oil & Grease ¹²	Water Quality	Reg. 2.510
pH ¹³	Water Quality	Reg. 2.504
Chronic WET Testing ¹⁴	Water Quality	Arkansas Continuing Planning Process

- 11 Total Suspended Solids limits at Outfall 002 are included in the permit based on the technology-based standards for low volume wastewater and coal pile runoff. These two wastestreams are combined in the coal pile runoff pond, therefore the more stringent limits of the two wastestreams were used.
- 12 Oil & Grease limits at Outfall 002 are included in the permit based on Reg. 2.510 and the potential presence of this parameter in the discharge from the coal pile runoff pond. Since this is an external outfall that discharges directly to waters of the state, water quality-based limits are applicable to this outfall. The coal pile runoff pond collects various wastestreams that are known to contain oil and grease, based on the fact that several of these wastestreams are sent through an oil-water separator prior to discharging to the coal pile runoff pond.
- 13 pH limits at Outfall 002 are included in the permit to ensure compliance with Reg. 2.504.

14 Chronic Whole Effluent Testing (WET) requirements are included in the permit to access whether or not the combined effect of any pollutants in the discharge will cause lethal or sublethal effects on aquatic life in the receiving stream when discharge occurs from Outfall 002. Although the previous permit required acute WET testing on this outfall based on the expected intermittent and short term duration of discharges, the Department has determined upon further review that chronic WET testing is required by the CPP based on the critical low flow of the receiving stream being zero.

INTERNAL OUTFALL 101		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ¹⁵	Technology	40 C.F.R. § 423.15(a)(3) (monthly average) 40 C.F.R. § 423.15(a)(11) (daily maximum)
Oil & Grease ¹⁶	Technology	40 C.F.R. § 423.15(a)(3)
pH ¹⁷	Technology	40 C.F.R. § 423.15(a)(1)

15 Total Suspended Solids limits at Internal Outfall 101 are included in the permit based on the technology-based standards for low volume wastewater and coal pile runoff. These two wastestreams are combined in the coal pile runoff pond, therefore the more stringent technology-based limits of the two wastestreams were used for the concentration limits.

16 Oil & Grease limits at Internal Outfall 101 are included in the permit based on the technology-based limits and the potential presence of this parameter in the discharge from the coal pile runoff pond. The coal pile runoff pond collects a combination of various low volume wastestreams and coal pile runoff. These wastestreams are known to contain oil and grease based on the fact that several of these wastestreams are sent through an oil-water separator prior to discharging to the coal pile runoff pond.

17 pH limits at Internal Outfall 101 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal pile runoff.

INTERNAL OUTFALL 201		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ¹⁸	Technology	40 C.F.R. § 423.15(a)(3) (monthly average) 40 C.F.R. § 423.15(a)(11) (daily maximum)
Oil & Grease ¹⁹	Technology	40 C.F.R. § 423.15(a)(3)
pH ²⁰	Technology	40 C.F.R. § 423.15(a)(1)

18 Total Suspended Solids limits at Internal Outfall 201 are included in the permit based on the technology-based standards for low volume wastewater and coal pile runoff. These two wastestreams are combined in the coal pile runoff pond, therefore the more stringent technology-based limits of the two wastestreams were used.

- 19 Oil & Grease limits at Internal Outfall 201 are included in the permit based on the technology-based limits and the potential presence of this parameter in the discharge from the coal pile runoff pond. The coal pile runoff pond collects a combination of various low volume wastestreams and coal pile runoff. These wastestreams are known to contain oil and grease, based on the fact that several of these wastestreams are sent through an oil-water separator prior to discharging to the coal pile runoff pond.
- 20 pH limits at Internal Outfall 201 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal pile runoff.

INTERNAL OUTFALL 301		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ²¹	Technology	40 C.F.R. § 423.15(a)(3) (monthly average) 40 C.F.R. § 423.15(a)(11) (daily maximum)
Oil & Grease ²²	Technology	40 C.F.R. § 423.15(a)(3)
pH ²³	Technology	40 C.F.R. § 423.15(a)(1)

- 21 Total Suspended Solids limits at Internal Outfall 301 are included in the permit based on the technology-based standards for low volume wastewater and coal pile runoff. These two wastestreams are combined in the coal pile runoff pond prior to being routed to the process water pond. Therefore the more stringent technology-based limits of the two wastestreams were used for the concentration limits for the discharge from the process water pond via Internal Outfall 301.
- 22 Oil & Grease limits at Internal Outfall 301 are included in the permit based on the technology-based limits and the potential presence of this parameter in the discharge from the coal pile runoff pond. The coal pile runoff pond collects a combination of various low volume wastestreams and coal pile runoff prior to being routed to the process water pond. These wastestreams are known to contain oil and grease based on the fact that several of these wastestreams are sent through an oil-water separator prior to discharging to the coal pile runoff pond.
- 23 pH limits at Internal Outfall 301 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal pile runoff.

INTERNAL OUTFALL 401		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ²⁴	Technology	40 C.F.R. § 423.15(a)(3)
Oil & Grease ²⁵	Technology	40 C.F.R. § 423.15(a)(3)
pH ²⁶	Technology	40 C.F.R. § 423.15(a)(1)

- 24 Total Suspended Solids limits at Internal Outfall 401 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater.

- 25 Oil & Grease limits at Internal Outfall 401 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater.
- 26 pH limits at Internal Outfall 401 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater.

INTERNAL OUTFALL 501		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ²⁷	Technology	40 C.F.R. § 423.15(a)(3)
Oil & Grease ²⁸	Technology	40 C.F.R. § 423.15(a)(3)
pH ²⁹	Technology	40 C.F.R. § 423.15(a)(1)

- 27 Total Suspended Solids limits at Internal Outfall 501 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.
- 28 Oil & Grease limits at Internal Outfall 501 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.
- 29 pH limits at Internal Outfall 501 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.

INTERNAL OUTFALL 601		
Parameter	Water Quality or Technology	Justification
Total Suspended Solids ³⁰	Technology	40 C.F.R. § 423.15(a)(3)
Oil & Grease ³¹	Technology	40 C.F.R. § 423.15(a)(3)
pH ³²	Technology	40 C.F.R. § 423.15(a)(1)

- 30 Total Suspended Solids limits at Internal Outfall 601 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.
- 31 Oil & Grease limits at Internal Outfall 601 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.
- 32 pH limits at Internal Outfall 601 are included in the permit to ensure compliance with the technology-based limits for low volume wastewater and coal combustion residual leachate.

B. **Anti-backsliding**

The draft permit is consistent with the requirements to meet Anti-backsliding provisions of the Clean Water Act (CWA), Section 402(o) [40 CFR 122.44(l)]. The final effluent limitations for reissuance permits must be as stringent as those in the previous permit, unless the less stringent limitations can be justified using exceptions listed in CWA 402(o)(2), CWA 303(d)(4), or 40 CFR 122.44 (l)(2)(i).

All effluent limitations in the draft permit are as stringent as the limits in previous permit except for the revised TDS limits. The previous TDS limits were based on an end-of-pipe water quality standard for the Red River and impaired status for the Red River. The TDS limit at Outfall 001 was revised from an end-of-pipe water quality standard of the Red River to a limit that will allow the facility to achieve optimum operating efficiency and cycling of cooling water in accordance with the original plant design, based on the TMDL being withdrawn on November 9, 2018, and the Red River's current non-impaired status. Both of these items represent new information that was not available at the time of previous permit issuance which would have justified the application of a less stringent effluent limitation. Based on 40 CFR 122.44 (l)(2)(i)(B)(1), these items are considered new information, which is an allowable exception to backsliding.

C. **Limits Calculations**

1. Mass limits:

In accordance with 40 C.F.R. § 122.45(f)(1), all pollutants limited in permits shall have limitations expressed in terms of mass if feasible. 40 C.F.R. § 122.45(f)(2) allows for pollutants which are limited in terms of mass to also be limited in terms of other units of measurement.

Outfall 001

Mass limits for FAC, Chromium, Zinc, Chloride, TDS, and O&G were assigned to Outfall 001 based on 40 C.F.R. 122.45(f)(1). The calculation of the loadings (lbs per day) at Outfall 001 uses a design flow of 2.16 MGD and the following equation:

$$\text{lbs/day} = \text{Concentration (mg/l)} \times \text{Flow (MGD)} \times 8.34$$

Outfall 002 and Internal Outfalls 201, 401, 501, and 601

Outfall 002 and Internal Outfalls 201, 401, 501, and 601 were not assigned mass limits because the discharge from these outfalls will not contain any unregulated wastestreams that would provide dilution of the regulated wastestreams. The effluent limitation guidelines (ELG) in 40 C.F.R. § 423.15(m) states that the quantity of pollutant discharged may be expressed as a concentration limitation instead of the mass based limitation given in the ELG, at the permit writer's discretion.

Internal Outfalls 101 and 301

Internal Outfall 101 (discharge from process water pond to wastewater pond) and Internal Outfall 301 (discharge from process water pond to make-up water pond) were assigned TSS and O&G mass limits to ensure compliance with the effluent limitation guideline (ELG) because the incoming wastestreams to the process water pond would be comprised of regulated wastestreams for TSS and O&G (low volume wastewater sources and coal pile runoff) combined with a dilution wastestream (cooling tower blowdown) from the wastewater pond. In accordance with 40 C.F.R. § 125.3(f), non-treatment techniques such as flow augmentation (dilution) cannot be used to comply with technology-based effluent limits (TBELs). Also, in a memo dated August 22, 1985, from EPA to State NPDES Directors, it is stated that whenever wastestreams regulated for O&G and TSS are combined with wastestreams that are not regulated for O&G and TSS, then mass limitations or flow-weighted concentration limits should be applied to the combined discharge. After giving the facility the choice between flow weighted concentration limits or mass limits at Internal Outfall 101, the facility preferred mass limits. The facility stated in the modification application to add Internal Outfall 301 that it was anticipated that the limits for Internal Outfall 301 would be the same as those already established for Internal Outfall 101. Therefore, mass limits were assigned to both of these outfalls to ensure that the dilution wastestream (cooling tower blowdown) discharging from the wastewater pond to the process water pond would not be used to comply with the TBELs for discharges from the process water pond.

