

DRAFT

Permit number: AR0037842

**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 (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. 1251 et seq.),

American Electric Power
Southwest Electric Power Company-Flint Creek Plant
21797 SWEPCO Plant Road
Gentry, AR 72734

is authorized to discharge from a facility located at approximately 3 miles southwest of Gentry, in Sections 4, 5, 8, and 18, Township 18 North, Range 33 West in Benton County, Arkansas.

Latitude: 36° 15' 22"; Longitude: 94° 31' 29"

to receiving waters named:

SWEPCO Reservoir, thence to Little Flint Creek, thence to Flint Creek in Segment 3J of the Arkansas River Basin.

The outfall is located at the following coordinates:

Outfall 001: Latitude: 36° 14' 00"; Longitude: 94° 33' 02"

Outfall 101: Latitude: 36° 15' 03"; Longitude: 94° 31' 35"

Outfall 401: Latitude: 36° 15' 27"; Longitude: 94° 31' 32"

Discharge shall be in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV hereof.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Signed this day of

Martin Maner, P.E.
Chief, Water Division
Arkansas Department of Environmental Quality

PART I PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001 – SWEPCO

Reservoir discharge

During the period beginning on effective date and lasting until date of expiration, the permittee is authorized to discharge from outfall serial number 001. Such discharges shall be limited and monitored by the permittee as specified below:

<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 ¹	N/A	N/A	Report	Report	Continuous	Record
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab

1 Report monthly average and daily maximum as MGD. There shall be maintained a daily average flow of at least 2 cfs (1.29 MGD) flow through spillway overflow, seepage, or pumping into Little Flint Creek.

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. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken at the Outfall 001, at the weir located at the property line in Little Flint Creek.

PART I PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 101 – combined wastewater (bottom ash discharge, low volume wastewater, and storm water runoff*, including coal pile runoff, and treated municipal wastewater from the City of Gentry)

During the period beginning on effective date and lasting until date of expiration, the permittee is authorized to discharge from outfall serial number 101. Such discharges shall be limited and monitored by the permittee as specified below:

<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 ¹	N/A	N/A	Report	Report	Continuous	Record
Total Suspended Solids (TSS)	N/A	N/A	25	43	Once/week	Grab
Oil and Grease (O & G)	N/A	N/A	6	8	Once/2 months	Grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab
Chronic Biomonitoring ²	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)²</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C <u>Ceriodaphnia dubia (Chronic)²</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Growth (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report % <u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

* See Condition No. 5 of Part III.

1 Report monthly average and daily maximum as MGD.

2 See Condition No. 4 of Part III (Biomonitoring Requirements).

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. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit.

PART I PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 401 – once through cooling water

During the period beginning on effective date and lasting until date of expiration, the permittee is authorized to discharge from outfall serial number 401. Such discharges shall be limited and monitored by the permittee as specified below:

<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	450 MGD	450 MGD	Continuous	Record*
Total Residual Chlorine(TRC) ¹	N/A	62.6	N/A	0.2 mg/l ²	Once/week	Grab ³
Temperature ⁴	N/A	N/A	N/A	129.2 °F	Continuous	Record
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab
Chronic Biomonitoring ⁵	N/A	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u>⁵ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u>⁵ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Growth (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

* Flow measurements may be calculated using pump records.

- 1 See Condition No. 7 of Part III. Total Residual Chlorine shall not be discharged from any single generating unit for more than 2 hours per day.
- 2 Instantaneous Maximum.
- 3 Sample must be representative of periods of chlorination.
- 4 Temperature may be measured at the condenser discharge. Daily maximum temperature shall be the highest flow-weighted temperature calculated for the month.
- 5 See Condition No. 4 of Part III (Biomonitoring Requirements).

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. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

Samples taken in compliance with the monitoring requirements specified above shall be taken at Outfall 401, prior to discharge to SWEPCO Reservoir.

DRAFT

Permit number: AR0037842
Page 1 of Part IB

SECTION B. SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

Compliance is required on the effective date of the permit.

PART II 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; or for denial of a permit renewal application. **Any values reported in the required Discharge Monitoring Report 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 ten thousand dollars (\$10,000) 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; or
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- c. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- 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 APCEC Regulation No. 9 (Permit fees) as required by condition II A.10 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 II. A.3., if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas) 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 Regulation No. 2 (Arkansas Water Quality Standards), 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 on “Bypassing” (Part II.B.4.a.), and “Upsets” (Part II.B.5.b), 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 (Act 472 of 1949, as amended).

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 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 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. Permit Fees

The permittee shall comply with all applicable permit fee requirements for wastewater discharge permits as described in APCEC 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 122.64 and 124.5 (d), as adopted in APCEC Regulation No. 6 and the provisions of APCEC 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

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 Part II.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 II.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; and
 - (c) The permittee submitted notices as required by Part II.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 II.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 base permit effluent limitations if the requirements of

Part II.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 II.D.6.: and
 - (4) The permittee complied with any remedial measures required by Part II.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**

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the State. Written approval must be obtained from the ADEQ for land application only.

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 discharges 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.

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**

Monitoring results must be reported on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1). Permittees are required to use preprinted DMR forms provided by ADEQ, unless specific written authorization to use other reporting forms is obtained from ADEQ. Monitoring results obtained during the previous calendar month shall be summarized and reported on a DMR form postmarked no later than the 25th day of the month, following the completed reporting period to begin on the effective date of the permit. Duplicate copies of DMR's signed and certified as required by Part II.d.11 and all other reports required by Part II.D. (Reporting Requirements), shall be submitted to the Director at the following address:

NPDES Enforcement Section
Water Division
Arkansas Department of Environmental Quality
8001 National Drive
P.O. Box 8913
Little Rock, AR 72219-8913

If permittee uses outside laboratory facilities for sampling and/or analysis, the name and address of the contract laboratory shall be included on the DMR.

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 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 individuals(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; and
- 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, and
- 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 and provide plans and specification to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

For Industrial Dischargers

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 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 which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR Part 122.42 (a)(1).

For POTW Dischargers:

Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that cause violation of the effluent limitations specified herein.

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 II.C.5. (Reporting). **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; and
 - (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 and
 - (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.
- c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

7. **Other Noncompliance**

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

8. **Changes in Discharge of Toxic Substances for Industrial Dischargers**

The permittee shall notify the Director as soon as he/she 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 APCEC Regulation No. 6.

11. **Signatory Requirements**

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

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:
 - (i) 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: or
 - (ii) 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; or
- (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:
 - (i) The chief executive officer of the agency, or

- (ii) 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); and
 - (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 Regulation 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 II.A.2. and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

PART III OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall be Industrial licensed by the State of Arkansas in accordance with Act 1103 of 1991, Act 556 of 1993, Act 211 of 1971, and Regulation No. 3, as amended.
2. In accordance with 40 CFR Parts 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 water body, or a Total Maximum Daily Load (TMDL) is established or revised for the water body that were not available at the time of 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 Section 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 NPDES 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 CFR 136; and
- All associated devices are installed, calibrated and maintained to insure the accuracy of the measurements and are consistent with 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. WHOLE EFFLUENT TOXICITY TESTING (7-DAY CHRONIC NOEC FRESHWATER)

1. SCOPE AND METHODOLOGY

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

APPLICABLE TO FINAL OUTFALL: **101**

CRITICAL DILUTION (%): **17%**

EFFLUENT DILUTION SERIES (%): **7%, 10%,13%,17%, 23%**

COMPOSITE SAMPLE TYPE: Defined at PART I

TEST SPECIES/METHODS: 40 CFR Part 136

APPLICABLE TO FINAL OUTFALL: **401**

CRITICAL DILUTION (%): **40%**

EFFLUENT DILUTION SERIES (%): **17%, 23%,30%, 40%, 54%**

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/600/4-91/002 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/600/4-91/002, 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.

- b. The NOEC (No Observed Effect Concentration) is defined as the greatest effluent dilution at and below which lethality 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.
 - c. 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.
 - d. Test failure is defined as a demonstration of statistically significant sub-lethal or lethal effects to a test species at or below the effluent critical dilution.
2. PERSISTENT LETHALITY The requirements of this subsection apply only when a toxicity test demonstrates significant lethal effects at or below the critical dilution. Significant lethal effects are herein defined as a statistically significant difference at the 95% confidence level between the survival of the appropriate test organism in a specified effluent dilution and the control (0% effluent).
- a. Part I Testing Frequency Other Than Monthly
 - i. The permittee shall conduct a total of two (2) additional tests for any species that demonstrates significant lethal effects at or below the critical dilution. The two additional tests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two additional tests in lieu of routine toxicity testing. The full report shall be prepared for each test required by this section in accordance with procedures outlined in Item 4 of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.
 - ii. If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item 5 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 be also be required due to a demonstration of persistent significant sub-lethal effects or intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.

- iii. If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall henceforth increase the frequency of testing for this species to once per quarter for the life of the permit.
- iv. The provisions of Item 2.a are suspended upon submittal of the TRE Action Plan.

b. Part I Testing Frequency of Monthly

The permittee shall initiate the Toxicity Reduction Evaluation (TRE) requirements as specified in Item 5 of this section when any two of three consecutive monthly toxicity tests exhibit significant lethal effects at or below the critical dilution. A TRE may be also be required due to a demonstration of persistent significant sub-lethal effects or intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.

3. REQUIRED TOXICITY TESTING CONDITIONS

a. 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:

- i. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
- ii. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.
- iii. 60% of the surviving control females must produce three broods.
- iv. 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.
- v. 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.

- vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal 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.

Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

b. Statistical Interpretation

- i. 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/600/4-91/002 or the most recent update thereof.
- ii. 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/600/4-91/002 or the most recent update thereof.
- iii. If the conditions of Test Acceptability are met in Item 3.a 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 an NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 4 below.

c. Dilution Water

- i. 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;

- (A) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - (B) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.
- ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 3.a), 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:
 - (A) a synthetic dilution water control which fulfills the test acceptance requirements of Item 3.a was run concurrently with the receiving water control;
 - (B) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);
 - (C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 4 below; and
 - (D) 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.

d. Samples and Composites

- i. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item 1.a above.
- ii. 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 are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

- iii. 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 4 degrees Centigrade during collection, shipping, and/or storage.
- iv. 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 collect 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 4 of this section.
- v. 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 1.a above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.
- vi. 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.

4. REPORTING

- a. 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/600/4-91/002, 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 II.C.7 of this permit. The permittee shall submit full reports upon the specific request of the Department. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for review.
- b. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST survival results for each species during the reporting period. 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 ADEQ review.
- c. The permittee shall submit the results of each valid toxicity test on DMR for that reporting period in accordance with PART II.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following DMR. Only results of valid tests are to be reported on the DMR.
 - i. Pimephales promelas (fathead minnow)
 - (A) 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.
 - (B) If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C.
 - (C) Report the NOEC value for survival, Parameter No. TOP6C.
 - (D) Report the NOEC value for growth, Parameter No. TPP6C.

- (E) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C.

ii. Ceriodaphnia dubia

- (A) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B.
- (B) If the No Observed Effect Concentration (NOEC) for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B.
- (B) Report the NOEC value for survival, Parameter No. TOP3B.
- (C) Report the NOEC value for reproduction, Parameter No. TPP3B.
- (E) Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B.

5. Monitoring Frequency Reduction

- a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution without a major modification. 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).
- b. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in item 3.a. 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 Department will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Permit Compliance System section to update the permit reporting requirements.

- c. SUB-LETHAL FAILURES - If, during the first four quarters of testing, sub-lethal effects are demonstrated to a test species, two monthly retests are required. In addition, quarterly testing is required for that species until the effluent passes both the lethal and sub-lethal test endpoints for the affected species for four consecutive quarters. Monthly retesting is not required if the permittee is performing a TRE.
- d. SURVIVAL FAILURES - If any test fails the survival endpoint at any time during the life of this permit, two monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.
- e. This monitoring frequency reduction 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.

6. TOXICITY REDUCTION EVALUATION (TRE)

- a. Within ninety (90) days of confirming lethality in the retests, 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 TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:
 - i. 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 (800) 553-6847, or by writing:

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

- ii. 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;

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;

- iii. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
- iv. Project Organization (e.g., project staff, project manager, consulting services, etc.).

- b. 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.
- c. 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:
 - i. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - ii. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - iii. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution.
- d. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming lethality 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 lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

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).

5. Stormwater Pollution Plans.

Storm water runoff commingling with other process wastewater discharged from Outfall 101 shall be managed in accordance with the Best Management Practices (BMPs) in the form of a pollution prevention plan (SWPPP) required by the Arkansas Industrial General Storm Water Permit ARR0000 to control the quality of storm water discharges associated with industrial activity that are authorized under 40 CFR 122.44(k) when the Permitting Authority finds numerical effluent limitations to be infeasible to carry out the purposes of the Clean Water Act.

6. There shall be no discharge of polychlorinated biphenyl transformer fluid.

7. The term “Total Residual Chlorine” means the value obtained using amperometric method for total residual chlorine described in 40 CFR Part 136.

Total Residual Chlorine may not be discharged from any unit for more than two hours per day in any one day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control.