The mass limits developed for Internal Outfalls 101 and 301 take into consideration the dilution provided by the cooling tower blowdown wastestream entering the process water pond. The flow rates for all wastestreams entering the process water pond that were used in calculating the mass limits for Internal Outfalls 101 and 301 were taken from the Facility Water Balance found in Attachment 3, Page 7, Table 2.1 of the NPDES permit modification application received 9/10/2013 in the process description of the application. The typical source flows to the process water pond from each wastestream are given in the following table:

Source	Flow (gpm)	Regulated under ELG for TSS and O&G?
Bottom Ash Cooling/Transport	449.9	Yes, low volume wastewater
Cooling tower blowdown from wastewater pond	240.4	No, dilution wastestream
Coal Pile Runoff Pond	167.8	Yes, combination of low volume wastewater and coal pile runoff
Water treatment building	66.1	Yes, low volume wastewater
Landfill leachate pond	51.3	Yes, low volume wastewater
Reagent prep building washdown	12.7	Yes, low volume wastewater

Source	Flow (gpm)	Regulated under ELG for TSS and O&G?
Building sumps (Boiler, Turbine, Air heater, Fly Ash exhaust)	8.3	Yes, low volume wastewater
Filter Backwash from Demineralized Water System	5.3	Yes, low volume wastewater
Baghouse Area Sump	0.3	Yes, low volume wastewater
Total regulated wastestreams from coal pile and low volume sources	761.7 gpm = 1.097 mgd	
Total dilution wastestream from cooling tower blowdown	240.4 gpm = 0.346 mgd	

The 1995 EPA memo states that some credit for TSS and O&G present in the unregulated flow based on best professional judgement may be appropriate if data is available to characterize these flows. The facility reported in the application TSS and O&G values from cooling tower blowdown taken from a similar facility as the following:

TSS: Average value = 6 mg/L

O&G: Average value = < 5 mg/L (1/2 of 5 used in calculation)

These average values were multiplied by 1.5 to derive a maximum value for cooling tower blowdown as follows:

TSS: Maximum value = 6 x 1.5 = 9 mg/L

O&G: Maximum value = 2.5 x 1.5 = 3.75 mg/L

The flow-weighted concentrations (FWC) for TSS and O&G were calculated using the following equation:

$$FWC = (Q_r C_r + Q_u C_u) / (Q_r + Q_u)$$

Where,

Q_r = Regulated wastestream flow = 1.097 mgd

Q_u = Unregulated wastestream flow = 0.346 mgd

C_r = Regulated wastestream concentration (ELG limits)

= 30 mg/L avg / 50 mg/L max for TSS

= 15 mg/L avg / 20 mg/L max for O&G

C_u = Unregulated wastestream concentration

= 6 mg/L avg / 9 mg/L max for TSS

= 2.5 mg/L avg / 3.75 mg/L max for O&G

Flow-weighted concentrations (FWCs) are then calculated as follows:

$$\begin{aligned} \text{TSS (avg)} &= (1.097 \text{ mgd})(30 \text{ mg/L}) + (0.346 \text{ mgd})(6 \text{ mg/L}) / (1.097 \text{ mgd} + 0.346 \text{ mgd}) \\ &= 24.2 \text{ mg/L} \end{aligned}$$

$$\begin{aligned} \text{TSS (max)} &= (1.097 \text{ mgd})(50 \text{ mg/L}) + (0.346 \text{ mgd})(9 \text{ mg/L}) / (1.097 \text{ mgd} + 0.346 \text{ mgd}) \\ &= 40.2 \text{ mg/L} \end{aligned}$$

$$\begin{aligned} \text{O\&G (avg)} &= (1.097 \text{ mgd})(15 \text{ mg/L}) + (0.346 \text{ mgd})(2.5 \text{ mg/L}) / (1.097 + 0.346 \text{ mgd}) \\ &= 12.0 \text{ mg/L} \end{aligned}$$

$$\begin{aligned} \text{O\&G(max)} &= (1.097 \text{ mgd})(20 \text{ mg/L}) + (0.346 \text{ mgd})(3.75 \text{ mg/L}) / (1.097 + 0.346 \text{ mgd}) \\ &= 16.1 \text{ mg/L} \end{aligned}$$

Next, the mass limits for TSS and O&G for Internal Outfalls 101 and 301 were derived from the calculated FWCs as follows:

$$\text{TSS monthly avg limit} = (1.097 \text{ mgd} + 0.346 \text{ mgd})(8.34)(24.2 \text{ mg/l}) = 291.2 \text{ lb/day}$$

$$\text{TSS daily max limit} = (1.097 \text{ mgd} + 0.346 \text{ mgd})(8.34)(40.2 \text{ mg/l}) = 483.8 \text{ lb/day}$$

$$\text{O\&G monthly avg limit} = (1.097 \text{ mgd} + 0.346 \text{ mgd})(8.34)(12 \text{ mg/l}) = 144.4 \text{ lb/day}$$

$$\text{O\&G daily max limit} = (1.097 \text{ mgd} + 0.346 \text{ mgd})(8.34)(16.1 \text{ mg/l}) = 193.7 \text{ lb/day}$$

2. Daily Maximum Limits:

Outfall 001

TRC daily maximum is based on Reg. 2.409.

Temperature daily maximum is based on Reg. 2.502.

Chromium and Zinc daily maximum is based on 40 C.F.R. § 423.15(j)(1).

Chloride and TDS daily maximum is based on 1.5 times the monthly average.

O&G daily maximum is based on Reg. 2.510.

pH daily maximum is based on Reg. 2.504.

Outfall 002

TSS daily maximum is based on 40 C.F.R. § 423.15(k).

O&G daily maximum is based on Reg. 2.510.

pH daily maximum is based on Reg. 2.504.

Internal Outfalls 101, 201, 301, 401, 501, 601

TSS daily maximum is based on 40 C.F.R. § 423.15(k).

O&G daily maximum is based on 40 C.F.R. § 423.15(c).

pH daily maximum is based on 40 C.F.R. § 423.15(a).

3. Internal Outfall 101

This outfall is assigned to the discharge from the process water pond to the wastewater pond. The process water pond contains the combined wastestreams from coal pile runoff, ash landfill leachate, and several low volume wastewater sources. Since these regulated wastestreams are combined with a non-regulated wastestream (cooling tower blowdown) before being discharged to waters of the State via Outfall 001, the technology-based limits for coal pile runoff and low volume wastewater are applied at Internal Outfall 101 in accordance with 40 C.F.R. § 122.45(h) because the wastestream from the process water pond to the wastewater pond would be so diluted from the cooling tower blowdown wastestream that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for coal pile runoff and low volume wastewater.

4. Internal Outfall 201

This outfall is assigned to the discharge from the coal pile runoff pond to the make-up water pond. The coal pile runoff pond contains the combined wastestreams from coal pile stormwater runoff and low volume wastewater from the coal handling area sumps. Since these regulated wastestreams are combined with a non-regulated wastestream (intake from Little River) before being discharged to waters of the State via Outfall 001, the technology-based limits for coal pile runoff and low volume wastewater are applied at Internal Outfall 201 in accordance with 40 C.F.R. § 122.45(h) because the wastestream from the coal pile runoff pond to the make-up water pond would be so diluted from the cooling tower blowdown wastestream that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for coal pile runoff and low volume wastewater.

5. Internal Outfall 301

This outfall is assigned to the discharge from the process water pond to the make-up water pond. The process water pond contains the combined wastestreams from coal pile runoff, ash landfill leachate, and several low volume wastewater sources. Since these regulated wastestreams are combined with a non-regulated wastestream (cooling tower blowdown) before being discharged to waters of the State via Outfall 001, the technology-based limits for coal pile runoff and low volume wastewater are applied at Internal Outfall 301 in accordance with 40 C.F.R. § 122.45(h) because the wastestream from the process water pond to the wastewater pond would be so diluted from the cooling tower blowdown wastestream that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for coal pile runoff and low volume wastewater.

6. Internal Outfall 401

This outfall is assigned to the discharge from the intake water treatment system to the wastewater pond consisting of low volume wastewater (reject water from the intake water pretreatment system). Since this low volume wastestream is combined with cooling tower blowdown before being discharged to waters of the State via Outfall 001, the technology-based limits for low volume wastewater are applied at Internal Outfall 301 in accordance with 40 C.F.R. § 122.45(h) because the low volume wastestream would be so diluted from the cooling tower blowdown wastestream within the wastewater pond that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for low volume wastewater.

7. Internal Outfall 501

This outfall is assigned to the discharge from the landfill leachate pond to the make-up water pond consisting of low volume wastewater. Since this low volume wastestream is combined with a non-regulated wastestream (intake from Little River) in the make-up water pond before being eventually discharged to waters of the State via Outfall 001, the technology-based limits for low volume wastewater are applied at Internal Outfall 501 in accordance with 40 C.F.R. § 122.45(h) because the eventual discharge from the make-up water pond to waters of the State via Outfall 001 would be so diluted from the intake from Little River that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for low volume wastewater.

8. Internal Outfall 601

This outfall is assigned to the discharge from the landfill leachate pond to the wastewater pond consisting of low volume wastewater. Since this low volume wastestream is combined with cooling tower blowdown in the wastewater pond before being discharged to waters of the State via Outfall 001, the technology-based limits for low volume wastewater are applied at Internal Outfall 601 in accordance with 40 C.F.R. § 122.45(h) because the wastestream from the landfill leachate pond to the wastewater pond would be so diluted from the cooling tower blowdown wastestream that it would make monitoring impracticable at the point of final discharge (Outfall 001) to demonstrate compliance with the technology-based limits for low volume wastewater.