8. The term “low volume waste sources” means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established. Low volume sources include, but are not limited to : wastewater from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling wastes, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

9. The term “bottom ash” means the ash that drops out of the furnace gas stream in the furnace and in the economizer sections. Economizer ash is included when it is collected with bottom ash.

10. The term “coal pile runoff” means the rainfall from or through any coal storage pile.

11. The term “once through cooling water” means water passed through the main cooling condensers in one or two passes for the purpose of removing waste heat.

12. The permittee shall comply with the Cooling Water Intake regulations found in Title 40 Code of Federal Regulations Part 125, Subpart J. These regulations include, but are not limited to the following provisions:

- a. The permittee shall submit two copies of the Proposal for Information Collection to the Enforcement Section of NPDES Branch of the Water Division prior to the start of information collection activities, and

DRAFT

Permit number: AR0037842

Page 14 of Part III

- b. The permittee shall submit two copies of the completed Comprehensive Demonstration Study (if required by 40 CFR Part 125, Subpart J) to the Enforcement Section of NPDES Branch of the Water Division prior to January 7, 2008. The permittee shall meet all other applicable requirements of this regulation.

PART IV DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act 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. **“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.
4. **“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 regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas.)
5. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility.

6. **“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.

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.

Concentration Calculations: For pollutants with limitations expressed in other units of measurement, determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the “daily discharge” determination of concentration shall be the arithmetic average (weighted by flow value) of all the samples collected during that sampling day by using the following formula: where C= daily concentration, F=daily flow and n=number of daily samples; daily average discharge

$$\frac{C_1F_1 + C_2F_2 + \dots + C_nF_n}{F_1 + F_2 + \dots + F_n}$$

7. **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) report the monthly average see 30-day average below.

8. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month. The 7-day average for fecal coliform bacteria is the geometric mean of the values of all effluent samples collected during the calendar week in colonies/100 ml.

9. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
10. **“Director”** means the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Environmental Quality.
11. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
12. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly-owned treatment works.
13. **“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.
14. **“POTW”** means a Publicly Owned Treatment Works.
15. **“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.
16. **“APCEC”** means the Arkansas Pollution Control and Ecology Commission.
17. **“Sewage sludge”** means the solids, residues, and precipitate separated from or created in sewage by the unit processes a publicly-owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly-owned treatment works.
18. **“7-day average”** discharge limitation, other than for fecal coliform bacteria, is the highest allowable arithmetic means of the values for all effluent samples collected during the calendar week. The 7-day average for fecal coliform bacteria is the geometric mean of the values of all effluent samples collected during the calendar week in colonies/100 ml. The DMR should report the highest 7-day average obtained during the calendar month. For reporting purposes, the 7-day average values should be reported as occurring in the month in which the Saturday of the calendar week falls in.
19. **“30-day average”**, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during 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. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.
For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
20. **“24-hour composite sample”** consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.
21. **“12-hour composite sample”** consists of 12 effluent portions, collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.

22. **“6-hour composite sample”** consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

23. **“3-hour composite sample”** consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

24. **“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.

25. **“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 or preventive maintenance, or careless or improper operations.

26. **“For Fecal Coliform Bacteria”**, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.

27. **“Dissolved oxygen limit”**, shall be defined as follows:

- a. When limited in the permit as a monthly average minimum, 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.

28. **The term “MGD”** shall mean million gallons per day.

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

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

31. **The term “cfs”** shall mean cubic feet per second.

32. **The term “ppm”** shall mean part per million.

33. **The term “s.u.”** shall mean standard units.

34. 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 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 Discharge Monitoring report shall be submitted by the 25th of the month following the monitoring period end date.

DRAFT

Permit number: AR0037842

Page 4 of Part IV

MONTHLY:

is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.

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; or

(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.

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.

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.

DRAFT

Fact Sheet

For renewal of draft NPDES Permit Number AR0037842 to discharge to Waters of the State

1. **PERMITTING AUTHORITY.**

The issuing office is:

Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. **APPLICANT.**

The applicant is:

American Electric Power
Southwest Electric Power Company-Flint Creek Plant
21797 SWEPCO Plant Road
Gentry, AR 72734

3. **PREPARED BY.**

The permit was prepared by:

Marysia Jastrzebski, P.E.
NPDES Branch, Water Division

4. **DATE PREPARED.**

The permit was prepared on August 31, 2005.

5. **PREVIOUS PERMIT ACTIVITY.**

Effective Date: December 1, 2000.
Modification Date: N/A
Expiration Date: November 30, 2005.

The permittee submitted a permit renewal application on 04/29/2005. It is proposed that the current NPDES permit be reissued for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION.

The outfall is located at the following coordinates:

Outfall 001: Latitude: 36° 14' 00"; Longitude: 94° 33' 02"

Outfall 101: Latitude: 36° 15' 03"; Longitude: 94° 31' 35"

Outfall 401: Latitude: 36° 15' 27"; Longitude: 94° 31' 32"

The receiving waters named:

SWEPCO Reservoir, thence to Little Flint Creek, thence to Flint Creek in Segment 3J of the Arkansas River Basin. The receiving stream is a Water of the State classified for primary contact recreation, raw water source for public, industrial, and agricultural water supplies, propagation of desirable species of fish and other aquatic life, and other compatible uses.

7. 303d List and Endangered Species Considerations

A. 303d List

The receiving stream is not listed on the 303d list. Therefore no permit action is needed.

B. Endangered Species:

No comments were received from the U.S. Fish and Wildlife Service (USF&WS). Therefore no permit action is needed. The drafted permit and Fact Sheet will be sent to the USF&WS for their review.

8. OUTFALL AND TREATMENT PROCESS DESCRIPTION.

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

Average Flow:

Outfall 001: varies from 1.7 MGD to 9.0 MGD (based on the last two years DMR data)

Outfall 101: 9.83 MGD, based on the highest monthly average flow during the last two years.

Outfall 401: 406.08 MGD, based on the highest monthly average flow during the last two years.

DRAFT

Page 3 of Fact Sheet
Permit No. AR0037842

Type of treatment:

Outfall 001: none
Outfall 101: settling and neutralization
Outfall 401: chlorination.

Discharge Description:

Outfall 001: discharge from the SWEPCO Reservoir.
Outfall 101: bottom ash discharge, low volume wastewater, and storm water runoff, including coal pile runoff, treated municipal wastewater from the City of Gentry. The City of Gentry operates under NPDES permit No. AR0020184.
Outfall 401: once through cooling water

9. APPLICANT ACTIVITY.

Under the standard industrial classification (SIC) code 4911, the applicant's activity is the operation of a steam electric power generating plant.