9. Applicable Effluent Limitations Guidelines (ELG)

Discharges from facilities of this type are covered by ELG promulgated under 40 CFR 423 of the Steam Electric Power Generating Point Source Category. Since this facility was constructed after November 19, 1982, but prior to November 17, 2015, this facility is subject to the 1982 New Source Performance Standards (NSPS) established in the ELG in 40 CFR 423.15(a). A summary of the ELG effluent limitations applicable to each outfall is as follows:

Outfall 001

Outfall 001 is the discharge to the Little River from the wastewater pond consisting of cooling tower blowdown and previously monitored internal wastestreams from the process water pond (Internal Outfalls 101 and 301), coal pile runoff pond (Internal Outfall 201), water pre-treatment system (Internal Outfall 401), and landfill leachate pond (Internal Outfalls 501 and 601).

40 C.F.R. Part 423.15(a)(1), NSPS Effluent Limits for Cooling Tower Blowdown	
pH	6.0 – 9.0 s.u.

40 C.F.R. 423.15(a)(10), NSPS Effluent Limits for Cooling Tower Blowdown		
Pollutant	Monthly Average	Daily Maximum
Free Available Chlorine (FAC)	0.2 mg/l	0.5 mg/l
The priority pollutants contained in chemicals added for cooling tower maintenance, except:	No detectable amount*	No detectable amount*
Chromium, Total	0.2 mg/l	0.2 mg/l
Zinc, Total	1.0 mg/l	1.0 mg/l

Technology - Based Limits Included in the Permit (Outfall 001)		
Pollutant	Monthly Average	Daily Maximum
Free Available Chlorine (FAC)	0.2 mg/l	0.5 mg/l
Chromium, Total Rec.	0.2 mg/l	0.2 mg/l
Zinc, Total Rec.	N/A	1.0 mg/l
Chlorides	250 mg/l	375 mg/l
TDS	2,500 mg/l	3,750 mg/l
Priority Pollutants except for Chromium and Zinc	No detectable amount	No detectable amount
pH	6.0 - 9.0 s.u.	

Water Quality-Based Limits Included in the Permit (Outfall 001)		
Pollutant	Monthly Average	Daily Maximum
Total Residual Chlorine (TRC)	N/A	< 0.1 mg/l
Zinc, Total Rec.	0.652 mg/l	N/A
Temperature (T)	N/A	98.6 °F
Oil & Grease	10 mg/l	15 mg/l
pH	6.0 - 9.0 s.u.	

Outfall 002

Outfall 002 is the discharge to an unnamed tributary of Bridge Creek from the emergency overflow spillway at the coal pile runoff pond consisting of stormwater runoff from the coal pile and low volume wastewater from the coal handling area sumps and vehicle wash station.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Coal Pile Runoff and Low Volume Wastewater	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(11), NSPS Effluent Limits for Coal Pile Runoff		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	N/A	50 mg/l

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Low Volume Wastewater		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Outfall 002)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	50 mg/l
pH	6.0 - 9.0 s.u.	

Water Quality - Based Limits Included in the Permit (Outfall 002)		
Pollutant	Monthly Average	Daily Maximum
Oil & Grease	10 mg/l	15 mg/l
pH	6.0 - 9.0 s.u.	

Internal Outfall 101

Internal Outfall 101 is the discharge from the process water pond to the wastewater pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Coal Pile Runoff, Low Volume Wastewater, and Combustion Residual Leachate	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(11), NSPS Effluent Limits for Coal Pile Runoff		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	N/A	50 mg/l

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Low Volume Wastewater and Combustion Residual Leachate		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 101)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	50 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

Internal Outfall 201

Internal Outfall 201 is the discharge from the coal pile runoff pond to the make-up water pond consisting of stormwater runoff from the coal pile, low volume wastewater from the coal handling area sumps and coal handling area vehicle wash station.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Coal Pile Runoff and Low Volume Wastewater	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(11), NSPS Effluent Limits for Coal Pile Runoff		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	N/A	50 mg/l

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Low Volume Wastewater		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 201)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	50 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

Internal Outfall 301

Internal Outfall 301 is the discharge from the process water pond to the make-up water pond consisting of the combined wastestreams from stormwater, coal pile runoff, ash landfill leachate, and several low volume wastewater sources consisting of filter backwash from demineralization water treatment system, boiler building sump, turbine building sump, air heater/blower building sump, fly ash exhaust building sump, water treatment building sump, reagent preparation building sump, baghouse area sump, bottom ash cooling and pyrites transport, flue gas desulfurization slurry preparation, ash handling area vehicle wash station, and coal handling area vehicle wash station.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Coal Pile Runoff, Low Volume Wastewater, and Combustion Residual Leachate	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(11), NSPS Effluent Limits for Coal Pile Runoff		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	N/A	50 mg/l

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Low Volume Wastewater and Combustion Residual Leachate		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 301)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	50 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

Internal Outfall 401

Internal Outfall 401 is the discharge from the intake water pretreatment system to the wastewater pond consisting of low volume wastewater (reject water from the intake water pretreatment system).

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Low Volume Wastewater	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Low Volume Wastewater		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 401)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

Internal Outfall 501

Internal Outfall 501 is the discharge from the landfill leachate pond to the make-up water pond consisting of stormwater runoff and combustion residual leachate from ash landfill.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Combustion Residual Leachate	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Combustion Residual Leachate		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 501)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

Internal Outfall 601

Internal Outfall 601 is the discharge from the landfill leachate pond to the wastewater pond consisting of stormwater runoff and leachate from ash landfill.

40 C.F.R. § 423.15(a)(1), NSPS Effluent Limits for Combustion Residual Leachate	
pH	6.0 – 9.0 s.u.

40 C.F.R. § 423.15(a)(3), NSPS Effluent Limits for Combustion Residual Leachate		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l

Technology - Based Limits Included in the Permit (Internal Outfall 601)		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/l	100 mg/l
Oil & Grease	15 mg/l	20 mg/l
pH	6.0 - 9.0 s.u.	

Since this is an internal outfall, water quality-based limits are not included.

10. Other ELG Regulated Wastestreams Consideration

Flue Gas Desulfurization (FGD) Wastewater

40 CFR 423.13(g)(1) of the 2015 ELG requires facilities built after 11/19/1982 and prior to 11/17/2015 that generate FGD wastewater from wet FGD scrubber systems to comply with Arsenic, Mercury, Selenium, and Nitrate/Nitrite limits as soon as possible but no later than 12/31/2023. There are two types of FGD systems, wet and dry. Both wet and dry FGD systems are used to remove sulfur dioxide from the flue gas. This facility utilizes a dry FGD system in which a sorbent slurry is sprayed into a reactor vessel so that the droplets dry as they contact the hot flue gas. Although the dry FGD scrubber uses water, this water evaporates upon contact with the hot flue gas and does not result in a discharge of wastewater. Therefore, this facility does not produce a FGD wastestream.

Fly Ash Transport Water

40 CFR 423.15(a)(7) of the 2015 ELG requires facilities built after 11/19/1982 and prior to 11/17/2015 that use water to transport (sluice) the fly ash to surface impoundments, to meet a zero discharge standard for fly ash transport wastewater as soon as possible but no later than 12/31/2023. This facility utilizes a dry fly ash handling system, therefore there is no fly ash transport water. Fly ash and other particulate matter is collected as a dry material by fabric filters (baghouse) then is dropped in hoppers underneath the baghouse, then transported by truck to the facility's landfill for proper disposal. Therefore, this facility already meets the zero discharge standard for fly ash transport water.

Bottom Ash Transport Water

40 CFR 423.13(k) of the 2015 ELG requires facilities built after 11/19/1982 and prior to 11/17/2015 that use water to transport (sluice) the bottom ash to surface impoundments to meet a zero discharge standard for bottom ash transport wastewater as soon as possible but no later than 12/31/2023. This facility utilizes a mechanical drag system (MDS). This bottom ash handling system collects bottom ash from the bottom of the boiler in a water-filled trough. The water bath in the trough quenches the hot bottom ash as it falls from the boiler and seals the boiler gases. A drag chain operates in a continuous loop to drag bottom ash from the water trough up an incline, which dewateres the bottom ash by gravity, draining the water back to the trough as the bottom ash moves upward. The dewatered bottom ash is collected in hoppers and then transported by truck to the facility's landfill for proper disposal. The MDS is considered a dry bottom ash handling system because the ash transport mechanism is mechanical removal by the drag chain, not the water. Therefore, this facility already meets the zero discharge standard for bottom ash transport water.

Flue Gas Mercury Control (FGMC) Wastewater

40 CFR 423.13(i) of the 2015 ELG requires facilities built after 11/19/1982 and prior to 11/17/2015 to meet a zero discharge standard for FGMC wastewater as soon as possible but no later than 12/31/2023. This facility uses a FGMC system where activated carbon is injected into the flue gas. The location of the injection point occurs after combustion and before the primary particulate removal system, therefore the mercury-containing carbon (FGMC wastes) are collected and handled in the same way, and together with, the facility's fly ash (dry handling). These wastes are properly disposed of in the facility's landfill. Therefore, this facility already meets the zero discharge standard for FGMC wastewater.

Gasification Wastewater

40 CFR 423.13(j) of the 2015 ELG requires Integrated Gasification Combined Cycle (IGCC) facilities built after 11/19/1982 and prior to 11/17/2015 to meet Arsenic, Mercury, Selenium, and Total Dissolved Solids limits for gasification wastewater as soon as possible but no later than 12/31/2023. IGCC facilities use a carbon-based feedstock (e.g. coal or petroleum coke) and subject it to high temperature and pressure to produce a synthetic gas (syngas), which is used as the fuel for a combined cycle generating unit. The syngas undergoes a cleaning process before combustion. The wastewater generated by this cleaning process is known as gasification wastewater. The Turk facility does not utilize an IGCC process, therefore has no associated gasification wastestream. Therefore, this facility does not generate a wastestream containing gasification wastewater.