10. SEWAGE SLUDGE PRACTICES.

There is no sewage sludge generated in this facility.

11. PERMIT CONDITIONS.

The Arkansas Department of Environmental Quality has made a tentative determination to issue a permit for the discharge described in the application. Permit requirements are based on NPDES regulations (40 CFR Parts 122, 124, and Subchapter N) and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et. seq.).

a. **Final Effluent Limitations**

1. **Conventional and/or Toxic Pollutants**

OUTFALL 001 – SWEPCO Reservoir discharge

<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 (mgd)	N/A	N/A	Report	Report	Continuous	Record
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab

OUTFALL 101 – combined wastewater (bottom ash discharge, low volume wastewater, and storm water runoff, including coal pile runoff, and treated municipal wastewater from the City of Gentry)

<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 (mgd)	N/A	N/A	Report	Report	Continuous	Record
Total Suspended Solids (TSS)	N/A	N/A	25	43	Once/week	Grab
Oil and Grease (O & G)	N/A	N/A	6	8	Once/ 2 months	Grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab
Chronic Biomonitoring	N/A	N/A	See Page 16 Below		once/quarter	24-hr composite

OUTFALL 401 – once through cooling water

<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 (mgd)	N/A	N/A	450 MGD	450 MGD	Continuous	Record
Total Residual Chlorine(TRC)	N/A	62.6	N/A	0.2 mg/l (Inst. Max)	Once/week	Grab
Temperature	N/A	N/A	N/A	129.2 °F (Inst. Max)	Continuous	Record
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	Once/week	Grab
Chronic Biomonitoring	N/A	N/A	See Page 16 Below		once/quarter	24-hr composite

2. **Solids, Foam, and Free Oil:** 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. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

12. BASIS FOR PERMIT CONDITIONS.

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 tentative decisions as required under 40 CFR 124.7 (48 FR 1413, April 1, 1983).

A. Technology-Based versus Water Quality-Based Effluent Limitations and Conditions

Following regulations promulgated at 40 CFR Part 122.44 (1) (2) (ii), the draft permit limits are based on either technology-based effluent limits pursuant to 40 CFR Part 122.44 (a) or on State water quality standards and requirements pursuant to 40 CFR Part 122.44 (d), whichever are more stringent.

B. Technology-Based Effluent Limitations and/or Conditions

Regulations promulgated at 40 CFR Part 122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on effluent limitations guidelines where applicable, on Best Professional Judgment (BPJ) in the absence of guidelines, or on a combination of the two.

(1) General Comments

Regulations promulgated at 40 CFR Part 122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on effluent limitations guidelines where applicable, on Best Professional Judgment (BPJ) in the absence of guidelines, or on a combination of the two.

(2) Applicable Effluent Limitations Guidelines

Outfall 001:

The draft permit does not establish any technology-based effluent limitations.

Outfall 101:

Discharges from facilities of this type are covered by the Federal effluent limitations guidelines promulgated under 40 CFR Part 423 of the Steam Electric Power Generating Point Source Category.

The technology based effluent limitations for Total Suspended Solids and Oil and Grease have been based on the current NPDES permit and 40 CFR Part 122.44(l). They are consistent with 40 CFR Part 423.12(b)(3) and 40 CFR Part 423.12(b)(4).

Outfall 401:

The technology based effluent limitations for Total Residual Chlorine have been based on the current NPDES permit and 40 CFR Part 122.44(l). They are consistent with 40 CFR Part 423.13(b)(1).

Additionally, on July 9, 2004, EPA published its final regulations prescribing how “existing large volume power plants” should comply with Section 316(b) of the Clean Water Act. This rule became effective on September 7, 2004. For most large volume existing power plants (flow \geq 50 MGD), this rule requires detailed studies and other information to establish what intake structure technology or other measures will be used to comply with Section 316(b). Ordinarily this material is to be submitted with the facility’s next application for renewal of its NPDES permit. However, for permits that expire less than four years after the rule was published (i. e. before July 7, 2008), the operator may have up to three-and-a-half years to submit the required information, as long as it is submitted “as expeditiously as practicable”. This permit will include a special condition which requires the permittee to submit all the information as required by 40 CFR 125.95 by January 7, 2008.

(3) **Process wastewater (Outfall 101 and 401)**

The present technology-based limits and monitoring requirements are continued based on the previous NPDES permit, 40 CFR Part 423 and 40 CFR Part 122.44(l).

Outfall 401-once through cooling water

There shall be no discharge of **polychlorinated biphenyls** transformer fluid (consistent with 40 CFR 432.12(b)(2)).

Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

Technology-based mass loading limits for chlorine have been calculated based on the present technology-based concentration limits and the maximum allowable flow of 450 MGD. These limitations are continued from the previous permit.

(4) **Stormwater runoff**

Effluent limitations guidelines have not been promulgated for discharges of this sort. Therefore under the authority of Section 402 (a) (1) of the Clean Water Act and State laws, the State has developed a permit on a case-by-case basis. Stormwater pollution prevention plan requirements have been revised. Stormwater runoff commingling with process wastewater at Outfall 101 must be managed in accordance with the Best Management Practices (BMPs) in the form of a pollution prevention plan (SWPPP) required by the Arkansas Industrial General Storm Water Permit ARR00000.

C. State Water Quality Numerical Standards Based Limitations

(1) Conventional and Non-Conventional Pollutants

Outfalls 001, 101, and 401:

The effluent limitations for pH are based on the current permit and 40 CFR Part 122.44(l). They are consistent with Chapter 5, Section 2.504 of Regulation No. 2 as amended.

Sulfates(Outfall 101):

A requirement for monitoring and reporting of Sulfates is deleted. A review of the DMR indicates that there is no potential of violations of the Arkansas Water Quality Standards for Sulfates.

Temperature (Outfall 401):

The effluent limitation for Temperature are based on the current permit and 40 CFR Part 122.44(l). They are consistent with the Specific Standards for SWEPCO Reservoir as contained in Regulation No. 2 as amended.

D. Toxics Pollutants-Priority Pollutant Scan (PPS)

Arkansas Water Quality Standards:

(1) General Comments

Effluent limitations and/or conditions established in the draft permit are in compliance with the Arkansas Water Quality Standards and the applicable Water Quality Management Plan.