Note: EPA published a new effluent limitation guideline (ELG) for steam electric power plants on 11/3/2015. In the 6/6/2017 federal register, EPA agreed to reconsider the 2015 ELG and postpone compliance dates set forth in the ELG, based on several petitions requesting further review of the ELG. As discussed above, this facility does not generate any of the new 2015 ELG regulated wastestreams. Therefore, this reconsideration action by the EPA does not affect any portion of the permit for this facility.

11. Stormwater Runoff

All stormwater at the facility other than stormwater collected in the wastewater pond, process water pond, coal pile runoff pond, and landfill leachate pond, is permitted to discharge under stormwater industrial general permit (IGP) tracking number ARR001064.

All stormwater collected in the wastewater pond, process water pond, coal pile runoff pond, and landfill leachate pond is permitted to discharge under this individual discharge permit (AR0051136).

12. Temperature Calculations

First, the temperature elevation in the Little River was calculated to verify that the discharge would not cause a temperature increase of greater than 5 °F as required by Reg. 2.502 using the following equation:

$$(T_e \times Q_e) + (T_u \times Q_u) = (T_d \times Q_d)$$

Where,

T_e = Effluent temperature = 98.6°F

Q_e = Effluent flow rate = 3.35 cfs

T_u = Upstream temperature = 34.2°F (lowest value from 1967-1995 Millwood Dam USGS station 7341301)

Q_u = Upstream flow rate = 154 – 14.5 – 9.35 = 130.15 cfs (7Q10 minus intake flows)

T_d = Downstream temperature after mixing

Q_d = Downstream flow rate = $Q_u + Q_e = 130.15 + 3.35 = 133.5$ cfs

Rearranging equation and solving for T_d ,

$$T_d = [(T_e \times Q_e) + (T_u \times Q_u)] / Q_d$$

$$T_d = [(98.6 \times 3.35) + (34.2 \times 130.15)] / 133.5$$

$$T_d = 35.8^\circ\text{F}$$

Thus, the temperature elevation is calculated as follows:

$$\Delta T = T_d - T_u$$

$$\Delta T = 35.8 - 34.2$$

$\Delta T = 1.6^\circ\text{F}$, therefore the discharge of 98.6°F will not cause an elevation $>5^\circ\text{F}$.

Second, the downstream temperature after mixing was calculated to verify that the discharge of 98.6°F would not cause a violation of the revised water quality standard for Little River in Reg. 2.502 (89.6°F) using the following equation:

$$(T_e \times Q_e) + (T_u \times Q_u) = (T_d \times Q_d)$$

Where,

T_e = Effluent temperature = 98.6°F

Q_e = Effluent flow rate = 3.35 cfs

T_u = Upstream temperature = 86.36°F (mean July-August temperature from 2012-2015 collected upstream of facility outfall 001)

Q_u = Upstream flow rate = 154 – 14.5 – 9.35 = 130.15 cfs (7Q10 minus intake flows)

T_d = Downstream temperature after mixing

Q_d = Downstream flow rate = $Q_u + Q_e = 130.15 + 3.35 = 133.5$ cfs

Rearranging equation and solving for T_d ,

$$T_d = [(T_e \times Q_e) + (T_u \times Q_u)] / Q_d$$

$$T_d = [(98.6 \times 3.35) + (86.36 \times 130.15)] / 133.5$$

$T_d = 86.67^\circ\text{F}$, therefore the discharge of 98.6°F will not cause downstream temperature $>89.6^\circ\text{F}$ (Revised WQS for Little River).

13. Zinc water quality-based limit calculations

$$7Q10 = 154 - 14.5 - 9.35 = 130.15 \text{ cfs (7Q10 minus intake flows)}$$

$$Q_b = \text{chronic background flow} = 32.5 \text{ cfs (25\% of 7Q10 for large stream)}$$

$$Q_b = \text{acute background flow} = 16.9 \text{ cfs (13\% of 7Q10 for large stream)}$$

$$Q_d = \text{facility flow} = 2.16 \text{ mgd} = 3.35 \text{ cfs}$$

$$C_b = \text{total zinc background concentration} = 11 \text{ ppb (geometric mean of values measured at USGS station 07341301 in the Little River at Millwood Dam 1979-1995)}$$

$$\text{WQS (chronic)} = 119.5 \text{ ppb (total zinc)}$$

$$\text{WQS (acute)} = 130.9 \text{ ppb (total zinc)}$$

Determine Wasteload Allocations (chronic and acute):

$$\text{WLA}_c = [(\text{WQS} \times (Q_d + Q_b) - (C_b \times Q_b)) / Q_d$$

$$\text{WLA}_c = [(119.5 \times (3.35 + 32.5) - (11 \times 32.5)) / 3.35$$

$$\text{WLA}_c = 1172 \text{ ppb}$$

$$\text{WLA}_a = [(\text{WQS} \times (Q_d + Q_b) - (C_b \times Q_b)) / Q_d$$

$$\text{WLA}_a = [(130.9 \times (3.35 + 16.9) - (11 \times 16.9)) / 3.34$$

$$\text{WLA}_a = 738 \text{ ppb}$$

Next, determine Long Term Averages (chronic and acute):

$$\text{LTA}_c = 0.72 \times \text{WLA}_c$$

$$\text{LTA}_a = 0.57 \times \text{WLA}_a$$

$$\text{LTA}_c = 0.72 \times 1172$$

$$\text{LTA}_a = 0.57 \times 738$$

$$\text{LTA}_c = 844 \text{ ppb}$$

$$\text{LTA}_a = 421 \text{ ppb}$$

Select the limiting LTA (LTA with lowest value),

$$\text{LTA} = 421 \text{ ppb}$$

Calculate average monthly limit (AML) and daily maximum limit (MDL),

$$\text{AML} = \text{LTA} \times 1.55$$

$$\text{MDL} = \text{LTA} \times 3.11$$

$$\text{AML} = 421 \times 1.55$$

$$\text{MDL} = 421 \times 3.11$$

$$\text{AML} = \mathbf{652 \text{ ppb}}$$

$$\text{MDL} = \mathbf{1309 \text{ ppb}}$$

14. Chlorides Evaluation

The Chloride permit limit at Outfall 001 was analyzed and does not show reasonable potential to violate the Chloride water quality criteria of the Little River after mixing as shown in the calculations below:

$$Q_1C_1 - Q_2C_2 + Q_3C_3 = Q_4C_4$$

Where,

Q_1 = harmonic mean background flow = 460.9 mgd (calculated from 5085 daily flow values reported at Millwood Dam from 1966-1980)

Q_2 = design intake flows from Turk plant and Hope Power = 9.36 mgd + 6 mgd = 15.36 mgd

Q_3 = design discharge flow = 2.16 mgd

Q_4 = Little River flow rate downstream of discharge = $Q_1 - Q_2 + Q_3 = 447.7$ mgd

C_1 = Chloride background concentration = 5 mg/l (geometric mean of values measured in the Little River upstream of Turk from November 2010 to October 2013)

C_2 = Chloride concentration in intake = $C_1 = 5$ mg/l

C_3 = Chloride effluent concentration (mg/l) = 250 mg/l

C_4 = Chloride instream waste concentration in Little River after mixing

Next, the mass balance equation above is rearranged to solve for the Chloride instream waste concentration after mixing (C_4),

$$C_4 = [(Q_1C_1) - (Q_2C_2) + (Q_3C_3)] / Q_4$$

$$C_4 = [(460.9)(5) - (15.36)(5) + (2.16)(250)] / 447.7$$

$$C_4 = 6.18 \text{ mg/l}$$

The water quality standard for Chloride in the Little River is 20 mg/l. The above calculation shows that the monthly average effluent limitation of 250 mg/l will result in an instream concentration in the Little River after mixing of 6.18 mg/l which is less than the WQS of 20 mg/l, therefore the Chloride effluent limit is protective of WQS in the Little River. Pursuant to the CPP, Appendix D, the daily maximum limit is calculated as 1.5 times monthly average, therefore the Chloride permit limits are:

250 mg/l (monthly average)

375 mg/l (daily maximum)

Mass limits are calculated using the design flow of the cooling tower blowdown:

$$(250 \text{ mg/l})(8.34)(2.16 \text{ mgd}) = 4503 \text{ lb/day (monthly average)}$$

$$(375 \text{ mg/l})(8.34)(2.16 \text{ mgd}) = 6755 \text{ lb/day (daily maximum)}$$

15. TDS effluent limitations

The following calculations were performed to verify that the TMDL limit would not cause an exceedence of the TDS water quality standard (WQS) in the Little River after mixing:

$$Q_1C_1 - Q_2C_2 + Q_3C_3 = Q_4C_4$$

Where,

Q_1 = harmonic mean background flow = 460.9 mgd (calculated from 5085 daily flow values reported at Millwood Dam from 1966-1980)

Q_2 = design intake flows from Turk plant and Hope Power = 9.36 mgd + 6 mgd = 15.36 mgd

Q_3 = design discharge flow = 2.16 mgd

Q_4 = Little River flow rate downstream of discharge = $Q_1 - Q_2 + Q_3 = 447.7$ mgd

C_1 = TDS background concentration = 59 mg/l (geometric mean of values measured in the Little River upstream of Turk from November 2010 to October 2013)

C_2 = TDS concentration in intake = $C_1 = 59$ mg/l

C_3 = TDS effluent concentration (mg/l) = 2,500 mg/l

C_4 = TDS instream waste concentration in Little River after mixing

Next, the mass balance equation above is rearranged to solve for the TDS instream waste concentration after mixing (C_4),

$$C_4 = [(Q_1C_1) - (Q_2C_2) + (Q_3C_3)] / Q_4$$
$$C_4 = [(460.9)(59) - (15.36)(59) + (2.16)(2,500)] / 447.7$$
$$C_4 = 70.77 \text{ mg/l}$$