(2) Post Third Round Policy and Strategy

Section 101 of the Clean Water Act (CWA) states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To insure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations by Toxic Pollutants"(49 FR 9016-9019, 3/9/84). In support of the national policy, Region 6 adopted the "Policy for post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. The Regional policy and strategy are designed to insure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State water quality standard resulting in non-conformance with the provisions of 40 CFR Part

122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

(3) Implementation

The State of Arkansas is currently implementing EPA's Post Third-Round Policy in conformance with the EPA Regional strategy. The 5-year NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, or where there are no applicable technology-based limits, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards from the Regulation No. 2 are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

(4) Priority Pollutant Scan

In accordance with the regional policy ADEQ has reviewed and evaluated the effluent in evaluating the potential toxicity of each analyzed pollutant:

- a. The results were evaluated and compared to EPA's Minimum Quantification Levels (MQLs) to determine the potential presence of a respective toxic pollutant. Those pollutants which are greater than or equal to the MQLs are determined to be reasonably present in the effluent and an evaluation of their potential toxicity is necessary.
- b. Those pollutants with one datum shown as "non-detect" (ND), providing the level of detection is equal to or lower than MQL are determined to be not potentially present in the effluent and eliminated from further evaluation.
- c. Those pollutants with a detectable value even if below the MQL are determined to be reasonably present in the effluent and an evaluation of their potential toxicity is necessary.
- d. For those pollutants with multiple data values and all values are determined to be non-detect, therefore no further evaluation is necessary. However, where data set includes some detectable concentrations and some values as ND, one-half of the detection level is used for those values below the level of detection to calculate the geometric mean of the data set.

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, Reg. No. 2 and with the aquatic toxicity, human health, and drinking water criteria obtained from the "Quality Criteria for Water, 1986 (Gold Book)". The following expression was used to calculate the pollutant instream waste concentration (IWC):

$$IWC = ((C_e \times Q_e) + (C_b \times Q_b)) / (Q_e + Q_b)$$

Where:

IWC = instream concentration of pollutant after mixing with receiving stream (Fg/l)

C_e = pollutant concentration in effluent (Fg/l)

Q_e = effluent flow of facility (cfs)

C_b = background concentration of pollutant in receiving stream (Fg/l)

Q_b = background flow of receiving stream (cfs)

The following values were used in the IWC calculations:

C_e = varies with pollutant. A single value from the Priority Pollutant Screen (PPS) submitted by the permittee as part of the NPDES permit application or the geometric mean of a group of data points (less than 20 data points) is multiplied by a factor of 2.13. This factor is based on EPA's Region VI procedure (See attachment IV of Continuing Planning Process (CPP)) to extrapolate limited data sets to better evaluate the potential toxicity for higher effluent concentrations to exceed water quality standards. This procedure employs a statistical approach which yields an estimate of a selected upper percentile value (the 95th percentile) of an effluent data set which would be expected to exceed 95% of effluent concentrations in a discharge. If 20 or more data points during the last two years are available, do not multiply by 2.13, but instead use the maximum reported values.

Q_e = Outfall 101: 9.83 MGD, based on the highest monthly average flow during the last two years.

Outfall 401: 406.08 MGD, based on the highest monthly average flow during the last two years.

C_b = 0 µg/l

Q_b = (See below):

e. Aquatic Toxicity

Chronic Toxicity: Flow = 0 cfs, for comparison with chronic aquatic toxicity. This flow is 67 percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. In the absence of information regarding the 7Q10 of SWEPCO Reservoir, 7Q10 of zero cfs is used to assure that no violations of the metals will occur under the most conservative assumptions.

Acute Toxicity: Flow = 0 cfs, for comparison with acute aquatic toxicity. This flow is 33 percent of the 7Q10 for the receiving stream.

f. Bioaccumulation

Flow = 4 cfs, for comparison with bioaccumulation criteria. This flow is based on the CPP.

g. Drinking Water

Flow = 0 cfs, for comparison with drinking water criteria. In the absence of information regarding the 7Q10 of SWEPCO Reservoir, 7Q10 of zero cfs is used to assure that no violations of the metals will occur under the most conservative assumptions.

The following values were used to determine limits for the pollutants:

Hardness = 148 mg/l, based on attachment VI of CPP.

pH = 7.54 s.u., based on compliance data from Arkansas Water Quality Inventory Report305(b), Water Quality Data Base System, utilizing ADEQ accumulated data for Station ARK0004A.

(5) Water Quality Standards for Metals and Cyanide

Standards for Chromium (VI), Mercury, Selenium, and Cyanide are expressed as a function of the pollutant's water-effect ratio (WER), while standards for cadmium, chromium (III), copper, lead, nickel, silver, and zinc are expressed as a function of the pollutant's water-effect ratio, and as a function of hardness.

The **Water-effect ratio** (WER) is assigned a value of 1.0 unless scientifically defensible study clearly demonstrates that a value less than 1.0 is necessary or a value greater than 1.0 is sufficient to fully protect the designated uses of the receiving stream from the toxic effects of the pollutant.

The WER approach compares bioavailability and toxicity of a specific pollutant in receiving water and in laboratory test water. It involves running toxicity tests for at least two species, measuring LC50 for the pollutant using the local receiving water collected from the site where the criterion is being implemented, and laboratory toxicity testing water made comparable to the site water in terms of chemical hardness. The ratio between site water and lab water LC50 is used to adjust the national acute and chronic criteria to site specific values.

(6) Conversion of Dissolved Metals Criteria for Aquatic Life to Total Recoverable Metal

Metals criteria established in Regulation No. 2 for aquatic life protection are based on dissolved metals concentrations and hardness values (See Page 6 of **Attachment 1**). However, Federal Regulations cited at 40 CFR 122.45(c) require that effluent limitations for metals in NPDES permits be expressed as total recoverable (See Pages 1 and 6 of **Attachment 1**). Therefore a dissolved to the total recoverable metal conversion must be implemented. This involves determining a linear partition coefficient for the metal of concern and using this coefficient to determine the fraction of metal dissolved, so that the dissolved metal ambient criteria may be translated to a total effluent limit. The formula for converting dissolved metals to total recoverable metals for streams and Reservoirs are provided in **Attachment 2** and Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR 131.36.

(7) Comparison of the submitted information with the water quality standards and criteria

The following pollutants were determined to be present in the effluent as reported by the permittee.

Pollutant	Concentration Reported, µg/l	MQL, µg/l
Outfall 001: Zinc	21	10
Phenols	10	5
Outfall 101: Copper	12	10
Phenols	10	5
Outfall 401: Copper	19	10
Phenols	10	5

However, ADEQ has determined from the information submitted by the permittee that no water quality standards or Gold Book criteria are exceeded. Therefore no permit action is necessary to maintain these standards or criteria (See **Attachment 1**.)