The water quality standard for TDS in the Little River is 138 mg/l. The above calculation shows that the TMDL monthly average effluent limitation of 2,500 mg/l will result in an instream concentration in the Little River after mixing of 70.77 mg/l which is less than the WQS of 138 mg/l, therefore the TMDL limit is sufficiently protective of WQS in the Little River. Pursuant to the CPP, Appendix D, the daily maximum limit is calculated as 1.5 times monthly average, therefore the TDS permit limits are:

2,500 mg/l (monthly average)

3,750 mg/l (daily maximum)

Mass limits are calculated using the design flow of the cooling tower blowdown:

$$(2,500 \text{ mg/l})(8.34)(2.16 \text{ mgd}) = 45,036 \text{ lb/day (monthly average)}$$

$$(3,750 \text{ mg/l})(8.34)(2.16 \text{ mgd}) = 67,554 \text{ lb/day (daily maximum)}$$

16. Sulfate Evaluation

The facility reported a Sulfate concentration of 77 mg/L in the 2016 renewal application. The following calculations were performed to verify that the reported value would not cause an exceedence of the Sulfate water quality standard (WQS) in the Little River after mixing:

$$Q_1C_1 - Q_2C_2 + Q_3C_3 = Q_4C_4$$

Where,

Q_1 = harmonic mean background flow = 460.9 mgd (calculated from 5085 daily flow values reported at Millwood Dam from 1966-1980)

Q_2 = design intake flows from Turk plant and Hope Power = 9.36 mgd + 6 mgd = 15.36 mgd

Q_3 = design discharge flow = 2.16 mgd

Q_4 = Little River flow rate downstream of discharge = $Q_1 - Q_2 + Q_3 = 447.7$ mgd

C_1 = Sulfate background concentration = 6 mg/l (geometric mean of values measured in the Little River upstream of Turk from November 2010 to October 2013).

C_2 = Sulfate concentration in intake = $C_1 = 6$ mg/l

C_3 = Sulfate effluent concentration (mg/l) = 77 mg/l (reported on renewal application)

C_4 = Sulfate instream waste concentration in Little River after mixing

Next, the mass balance equation above is rearranged to solve for the Sulfate instream waste concentration after mixing (C_4),

$$C_4 = [(Q_1C_1) - (Q_2C_2) + (Q_3C_3)] / Q_4$$

$$C_4 = [(460.9)(6) - (15.36)(6) + (2.16)(77)] / 447.7$$

$$C_4 = 6.34 \text{ mg/l}$$

The water quality standard for Sulfate in the Little River is 20 mg/l. The above calculation shows that the reported effluent value of 77 mg/l will result in an instream concentration in the Little River after mixing of 6.34 mg/l which is less than WQS of 20 mg/l, therefore no Sulfate limits are deemed necessary.

These results were confirmed with spreadsheet calculations. The spreadsheet can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Sulfate%20RP%20evaluation_20161118.pdf

17. Total Phosphorus Evaluation

The reported effluent concentration was evaluated to determine if Phosphorus effluent limits are needed in the renewal permit. The facility reported a Total Phosphorus (TP) effluent value of 4.0 mg/L in the renewal application.

According to the “Quality Criteria for Water” [The Gold Book] (1986), the criterion for Ortho-Phosphate (Ortho-P) is 0.1 mg/L for flowing waters not discharging directly to lakes. Application of this criterion ensures to prevent development of biological nuisances and to control accelerated or cultural eutrophication. Since the criterion is in the form of Ortho-P and not Total Phosphorus (TP), it is necessary to determine the relationship between Ortho-P and TP in the receiving stream and use this relationship to convert the reported effluent value for TP to Ortho-P.

The geometric mean of the data taken upstream ADEQ station LRED008A (directly above Millwood Dam) for Ortho-P (0.014 mg/L) and TP (0.064 mg/L) from 2011 to 2016 in the epilimnion were evaluated. Based on this data, the following relationship between Ortho-P and TP in the Little River was derived:

$$\text{Ortho-P} = \text{TP} \times 0.22 \qquad \text{or} \qquad \text{TP} = \text{Ortho-P} \times 4.57$$

Applying this relationship to the reported effluent value for TP, the reported TP effluent concentration (4.0 mg/L) is equivalent to an Ortho-P value of 0.88 mg/L. A mass balance was used to calculate the resulting instream concentration. In accordance with the mixing zone policy in Appendix D of the CPP, the total critical flow volume was used as a mixing zone for this evaluation.

Mass Balance Calculation

$$C_1Q_1 + C_2Q_2 = C_3Q_3$$

Where,

C_1 = Background Ortho-P concentration (0.014 mg/L, geometric mean)

C_2 = Effluent Ortho-P concentration (0.88 mg/L, converted from reported TP value)

C_3 = Downstream Concentration after mixing (calculated)

Q_1 = Background critical flow = 130.15 cfs (7Q10 at Millwood Dam minus intake flows from Hope and Turk)

Q_2 = Effluent Flow = 2.16 MGD = 3.34 cfs (design flow of treatment system)

Q_3 = Downstream Flow = $Q_1 + Q_2 = 130.15 \text{ cfs} + 3.34 \text{ cfs} = 133.49 \text{ cfs}$

Rearranging the mass balance equation and solving for C_3 :

$$\begin{aligned} C_3 &= [(C_1Q_1) + (C_2Q_2)] / Q_3 \\ &= [(0.014)(130.15) + (0.88)(3.34)] / 133.49 \\ &= 0.036 \text{ mg/L (Ortho-P)} \end{aligned}$$

Since this value is less than the EPA criterion of 0.1 mg/L, the facility does not show reasonable potential to exceed Gold Book criterion for Ortho-P.

D. 208 Plan (Water Quality Management Plan)

The 208 Plan, developed by the ADEQ under provisions of Section 208 of the federal Clean Water Act, is a comprehensive program to work toward achieving federal water goals in Arkansas. The initial 208 Plan, adopted in 1979, provides for annual updates, but can be revised more often if necessary.

The 208 Plan is being updated with this final permitting action to remove the wasteload allocation for TDS of 500 mg/L and 9,020 lb/day, which was assigned to this facility in a TMDL dated September 27, 2012. The TMDL was withdrawn on November 9, 2018. This TMDL withdrawal action and associated 208 Plan updates were public noticed on August 29, 2018, and EPA approved on November 9, 2018. No comments were received on the TMDL withdrawal or 208 Plan updates.

E. Priority Pollutant Scan (PPS) and Non-Priority Pollutant Evaluation

ADEQ has reviewed and evaluated the effluent in accordance with the potential toxicity of each analyzed pollutant using the procedures outlined in the Continuing Planning Process (CPP).

The concentration of each pollutant after mixing with the receiving stream was compared to the applicable water quality standards as established in the Arkansas Water Quality Standards (AWQS), Regulation No. 2 (Reg. 2.508) and criteria obtained from the "Quality Criteria for Water, 1986 (Gold Book)".

Under Federal Regulation 40 CFR Part 122.44(d), as adopted by Regulation No. 6, if a discharge poses the reasonable potential (RP) to cause or contribute to an exceedance above a water quality standard, the permit must contain an effluent limitation for that pollutant. Effluent limitations for the toxicants demonstrating RP (if any) are derived in a manner consistent with the Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA, March 1991), the CPP, and 40 CFR Part 122.45(c).

The following items were used in calculations:

Parameter	Value	Source
Discharge Flow = Q	2.16 MGD = 3.34 cfs	Application
7Q10 Background Flow	130.15 cfs ¹	USGS Station 7341301, Period of Record: 1966-1980.
LTA Background Flow	690.55 cfs ²	USGS Station 7341301, Period of Record: 1966-1980.
TSS	5.5 mg/l	Gulf Coastal Ecoregion mean value specified in CPP
Hardness as CaCo ₃	31 mg/l	Gulf Coastal Ecoregion mean value specified in CPP
pH	6.95 s.u. ³	USGS Station 07341301, Period of Record 1967-1995.

¹ 7Q10 background flow was calculated as follows: 7Q10 (154 cfs) minus Turk design intake flow (14.5 cfs) minus Hope Power design intake flow (9.35 cfs).

² LTA background flow was calculated as follows: Harmonic mean (714.4 cfs) minus Turk design intake flow (14.5 cfs) minus Hope Power design intake flow (9.35 cfs).

³ Average of hydrogen ion concentrations measured in period of record, then converted back to pH.

The following pollutant concentrations were reported:

Pollutant	Concentration Reported ² , µg/l	Achieved MQL, µg/l
Antimony, Total Rec.	0.514	1.0
Arsenic, Total Rec.	0.412	0.5
Chromium, Total Rec.	0.792	0.5
Copper, Total Rec.	2.68	1.0
Mercury, Total Rec.	0.00534	0.00426
Nickel, Total Rec.	1.96	1.0
Selenium, Total Rec.	1.28	1.0
Zinc, Total Rec.	1.89	5.0
Chloroform	9.86	4.0
Aluminum, Total Rec.	146	¹

Pollutant	Concentration Reported ² , μg/l	Achieved MQL, μg/l
Barium, Total Rec.	104	1
Boron, Total Rec.	72.4	1
Cobalt, Total Rec.	0.24	1
Iron, Total Rec.	274	1
Magnesium, Total Rec.	8,380	1
Molybdenum, Total Rec.	3.32	1
Manganese, Total Rec.	82.2	1
Sulfate ³	77 mg/L	1
Total Phosphorus ⁴	4 mg/L	1

- ¹ Achieved MQL information is not available on EPA Form 2C that value was reported on.
² All concentrations reported are based on one sample reported on EPA Form 2C.
³ The Sulfate evaluation is shown in Section 12.C.16 of this fact sheet.
⁴ The Phosphorus evaluation is shown in Section 12.C.17 of this fact sheet.