Oklahoma Water Quality Standards Evaluation

Both Outfalls 101 and 401 discharge to SWEPCO Reservoir which is an impoundment of Little Flint Creek. SWEPCO Reservoir is a water of the State of Arkansas. This Reservoir was to have a surface area of approximately 530 acres with an average depth of 34.5 ft. The reservoir's total volume is 18,300 ac-ft. It's drainage area consist of 10,500 acres in the Little Flint watershed. There has never been a discharge over the reservoir's uncontrolled concrete spillway structure. However, in 1980, a collection system was installed near the toe of the dam to accumulate water which had seeped from the reservoir and pump it back into the reservoir. A daily average release of at least 2 cfs (1.29 mgd) flow through spillway, overflow, seepage, or pumping into Little Flint Creek (Outfall 001) is required in the permit.

In addition to tremendous dilution that takes place in SWEPCO Reservoir, the discharge travels approximately 2 miles to reach Oklahoma's state line where further dilution takes place.

A. Effluent Analysis Summary for Aquatic Life Protection

Outfall 001(Little Flint Creek):

Pollutant	C _e , µg/l	C _e * 2.13, µg/l	IWC, µg/l	WQ Acute+, µg/l	WQ Chronic+, µg/l
Zinc	21	44.73	44.73	123.48	111.85

C_e Effluent concentration based on Priority Pollutant Scan (PPS)

C_e X 2.13 = Reasonable potential factor. (Referred to as C₉₅ in ODEQ's CPP)

Instream Waste Concentration (IWC). IWC (Referred to as C in ODEQ's CPP) is determined by first calculating the dilution capacity of the receiving stream, Q*. The value of Q* will determine which of three equations is to be used to calculate C, the concentration on the mixing zone boundary. (Following equations were taken from Part III of Chapter 2, page 114 in ODEQ's CPP)

$$Q^* = Q_e / Q_u = 13.9 / 1 = 13.9$$

at Q_e = maximum flow at Outfall 101 = 9 MGD = 13.9 cfs (Outfall 001)

Q_u = 7Q₂ of receiving stream = assume 0 cfs, since 7Q₂ not available

Since Q^* is greater than 0.3333, the following equation from ODEQ's CPP will be used to determine the concentration on the mixing zone:

$$C = C_{95}$$

+ Based on Oklahoma Water Resource Board (OWRB) proposed 1994 and revised on 1995 numerical criteria. Oklahoma water quality standards (OWQS) for the numerical chronic and acute criteria for toxic substances-Fish and Wildlife Propagation (OAC 785:45-5-12(e)(6)(G), amended 1997. All hardness dependent criteria were calculated using a hardness value of 106.55 mg/l CaCO_3 for Segment No. 121700, as taken from Oklahoma's Continuing Planning Process (CPP)2000.

As seen in the above table, the calculated IWC does not exceed any Oklahoma Water Quality Standards. Therefore, no permit limits are necessary for aquatic life protection.

Phenols have been reported as $< 10 \mu\text{g/l}$. According to the Oklahoma's CPP, MQL of $10 \mu\text{g/l}$ has been established for method 625. Therefore, it is assumed that there are no Phenols in the effluent at Outfall 001.

Outfalls 101 and 401:

The only parameter determined to be in the effluent discharged to SWEPCO Reservoir was Copper. It is the Best Engineering Judgment of the permit writer that the evaluation of the potential of this parameter to exceed Oklahoma's Water Quality Standards is not necessary, since this parameter is not shown to be present downstream from these Outfalls in Little Flint Creek (Outfall 001).

B. Effluent Analysis Summary for Human Health Protection

Pollutant	C_e , $\mu\text{g/l}$	$C_e * 2.13$, $\mu\text{g/l}$	IWC, $\mu\text{g/l}$	Human Health Standard+, $\mu\text{g/l}$
Zinc	21	44.73	34.73	*

* Oklahoma does not have any numerical criteria for this parameter.

C_e Effluent concentration based on Priority Pollutant Scan (PPS).

$C_e * 2.13$ = Reasonable potential factor.

IWC is computed using a mass balance model for complete mixing between the effluent and the receiving water. The equation is as follows:

$$\text{IWC} * (Q_e + Q_{lta}) = Q_e * (C_e * 2.13) + Q_{lta} * C_u$$

C_u = background concentration, assumed to be zero.

Q_e = maximum average discharge flow = 13.9 cfs (Outfall 001)

Q_{lta} = long term average flow = 4 cfs

+ Based on Oklahoma Water Resource Board (OWRB) proposed 1994 and revised on 1995 numerical criteria (OAC 785:45-5-12(e)(8)(B)).

For the substances for which Oklahoma does not have numerical criteria, ADEQ has determined that these substances do not demonstrate reasonable potential under Arkansas criteria. Therefore, no permit action is necessary to protect human health.

13. Final Limitations

The following effluent limitations or "report" requirements were placed in the permit based on the more stringent of the technology-based, water quality-based or previous NPDES permit limitations:

Outfall 001:

Parameter	Water Quality-Based		Technology-Based		Previous NPDES Permit		Draft 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
pH	6.0-9.0 s.u.		N/A		6-9s.u.		6.0-9.0 s.u.	

Outfall 101:

Parameter	Water Quality-Based		Technology-Based		Previous NPDES Permit		Draft 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
TSS	N/A	N/A	25	43	25	43	25	43
O & G	10	15	6	8	6	8	6	8
pH	6.0-9.0 s.u.		6.0 -9.0 s.u.		6-9s.u.		6.0-9.0 s.u.	

Outfall 401:

Parameter	Water Quality-Based		Technology-Based		Previous NPDES Permit		Draft 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
TRC	N/A	N/A	N/A	0.2*	N/A	0.2*	N/A	0.2*
Temperature	N/A	129.2°F*	N/A	N/A	N/A	129.2°F*	N/A	129.2°F*
pH	6.0-9.0 s.u.		6.0 -9.0 s.u.		6-9s.u.		6.0-9.0 s.u.	

* Instantaneous Maximum

14. Biomonitoring

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 CFR Part 122.44(d)(1), adopted by reference in Regulation 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 biomonitoring 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 Federal Register 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. Biomonitoring of the effluent is thereby required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

Chronic Biomonitoring

FREQUENCY

Once/quarter

Requirements for measurement frequency are based on appendix D of CPP.

Since 7Q10 is less than 100 cfs (ft³/sec) and dilution ratio is less than 100:1, chronic biomonitoring requirements will be included in the permit.

The Critical Dilution (CD) of 17% (Outfall 101) is continued from the previous permit based on the submitted mixing zone study conducted by FTN Associates. The Critical Dilution (CD) of 40% (Outfall 401) is also continued from the previous permit.

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 for the Outfall 101 are **7%, 10%, 13%, 17%, and 23%** and for the Outfall 401 are **17%, 23%, 30%, 40%, and 54%** (See **Attachment I** of CPP). The low-flow effluent concentration (critical dilution) is defined as **17%** effluent for the Outfall 101 and **40%** effluent for the Outfall 401. The requirement for chronic biomonitoring 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 biomonitoring 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 CFR Part 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 biomonitoring studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if biomonitoring 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 CFR 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 Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarized toxicity test submitted by the permittee during the term of the current permit at outfalls **101** and **401**(See **Attachment 4**.)

15. Sample Type and Sampling Frequency

Regulations promulgated at 40 CFR 122.44(i) (1) require permit to establish monitoring requirements which assure compliance with permit limitations.

Requirements for sample type and sampling frequency have been based on the current NPDES permit.

16. Changes from the previously issued permit

- a. The name of the permittee has been corrected.
- b. The coordinates of the facility and all Outfalls have been corrected.
- c. A detailed description of facility location has been corrected (Sections).
- d. A requirement for monitoring and reporting for Sulfates has been deleted.
- e. The effluent limitations for pH have been changed from 6-9 s.u. to 6.0-9.0 s.u.
- f. The internal Outfall 301 has been eliminated.
- g. Part II, Part III, and Part IV have been revised.
- h. Reporting requirements for biomonitoring at Outfalls 101 and 401 have changed (Part IA).
- i. Requirements for compliance with 40 CFR Part 125 Subpart J have been added to Part III.

17. SCHEDULE OF COMPLIANCE.

Compliance with final effluent limitations is required by the following schedule:

Compliance is required on the effective date of the permit.

18. 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.

19. SOURCES.

The following sources were used to draft the permit:

- A. NPDES application No. AR0037842 received 04/29/2005.
- B. Arkansas Water Quality Management Plan (WQMP).
- C. Regulation No. 2.
- D. Regulation No. 6.
- E. 40 CFRs 122, 125, 423.
- F. NPDES permit file AR0037842.
- G. Discharge Monitoring Reports (DMRs).
- H. "Identification and Classification of Perennial Streams of Arkansas", Arkansas Geological Commission.
- I. Continuing Planning Process (CPP).
- J. Technical Support Document For Water Quality-based Toxic Control.
- K. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR 131.36.
- L. E-mail dated November 2, 2005 from Clem to Jastrzebski.
- M. E-mail dated August 31, 2005 from Steward to Jastrzebski.
- N. Site visit on July 21, 2005.

- O. Letters dated June 9, 2005, July 25, 2005, July 27, 2005, August 2, 2005, from David C. Bouchard to Jastrzebski.
- P. Oklahoma Department of Environmental Quality Continuing Planning Process, 2002 Edition.
- Q. Oklahoma's Water Quality Standards.

20. PUBLIC NOTICE.

The public notice describes the procedures for the formulation of final determinations and shall provide for a public comment period of 30 days. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision. A request for a public hearing shall be in writing and shall state the nature of the issue(s) proposed to be raised in the hearing.

A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers, and to the Regional Director of the U.S. Fish and Wildlife Service on a case-by-case basis, and the EPA and Arkansas Department of Health prior to the publication of that notice.

21. NPDES POINT OF CONTACT.

For additional information, contact:

Marysia Jastrzebski, P.E.
NPDES Branch, Water Division
Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913
Telephone: (501) 682-0622



ARKANSAS
Department of Environmental Quality

Date (PN date)

CERTIFIED MAIL: RETURN RECEIPT REQUESTED ()

Mr. Daniel V. Lee, Plant Manager
American Electric Power
Southwest Electric Power Company-Flint Creek Plant
21797 SWEPCO Plant Road
Gentry, AR 72734

RE: Application to Discharge to Waters of the State Permit Number AR0037842

Dear Mr. Lee:

Enclosed is the public notice, Fact Sheet, and a copy of the permit which the Arkansas Department of Environmental Quality has drafted under the authority of the National Pollutant Discharge Elimination System and the Arkansas Water and Air Pollution Control Act. A copy of the final permit will be mailed to you when the Department has made a final permit decision.

The enclosed public notice will be published by ADEQ in the newspaper of general circulation. An invoice for the cost of publishing the public notice and proof of publication will be sent to you by the advertising newspaper. The permittee must send proof of publication and payment to the following address as soon as possible but no later than XXX(end of PN date here). Until this Department receives proof of publication of the public notice, no further action will be taken on the issuance of your NPDES discharge permit.

Arkansas Department of Environmental Quality
NPDES-Water Division
P.O. Box 8913
Little Rock, AR 72219-8913
501-682-0620 Fax: 501-682-0910

Comments must be received at ADEQ prior to the close of the public comment period as shown in the enclosed public notice. The public comment period will begin on the date of publication and will end no sooner than 30 days from that date. Once a final permit is issued by the Director and becomes effective, the permittee must comply with all terms and conditions of the permit, or be subject to enforcement actions for any instances of noncompliance during the duration of the permit, usually five (5) years. Consequently, **it is imperative that you, as the applicant, thoroughly review the enclosed documentation for accuracy, applicability, and your ability to comply with all conditions therein.**

Should you have any questions concerning any part of the permit, please feel free to contact (501) 682-0622.

Sincerely,

Martin Maner, P.E.
Chief, Water Division

MM:mj

Enclosure

E:\2005\AR0037842_PN

NPDES DRAFT PERMIT DECISION

THE ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY PROPOSES TO RENEW NPDES AUTHORIZATION TO DISCHARGE WASTEWATER TO WATERS OF THE STATE, PERMIT NUMBER AR0037842

This is to give notice that the Arkansas Department of Environmental Quality proposes a draft renewal of the permit application which was received on 04/29/2005 for the following applicant under the National Pollutant Discharge Elimination System and the Arkansas Water and Air Pollution Control Act.

American Electric Power
Southwest Electric Power Company-Flint Creek Plant
21797 SWEPCO Plant Road
Gentry, AR 72734

The applicant is requesting a renewal of their existing NPDES discharge permit. The discharge from this existing facility is made into SWEPCO Reservoir, thence to Little Flint Creek, thence to Flint Creek in Segment 3J of the Arkansas River Basin. The receiving reservoir is a Water of the State classified for primary contact recreation; raw water source for public, industrial, and agricultural water supplies; propagation of desirable species of fish and other aquatic life; and other compatible uses. The facility is located as follows: approximately 3 miles southwest of Gentry; Latitude: 36° 15' 22"; Longitude: 94° 31' 29" in Sections 4, 5, 8, 18, Township 18 North, Range 33 West in Benton County, Arkansas. The outfalls are located at the following coordinates: Outfall 001: Latitude: 36° 14' 00"; Longitude: 94° 33' 02"; Outfall 101: Latitude: 36° 15' 03"; Longitude: 94° 31' 35"; Outfall 401: Latitude: 36° 15' 27"; Longitude: 94° 31' 32". Type of treatment: Outfall 001: none; Outfall 101: settling and neutralization; Outfall 401: chlorination. Under the standard industrial classification (SIC) code 4911, the applicant's activity is the operation of a steam electric power generating plant.