For all reported pollutants except for Sulfate and Total Phosphorus, the Instream Waste Concentrations (IWCs) were calculated in the manner described in Appendix D of the CPP and compared to the applicable Criteria. The following tables summarize the results of the analysis. The complete evaluation can be viewed on the Department's website at the following address:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_PPS%20evaluation_20161116.pdf

1. Aquatic Toxicity Evaluation

a. Acute Criteria Evaluation

Pollutant	Concentration Reported (C_e) µg/l	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Acute, µg/l	Acute, µg/l	
Antimony, Total Rec.	0.514	1.095	0.180	9,000 ³	No
Arsenic, Total Rec.	0.412	0.878	0.751	340 ⁴	No
Chromium, Total Rec.	0.792	1.687	0.793	1,006.35 ⁷	No
Copper, Total Rec.	2.68	5.71	2.21	14.79	No
Mercury, Total Rec.	0.00534	0.01137	0.00187	6.70	No
Nickel, Total Rec.	1.96	4.17	0.69	1,061.45	No
Selenium, Total Rec.	1.28	2.73	0.45	20	No
Zinc, Total Rec.	1.89	4.03	2.58	130.87	No
Chloroform	9.86	21.0	3.46	28,900 ³	No
Aluminum, Total Rec.	146	311	387.5	1,496 ⁵	No
Barium, Total Rec.	104	222	55.82	50,000 ³	No
Boron, Total Rec.	72.4	154.2	25.41	18,000 ³	No
Cobalt, Total Rec.	0.24	0.51	0.52	None ⁶	No
Iron, Total Rec.	274	584	743.35	None ⁶	No
Magnesium, Total Rec.	8,380	17,849	2,941.94	None ⁶	No
Molybdenum, Total Rec.	3.32	7.07	1.17	None ⁶	No
Manganese, Total Rec.	82.2	175.1	101.48	None ⁶	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Reg. 2.508 unless otherwise specified.

³ From 1986 EPA Gold Book.

⁴ Criteria is from EPA National Recommended Water Quality Criteria.

⁵ Criteria is from EPA Report 440/5-86-008, August 1988.

⁶ No criteria found in EPA Gold Book or EPA National Recommended Water Quality Criteria.

⁷ Criteria is from Reg. 2.508 for Hexavalent Chromium. Reported effluent value for Total Chromium was compared to the water quality standard for Hexavalent Chromium.

b. Chronic Criteria Evaluation

Pollutant	Concentration Reported (C _e) µg/l	C _e x 2.13 ¹	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Chronic, µg/l	Chronic, µg/l	
Antimony, Total Rec.	0.514	1.095	0.102	1,600 ³	No
Arsenic, Total Rec.	0.412	0.878	0.740	150 ⁴	No
Chromium, Total Rec.	0.792	1.687	0.717	326.45 ⁷	No
Copper, Total Rec.	2.68	5.71	1.91	10.93	No
Mercury, Total Rec.	0.00534	0.01137	0.00106	0.012	No
Nickel, Total Rec.	1.96	4.17	0.39	117.88	No
Selenium, Total Rec.	1.28	2.73	0.25	5.0	No
Zinc, Total Rec.	1.89	4.03	2.45	119.5	No
Chloroform	9.86	21.0	1.95	1,240 ³	No
Aluminum, Total Rec.	146	311	394.07	748 ⁵	No
Barium, Total Rec.	104	222	41.59	50,000 ³	No
Boron, Total Rec.	72.4	154.2	14.35	18,000 ³	No
Cobalt, Total Rec.	0.24	0.51	0.52	None ⁶	No
Iron, Total Rec.	274	584	757.06	1,000 ⁴	No
Magnesium, Total Rec.	8,380	17,849	1661.86	None ⁶	No
Molybdenum, Total Rec.	3.32	7.07	0.66	None ⁶	No
Manganese, Total Rec.	82.2	175.1	95.16	None ⁶	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Reg. 2.508 unless otherwise specified.

³ From 1986 EPA Gold Book.

⁴ Criteria is from EPA National Recommended Water Quality Criteria.

⁵ Criteria is from EPA Report 440/5-86-008, August 1988.

⁶ No criteria found in EPA Gold Book or EPA National Recommended Water Quality Criteria.

⁷ Criteria is from Reg. 2.508 for Hexavalent Chromium. Reported effluent value for Total Chromium was compared to the water quality standard for Hexavalent Chromium.

2. Human Health (Bioaccumulation) Evaluation

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC) $\mu\text{g/l}$	Criteria ² $\mu\text{g/l}$	Reasonable Potential (Yes/No)
Antimony, Total Rec.	0.514	1.095	0.005	146 ³	No
Arsenic, Total Rec.	0.412	0.878	0.727	1.4 ^{4,7}	No
Chromium, Total Rec.	0.792	1.687	0.622	3,433,000 ³	No
Copper, Total Rec.	2.68	5.71	1.54	1,300 ⁴	No
Mercury, Total Rec.	0.00534	0.01137	0.00005	0.146 ³	No
Nickel, Total Rec.	1.96	4.17	0.02	4,770 ³	No
Selenium, Total Rec.	1.28	2.73	0.01	4,200 ⁴	No
Zinc, Total Rec.	1.89	4.03	2.3	26,000 ⁴	No
Chloroform	9.86	21.0	0.1	2,000 ⁴	No
Aluminum, Total Rec.	146	311	402.15	None ⁶	No
Barium, Total Rec.	104	222	24.09	1,000 ³	No
Boron, Total Rec.	72.4	154.2	0.74	None ⁶	No
Cobalt, Total Rec.	0.24	0.51	0.52	None ⁶	No
Iron, Total Rec.	274	584	773.93	None ⁶	No
Magnesium, Total Rec.	8,380	17,849	87.43	None ⁶	No
Molybdenum, Total Rec.	3.32	7.07	0.03	None ⁶	No
Manganese, Total Rec.	82.2	175.1	87.38	100 ⁴	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from Reg. 2.508 unless otherwise specified.

³ From 1986 EPA Gold Book.

⁴ Criteria is from EPA National Recommended Water Quality Criteria.

⁵ Criteria is from EPA Report 440/5-86-008, August 1988.

⁶ No criteria found in EPA Gold Book or EPA National Recommended Water Quality Criteria.

⁷ Based on human health criteria lifetime risk factor of 10^{-5} as stated in Reg. 2.508.

3. Human Health (Domestic Drinking Water Supply) Evaluation

Pollutant	Concentration Reported (C _e) μg/l	C _e x 2.13 ¹	Instream Waste Concentration (IWC) μg/l	Criteria ² μg/l	Reasonable Potential (Yes/No)
Antimony, Total Rec.	0.514	1.095	0.027	6	No
Arsenic, Total Rec.	0.412	0.878	0.73	10	No
Chromium, Total Rec.	0.792	1.687	0.644	100	No
Copper, Total Rec.	2.68	5.71	1.63	1,300	No
Mercury, Total Rec.	0.00534	0.01137	0.00028	2	No
Nickel, Total Rec.	1.96	4.17	0.1	None ³	No
Selenium, Total Rec.	1.28	2.73	0.07	50	No
Zinc, Total Rec.	1.89	4.03	2.33	None ³	No
Chloroform	9.86	21.0	0.53	None ³	No
Aluminum, Total Rec.	146	311	400.3	None ³	No
Barium, Total Rec.	104	222	28.1	2,000	No
Boron, Total Rec.	72.4	154.2	3.86	None ³	No
Cobalt, Total Rec.	0.24	0.51	0.52	None ³	No
Iron, Total Rec.	274	584	770.07	None ³	No
Magnesium, Total Rec.	8,380	17,849	447.79	None ³	No
Molybdenum, Total Rec.	3.32	7.07	0.18	None ³	No
Manganese, Total Rec.	82.2	175.1	89.16	None ³	No

¹ Statistical ratio used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria are from EPA primary drinking water standards unless otherwise specified.

³ No criteria found in EPA primary drinking water standards.

ADEQ has determined from the submitted information that the discharge does not pose the reasonable potential to cause or contribute to an exceedance above a listed criteria or Arkansas water quality standard for parameters reported in the application.

13. WHOLE EFFLUENT TOXICITY

Section 101(a)(3) of the Clean Water Act states that ".....it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, ADEQ is required under 40 C.F.R. § 122.44(d)(1), adopted by reference in APC&EC Regulation No. 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act. Arkansas has established a narrative criteria which states "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent toxicity (WET) testing is the most direct measure of potential toxicity which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. It is the national policy of EPA to use bioassays as a measure of toxicity to allow evaluation of the effects of a discharge upon a receiving water (49 Fed. Reg. 9016-9019 (March 9, 1984)). EPA Region 6 and the State of Arkansas are now implementing the Post Third Round Policy and Strategy established on September 9, 1992, and EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies, revised March 13, 2000. Since this facility is classified as a major facility, and in accordance with the CPP, whole effluent toxicity testing of the effluent is required as a condition of this permit to assess potential toxicity.

Outfall 001

The whole effluent toxicity testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS	FREQUENCY
Chronic WET	Once/quarter

Requirements for measurement frequency are based on the CPP.

Since the dilution ratio of 47:1 (7Q10+Qd):Qd is less than 100:1, chronic WET testing requirements will be included in the permit.