Changes from the previously issued permit are as follows:

- a. The name of the permittee has been corrected.
- b. The coordinates of the facility and all Outfalls have been corrected.
- c. A detailed description of facility location has been corrected (Sections).
- d. A requirement for monitoring and reporting for Sulfates has been deleted.
- e. The effluent limitations for pH have been changed from 6-9 s.u. to 6.0-9.0 s.u.
- f. The internal Outfall 301 has been eliminated.
- g. Part II, Part III, and Part IV have been revised.
- h. Reporting requirements for biomonitoring at Outfalls 101 and 401 have changed (Part IA).
- i. Requirements for compliance with 40 CFR Part 125 Subpart J have been added to Part III.

The permit will become effective on or after _____ unless:

Comments are received and/or public hearing is requested prior to _____, in which case the permit will be effective on or after _____.

The permit application and the administrative record is available for review and copying in the Central Records Section, ADEQ, State Police Headquarters, One State Police Plaza, near Interstate 30 and Geyer Springs, Little Rock, Arkansas.

NPDES comments and public hearing procedures may be found at 40 CFR 124.10 through 124.12 and Regulation No. 8. All persons, including the permittee, who wish to comment on ADEQ's draft decision to renew the permit must submit written comments to ADEQ, along with their name and mailing address. During the comment period, any interested person may request a public hearing by filing a written request which must state the technical issues to be raised. A public hearing will be held if ADEQ finds a significant degree of public interest. If a public hearing is held, ADEQ will issue a public notice of hearing at least 30 days prior to the scheduled hearing.

The ADEQ contact person for submitting written comments, requesting information, or obtaining copies of the application, permit and the Fact Sheet is:

Marysia Jastrzebski, P.E.
NPDES Branch, Water Division
Arkansas Department of Environmental Quality
Post Office Box 8913
Little Rock, Arkansas 72219-8913
(501) 682-0622

For those with Internet access, a copy of the proposed draft permit may be found on the Arkansas Department of Environmental Quality's website at: http://www.adeq.state.ar.us/water/branch_npdes/pn_permits/pnpermits.asp.

After the public comment period, and public hearing if one is held, ADEQ will issue a final permit decision. ADEQ will notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit. Any interested person who has submitted comments may appeal a final decision by ADEQ in accordance with the Arkansas Pollution Control and Ecology Commission Regulation No. 8 (Administrative Procedures).

Submitting written comments to ADEQ or making oral statements on the record at the public hearing on the proposed permitting decision provides individuals with legal standing to appeal a final Department permitting decision. Comments supporting or opposing the proposed decision will provide legal standing. Only parties with legal standing may appeal a permitting decision.

Attachment 1

[PPS]

Attachment 2

Linear Partition Coefficients for Priority Metals in Streams and Reservoirs*

METAL	STREAMS		RESERVOIRS	
	K _{po}	a	K _{po}	a
Arsenic	0.48 X 10 ⁶	-0.73	0.48 X 10 ⁶	-0.73
Cadmium	4.00 X 10 ⁶	-1.13	3.52 X 10 ⁶	-0.92
Chromium**	3.36 X 10 ⁶	-0.93	2.17 X 10 ⁶	-0.27
Copper	1.04 X 10 ⁶	-0.74	2.85 X 10 ⁶	-0.9
Lead***	2.80 X 10 ⁶	-0.8	2.04 X 10 ⁶	-0.53
Mercury	2.90 X 10 ⁶	-1.14	1.97 X 10 ⁶	-1.17
Nickel	0.49 X 10 ⁶	-0.57	2.21 X 10 ⁶	-0.76
Silver****	2.40 X 10 ⁶	-1.03	2.40 X 10 ⁶	-1.03
Zinc	1.25 X 10 ⁶	-0.7	3.34 X 10 ⁶	-0.68

$$K_p = K_{po} \times TSS^a$$

K_p = Linear Partition Coefficient

TSS = Total Suspended Solids (mg/l)-(See **Attachment 3**)

K_{po} = found from table

a = found from table

$$C/C_t = 1/(1 + (K_p \times TSS \times 10^{-6})) \quad C/C_t = \text{Fraction of Metal Dissolved}$$

* Delos, C. G., W. L. Richardson, J. V. DePinto, R. B., Ambrose, P. W. Rogers, K. Rygwelski, J. P. St. John, W. J. Shaughnessey, T. A. Faha, W. N. Christie. Technical Guidance for Performing Waste Load Allocations, Book II: Streams and Rivers. Chapter 3: Toxic Substances, for the U. S. Environmental Protection Agency. (EPA-440/4-84-022).

** Linear partition coefficient shall not apply to the Chromium VI numerical criterion. The approved analytical method for Chromium VI measures only the dissolved form. Therefore permit limits for Chromium VI shall be expressed in the dissolved form. See 40 CFR 122.45(c)(3).

*** Reference page 18 of EPA memo dated March 3, 1992, from Margaret J. Stasikowski(WH-586) to Water management Division Directors, Region I-IX.

**** Texas Environmental Advisory Council, 1994

Attachment 3

TOTAL SUSPENDED SOLIDS(15th PERCENTILE) BY RECEIVING STREAM AND ECOREGION

For direct discharges to the Arkansas, Red, Ouachita, White, and St. Francis Rivers use the following mean values:

TSS(15th percentile)		
Receiving Stream	TSS	Unit
Arkansas River:		
Ft. Smith to Dardanelle Dam	12.0	mg/l
Dardanelle Dam to Terry L&D	10.5	mg/l
Terry L&D to L&D #5	8.3	mg/l
L&D #5 to Mouth	9.0	mg/l
Red River	33	mg/l
Ouachita River:		
above Caddo River	2.0	mg/l
below Caddo River	5.5	mg/l
White River:		
above Beaver Reservoir	2.5	mg/l
Bull Shoals to Black River	3.3	mg/l
Black River to Mouth	18.5	mg/l
St. Francis River	18	mg/l

For all other discharges use the following ecoregion TSS:

TSS (15th percentile)		
Ecoregion	TSS	Unit
Ouachita	2	mg/l
Gulf Coastal	5.5	mg/l
Delta	8	mg/l
Ozark Highlands	2.5	mg/l
Boston Mountains	1.3	mg/l
Arkansas River Valley	3	mg/l

Attachment 4

Biomonitoring will be included after I receive it from Sarah