The calculations for dilution used for chronic WET testing are as follows:

$$\text{Critical dilution (CD)} = (Q_d / (Q_d + Q_b)) \times 100$$

$$Q_d = \text{Design flow} = 2.16 \text{ MGD} = 3.34 \text{ cfs}$$

$$7Q_{10} = 154 \text{ cfs}$$

$$\text{Intake Flow from Hope Power and Turk} = 9.36 \text{ mgd} + 6 \text{ mgd} = 15.36 \text{ mgd} = 23.8 \text{ cfs}$$

$$Q_b = \text{Background flow} = 0.25 \times (7Q_{10} - \text{Intake flow}) = 32.55 \text{ cfs}$$

$$CD = (3.34) / (3.34 + 32.55) \times 100 = 9.3\% \text{ (use 9\%)}$$

Toxicity tests shall be performed in accordance with protocols described in "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 4%, 5%, 7%, 9%, and 12%, based upon the CPP. The low-flow effluent concentration (critical dilution) is defined as 9% effluent. The requirement for chronic WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen conductivity, and alkalinity shall be reported according to EPA/600/4-91/002, July 1994 and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if WET testing data submitted to the Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. § 122.62, as adopted by reference in ADEQ Regulation No. 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and the Arkansas Water and Air Pollution Control Act, Ark. Code Ann. § 8-4-101 *et seq.*

Administrative Records

The following information summarized toxicity test submitted by the permittee during the term of the previous permit at outfall 001:

Permit Number:	AR0051136	AFIN:	29-00506	Outfall Number:	001
Date of Review:	2/17/2017	Reviewer:	M. Barnett		
Facility Name:	SWEPSCO-Turk				
Previous Dilution series:	4, 5, 7, 9, 12	Proposed Dilution Series:	4, 5, 7, 9, 12		
Previous Critical Dilution:	9	Proposed Critical Dilution:	9		
Previous TRE activities:	None				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				

TEST DATA SUMMARY

TEST DATE	Vertebrate (<i>Pimephales promelas</i>)		Invertebrate (<i>Ceriodaphnia dubia</i>)	
	Lethal	Sub-Lethal	Lethal	Sub-Lethal
	NOEC	NOEC	NOEC	NOEC
6/30/2012	12	12	12	12
9/30/2012	12	12	12	12
12/31/2012	12	12	12	12
3/31/2013	12	12	12	12
6/30/2013	12	12	12	12
9/30/2013	12	12	12	12
12/31/2013	12	12	12	12
3/31/2014	12	12	12	12
6/30/2014	12	12	12	12
9/30/2014	12	12	12	12
12/31/2014	12	12	12	12
3/31/2015	12	12	12	12
6/30/2015	12	12	12	12
9/30/2015	12	12	12	12
12/31/2015	12	12	12	12
3/31/2016	12	12	12	12
6/30/2016	12	12	12	12
9/30/2016	12	12	12	12
12/31/2016	12	12	12	12

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	12	12	12	12
TU at Min Observed	8.33	8.33	8.33	8.33
Count	19	19	19	19
Failure Count	0	0	0	0
Mean	8.333	8.333	8.333	8.333
Std. Dev.	0.000	0.000	0.000	0.000
CV	0	0	0	0
RPMF	0	0	0	0
Reasonable Potential	0.000	0.000	0.000	0.000
100/Critical dilution	11.111	11.111	11.111	11.111
Does Reasonable Potential Exist	No	No	No	No

PERMIT ACTION

P. promelas Chronic - monitoring
C. dubia Chronic- monitoring

Outfall 002

The whole effluent toxicity testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS	FREQUENCY
48 hour Acute WET	Once/quarter

Requirements for measurement frequency are based on the CPP.

Since the 7Q10 of Bridge Creek is zero, the calculated critical dilution ratio calculates to 1:1 using the following equation from the CPP: $(7Q10 + Qd):Qd$. Since the calculated dilution ratio is less than 100:1, chronic WET testing requirements are included in the permit in accordance with the CPP. Although the previous permit required acute WET testing on this outfall based on the expected intermittent and short term duration of discharges, the Department has determined upon further review that chronic WET testing is required by the CPP based on the critical low flow of the receiving stream being zero.

The calculations for dilution used for the chronic WET testing are as follows:

$$\text{Critical Dilution (CD)} = (Qd / (Qd + Qb)) \times 100$$

Qd = Design Flow = variable depending on storm event

7Q10 = 0 cfs

Qb = Background flow = $0.1 \times (0.67) \times 7Q10 = 0$ cfs

CD = $(\text{variable}) / (\text{variable} + 0) \times 100 = 100\%$

Toxicity tests shall be performed in accordance with protocols described in "Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms", EPA/600/4-90/027. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 32%, 42%, 56%, 75%, and 100%, based on the CPP. The low-flow effluent concentration (critical dilution) is defined as 100% effluent. The requirement for chronic WET tests is based on the magnitude of the facility's discharge (variable) with respect to the critical low flow (7Q10) of the receiving stream. The stipulated test species *Daphnia pulex* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. § 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be reported according to EPA-821-R-02-012, October 2002 and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if WET testing data submitted to the Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. § 122.62, as adopted by reference in ADEQ Regulation No. 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section § 8-4-201 of the Arkansas Water and Air Pollution Control.

Administrative Records

There were no reported discharges from outfall 002 during the previous permit term.

14. SAMPLE TYPE AND FREQUENCY

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity (40 C.F.R. § 122.48(b)) and to ensure compliance with permit limitations (40 C.F.R. § 122.44(i)(1)).

Outfall 001

The application states that the expected typical flow rate discharged at this outfall will be 291.6 gpm (0.419 MGD) during normal operations. Therefore, requirements for sample type and sampling frequency for TDS and WET testing were based on recommended frequencies for self-monitoring of discharges within the flow of 0.11 to 0.5 MGD. The permittee stated in the application that flow, temperature, and pH is continuously monitored, therefore this requirement is included in the permit. Also, the permittee stated that the cooling tower blowdown is continuously chlorinated and dechlorinated using sodium bisulfite. Therefore, the permit writer included a requirement for daily monitoring of total residual chlorine and free available chlorine.

Note: The permittee requested a monitoring frequency reduction in the 2016 renewal application for O&G, Chloride, TDS, Chromium, and Zinc at Outfall 001. The permit writer evaluated the reported data for these parameters using EPA document 833-B-96-001 entitled "Interim Guidance for Performance Based Reductions of NPDES Permit Monitoring Frequencies", April 1996. Based on this evaluation, the facility was determined eligible for reductions of O&G and Chloride from twice/month to once/month, and reductions of Chromium and Zinc from once/month to once/quarter. However, based on the average reported data for TDS of 72% of the permit limit, no reduction is being granted for TDS at this time. The monitoring frequency reduction evaluation can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf

Outfall 002

Flow, TSS, Oil & Grease, and pH sample frequency is set at once/day (when discharging). The application states that this outfall will only discharge during extremely rare occasions when stormwater from two consecutive 25-year, 24-hour storm events occurs causing the coal pile runoff pond to discharge through a controlled pipe and valve system in a spillway discharging to an unnamed tributary of Bridge Creek.

Internal Outfall 101

Flow, TSS, O&G, and pH sample frequency is set at once/week (when discharging). The application states that on very rare occasions, water from the process water pond may be transferred to the wastewater pond via a connecting pipeline that will typically be closed. Use of this pipeline (designated as Internal Outfall 101) would only occur under a prolonged outage situation that suspended internal use of water from the process water pond, combined with sufficient rainfall to exceed its capacity. The sample frequency was set at once/week to ensure that this wastestream is in compliance with the effluent limitations guidelines assigned to coal pile runoff and low volume wastewater.

Note: During preparation of a previous permit modification, the permittee requested the monitoring frequency for TSS, Oil & Grease, and pH be reduced to once/week in an email dated March 18, 2014. Upon review of that request, the permit writer determined that this outfall was not eligible for a monitoring frequency reduction at that time because monitoring frequency reductions cannot be granted during the first term of the permit. In the renewal application, the permittee requested a reduction in monitoring frequencies for O&G and TSS. This request was reviewed and based on the reported data for flow, pH, O&G, and TSS, monitoring frequencies were reduced for these parameters from once/discharge to once/week to be consistent with the other internal outfalls. The monitoring frequency reduction evaluation can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf

Internal Outfall 201

Flow, TSS, O&G, and pH sample frequency is set at once/week (when discharging). The application states that this internal outfall would only be used during significant rainfall events when water is transferred from the coal pile runoff pond to the make-up water pond. The sample frequency was set at once/week when discharging to ensure that this wastestream is in compliance with the effluent limitations guidelines assigned to coal pile runoff and low volume wastewater.

Note: During preparation of a previous permit modification, the permittee requested the monitoring frequency for TSS, Oil & Grease, and pH be reduced to once/week in an email dated March 18, 2014. Upon review of this request, the permit writer determined that this outfall was not eligible for a monitoring frequency reduction at that time because monitoring

frequency reductions cannot be granted during the first term of the permit. In the renewal application, the permittee requested a reduction in monitoring frequencies for O&G and TSS. This request was reviewed and based on the reported data for flow, pH, O&G, and TSS, monitoring frequencies were reduced for these parameters from once/day to once/week to be consistent with the other internal outfalls. The monitoring frequency reduction evaluation can be viewed at the following weblink:

https://www.adeg.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0051136_Monitoring%20Frequency%20Reduction%20Evaluation_20170130.pdf

Internal Outfalls 301, 401, 501, 601

Flow, TSS, O&G, and pH sample frequency is set at once/week (when discharging) which is the frequency requested by the permittee in an email dated 3/18/2014. This frequency is at least as stringent as the monitoring frequency recommended in an internal memo dated July 16, 1993 based on the range of flow rates from each of these outfalls given on the plant water balance dated January 9, 2014.

Required monitoring frequencies and sample types for each parameter is presented in the following tables:

Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
OUTFALL 001				
Flow	Continuous	Recorder	Continuous	Recorder
TRC	Once/day	Grab	Once/day	Grab
FAC	Once/day	Grab	Once/day	Grab
Temperature	Continuous	Recorder	Continuous	Recorder
Chromium	Once/month	Grab	Once/quarter	Grab
Zinc	Once/month	Grab	Once/quarter	Grab
Chloride	Two/month	Grab	Once/month	Grab
TDS	Two/month	Grab	Two/month	Grab
Oil & Grease	Two/month	Grab	Once/month	Grab
pH	Continuous	Recorder	Continuous	Recorder
Chronic WET Testing	Once/quarter	Composite	Once/quarter	Composite

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
OUTFALL 002				
Flow	Once/day	Calculated	Once/day	Calculated
TSS	Once/day	Grab	Once/day	Grab
Oil & Grease	Once/day	Grab	Once/day	Grab
pH	Once/day	Grab	Once/day	Grab
Chronic WET Testing	Once/quarter	Composite	Once/quarter	Composite

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 101				
Flow	Once/discharge	Measured	Once/week	Measured
TSS	Once/discharge	Grab	Once/week	Grab
Oil & Grease	Once/discharge	Grab	Once/week	Grab
pH	Once/discharge	Grab	Once/week	Grab

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 201				
Flow	Once/day	Measured	Once/week	Measured
TSS	Once/day	Grab	Once/week	Grab
Oil & Grease	Once/day	Grab	Once/week	Grab
pH	Once/day	Grab	Once/week	Grab

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 301				
Flow	Once/week	Measured	Once/week	Measured
TSS	Once/week	Grab	Once/week	Grab
Oil & Grease	Once/week	Grab	Once/week	Grab
pH	Once/week	Grab	Once/week	Grab

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 401				
Flow	Once/week	Calculated	Once/week	Calculated
TSS	Once/week	Grab	Once/week	Grab
Oil & Grease	Once/week	Grab	Once/week	Grab
pH	Once/week	Grab	Once/week	Grab

	Previous Permit		Draft Permit	
Parameter	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 501				
Flow	Once/week	Calculated	Once/week	Calculated
TSS	Once/week	Grab	Once/week	Grab
Oil & Grease	Once/week	Grab	Once/week	Grab
pH	Once/week	Grab	Once/week	Grab

Parameter	Previous Permit		Draft Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
INTERNAL OUTFALL 601				
Flow	Once/week	Calculated	Once/week	Calculated
TSS	Once/week	Grab	Once/week	Grab
Oil & Grease	Once/week	Grab	Once/week	Grab
pH	Once/week	Grab	Once/week	Grab

15. PERMIT COMPLIANCE SCHEDULE

No compliance schedule is included in this final permit.

16. MONITORING AND REPORTING

The applicant is at all times required to monitor the discharge on a regular basis and report the results monthly. The monitoring results will be available to the public.

17. SOURCES

The following sources were used to prepare the final permit:

- A. Application No. AR0051136 received 4/27/2016.
- B. Arkansas Water Quality Management Plan (WQMP).
- C. APC&EC Regulation No. 2.
- D. APC&EC Regulation No. 3.
- E. APC&EC Regulation No. 6 which incorporates by reference certain federal regulations included in Title 40 of the Code of Federal Regulations at Reg. 6.104.
- F. 40 CFR Parts 122 and 125.
- G. 40 CFR Part 423 (2015 Effluent Limitation Guideline and Preamble for Steam Electric Powerplants).
- H. Discharge permit file AR0051136.
- I. Discharge Monitoring Reports (DMRs).
- J. Continuing Planning Process (CPP).
- K. Technical Support Document For Water Quality-based Toxic Control.
- L. Inspection Report dated 11/8/2016.
- M. Compliance Review Memo dated 2/6/2017.
- N. "2016 List of Impaired Waterbodies (303(d) List)", ADEQ.
- O. EPA approval dated November 9, 2018 of the withdrawal of twenty (20) Total Maximum Daily Loads (TMDLs) from the document entitled "TMDLs for Chloride, Sulfate, and TDS for the Red River, Sulphur River, and McKinney Bayou, Arkansas", dated 9/27/2012.

- P. USGS Station 07341301 flow data in Little River at Millwood Dam from 1966-1980.
- Q. 2012-2016 temperature data reported by the facility in Little River upstream and downstream of outfall 001.
- R. Modified NPDES Permit No. AR0051136 issued on 8/10/2016 and effective 8/12/2016.
- S. Monitoring frequency evaluation dated 1/30/2017.
- T. Email dated 2/27/2017 from Frank Mills to Shane Byrum concerning 2015 ELG Applicability review for FGD Wastewater, Bottom Ash Wastewater, Fly Ash Wastewater, Gasification Wastewater, FGD Wastewater, and FGMC Wastewater.
- U. Priority Pollutant Scan reasonable potential evaluation dated 11/16/2016.
- V. Sulfate reasonable potential evaluation dated 11/18/2016.
- W. Phosphorus reasonable potential evaluation dated 11/21/2016.
- X. Phone conversation between Frank Mills and Shane Byrum discussing the significant changes in the permit.
- Y. Draft revised document entitled “TMDLs For Chloride, Sulfate, and TDS for the Red River, Sulphur River, and McKinney Bayou, Arkansas”, dated September 20, 2017, FTN Associates.
- Z. EPA letter dated March 20, 2018 stating no objection to draft permit.
- AA. SWEPCO comments dated April 30, 2018 on the draft permit.
- BB. Department of Arkansas Heritage comments dated April 13, 2018 on the draft permit.

18. PUBLIC NOTICE

The public notice of the draft permit was published for public comment on March 30, 2018. The last day of the comment period was thirty (30) days after the publication date. A summary of the comments received by the ADEQ during the public comment period and response to the comments are included with this permit decision. The response to comments also includes a discussion of any substantial changes from the draft permit.

A copy of the draft permit and public notice were sent via email to the Corps of Engineers, the Regional Director of the U.S. Fish and Wildlife Service, the Department of Arkansas Heritage, the EPA, and the Arkansas Department of Health.

19. PERMIT FEE

In accordance with Reg. No. 9.403(A)(1), the initial and annual fee for the permit is \$15,000.

20. POINT OF CONTACT

For additional information, contact:

Shane Byrum
Permits Branch, Office of Water Quality
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
Telephone: (501) 682-0618

**RESPONSE TO COMMENTS
FINAL PERMITTING DECISION**

Permit No.: AR0051136

Applicant: Southwestern Electric Company, Inc. (SWEPCO)
John W. Turk, Jr. Power Plant

Prepared by: Shane Byrum

The following are responses to comments received regarding the draft permit number above and are developed in accordance with regulations promulgated at 40 C.F.R. §124.17 as incorporated in APCEC Regulation 6.104(A)(5), APC&EC Regulation No. 8 Administrative Procedures, and A.C.A. §8-4-203(e)(2).

Introduction

The above permit was submitted for public comment on March 30, 2018. The public comment period ended on April 30, 2018.

This document contains a summary of the comments that the ADEQ received during the public comment period. A summary of the changes to the NPDES Permit can be found on the last page of this document.

The following people or organizations sent comments to the ADEQ during the public notice. A total of 2 comments were raised by 2 separate commenters.

Commenter	Number of Comments Raised
1. SWEPCO	1
2. Arkansas Department of Heritage	1

Comment 1 SWEPCO is aware that the ADEQ could withdraw the Red River TMDL for minerals, rather than revising it. Given that possibility, SWEPCO proposes that withdrawal of the TMDL be added to the permit as an event that would trigger application of the “conditional effluent limits” for Total Dissolved Solids (TDS).

Response: After the draft permit was public noticed on March 30, 2018, the proposed withdrawal of the Red River TMDL for minerals was public noticed on August 29, 2018. No comments were received on this proposed TMDL withdrawal action, and the proposed TMDL withdrawal was sent to EPA Region VI on October 10, 2018. EPA approved the TMDL withdrawal on November 9, 2018. Therefore, it is no longer necessary to include “conditional limits” for TDS with qualifying events in the final permit. The final permit simply includes the TDS limits as final limits, with the value of the final limits equal to the value of the “conditional limits” contained in the draft permit. All language in the permit pertaining to “conditional TDS limits” was removed or revised accordingly, based on the final TMDL withdrawal action.

Comment 2 The Department of Arkansas Heritage has identified the following species of concern to occur within 5 miles downstream of the outfall in the Little River :

Ammocrypta clara, Western Sand Darter – state concern
Cycleptus elongates, Blue Sucker – state concern
Hiodon alosoides, Goldeye – state concern
Notropis bairdi, Red River Shiner – state concern
Notropis potteri, Chub Shiner – state concern
Quadrula apiculata, Southern Mapleleaf – state concern
Sternula antillarum athalassos, Interior Least Tern – federal concern (endangered)

Response: The limits in the permit are designed to protect all beneficial uses of the receiving waters, including propagation of desirable species of fish and other aquatic life as well as other species which are directly or indirectly affected by the receiving waters, which includes the above species of concern. Therefore, ADEQ has determined that the final permit limits will serve to help protect the species of concern identified above. This list is included in Section 8.C of the Fact Sheet.

Summary of Changes to the permit				
Part	Draft Permit	Final Permit	Justification	Comment #
IA	The effluent limit tables for outfall 001 contained TDS limits based on a TMDL, and conditional TDS limits that would be effective if the TMDL was revised.	The effluent limit table for outfall 001 containing the TDS limits based on a TMDL was removed. The effluent limit table for outfall 001 containing the conditional TDS limits was retained in the final permit. The conditional TDS limits of the draft permit are now considered final limits.	The TMDL for minerals in the Red River was withdrawn.	1
IB	A compliance schedule for “conditional TDS limits” was included.	No compliance schedule is included. All permit limits apply upon the effective date of the permit.	The TMDL for minerals in the Red River was withdrawn.	1
8.C of Fact Sheet	Draft permit contained list of species of conservation concern.	Final permit contains an updated list of species of conservation concern.	List was updated by Department of Arkansas Heritage	2