

Permit Number: AR0049611
AFIN: 30-00337

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

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

The applicant's mailing and facility address is:

Arkansas Electric Cooperative Corporation – Magnet Cove Generating Station
410 Henderson Road
Malvern, AR 72104

is authorized to discharge low volume wastewater and cooling tower blowdown from a facility located as follows: approximately 6.5 miles north of Malvern and 2.3 miles south of Magnet Cove in Hot Spring County, Arkansas.

Latitude: 34° 25' 47.93"; Longitude: 92° 50' 3.38"

to receiving waters named:


Ouachita River in Segment 2F of the Ouachita River Basin.

The outfalls are located at the following coordinates:

Outfall 001: Latitude: 34° 25' 41.4"; Longitude: 92° 51' 31.0"
Internal Outfall 01A: Latitude: 34° 25' 48.8"; Longitude: 92° 49' 59.3"
Internal Outfall 01B: Latitude: 34° 25' 48.8"; Longitude: 92° 49' 59.3"

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

Effective Date: May 1, 2013
Expiration Date: April 30, 2018



Steven L. Drown
Chief, Water Division
Arkansas Department of Environmental Quality



Issue Date

**PART I
 PERMIT REQUIREMENTS**

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001 – combined wastestream consisting of low volume wastewater and cooling tower blowdown.

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil/water separator for low volume wastewater and no treatment for the cooling tower blowdown. These two wastestreams combine in a mixing tank prior to discharge into a pipeline leading to Outfall 001.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ³
Total Suspended Solids (TSS)	158	526	30	100	once/month	grab
Oil and Grease (O & G)	53	79	10	15	once/month	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab
Acute WET Testing ¹	N/A	N/A	Report		once/quarter	composite ²
<u>Pimephales promelas (Acute)¹</u> Pass/Fail Lethality (48-Hr NOEC) TEM6C Survival (48-Hr NOEC) TOM6C Coefficient of Variation (48-Hr NOEC) TQM6C			48-hr Minimum Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite ² composite ² composite ²
<u>Daphnia pulex (Acute)¹</u> Pass/Fail Lethality (48-Hr NOEC) TEM3D Survival (48-Hr NOEC) TOM3D Coefficient of Variation (48-Hr NOEC) TQM3D			48-hr Minimum Report (Pass=0/Fail=1) Report % Report %		once/quarter once/quarter once/quarter	composite ² composite ² composite ²

- 1 See Condition No. 12 of Part II (WET Testing Requirements).
- 2 Composite sample for WET testing is defined in Condition No. 12 of Part II.
- 3 In the event that the totalizing meter is malfunctioning, flow may be determined by manually measuring the head at the v-notch weir.

There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after cooling tower blowdown and low volume wastewater are combined in the mixing tank.

PART I
PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 01A – cooling tower blowdown

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 01A. Such discharges shall be limited and monitored by the permittee as specified below. This internal wastestream combines in a mixing tank with the low volume wastewater prior to discharge into a pipeline leading to Outfall 001.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ³
Free Available Chlorine (FAC) ²	0.3	0.6	0.2	0.5	once/month	grab
Chromium, Total Recoverable ¹	1	1	0.2	0.2	n/a ¹	n/a ¹
Zinc, Total Recoverable ¹	5	5	1.0	1.0	n/a ¹	n/a ¹
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab

- 1 Monitoring for Chromium and Zinc is waived during this permit term based on 40 CFR 122.44(a)(2). See Conditions No. 9 and 10 of Part II.
- 2 FAC samples shall be representative of periods of chlorination. See Condition No. 7 of Part II.
- 3 In the event that the totalizing meter is malfunctioning, flow may be estimated based on water balance under the current operating condition.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken prior to combining with the low volume wastewater.

**PART I
 PERMIT REQUIREMENTS**

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 01B – low volume wastewater

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Internal Outfall 01B. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of an oil/water separator. This internal wastestream combines in a mixing tank with the cooling tower blowdown prior to final discharge into a pipeline leading to Outfall 001.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ¹
Total Suspended Solids (TSS)	9	30	30	100	once/month	grab
Oil and Grease (O & G)	4.5	6	15	20	once/month	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab

1 In the event that the totalizing meter is malfunctioning, flow may be estimated based on water balance under the current operating condition.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken prior to combining with the cooling tower blowdown.

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SECTION B. PERMIT 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 OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall be Basic 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 a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.
3. Other Specified Monitoring Requirements

The permittee may use alternative appropriate monitoring methods and analytical instruments other than as specified in Part I 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 Permits Section of the Water Division of the ADEQ for use of the alternate method or instrument.
- The method and/or instrument is in compliance with 40 CFR Part 136 or approved in accordance with 40 CFR Part 136.5; and
- All associated devices are installed, calibrated, and maintained to insure the accuracy of the measurements and are consistent with the accepted capability of that type of device. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

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

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

5. There shall be no discharge of transformer fluid containing polychlorinated biphenyls or chemical metal cleaning wastewater.
6. The term *chemical metal cleaning wastewater* means any wastewater resulting from the cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning.
7. The term *free available chlorine* shall mean the value obtained using the amperometric titration method for free available chlorine described in the latest EPA approved edition of *Standard Methods for the Examination of Water and Wastewater*.
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 in this permit. Low volume waste sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not considered low volume waste sources.
9. The facility shall not utilize cooling tower maintenance chemicals containing chromium or zinc without first modifying this permit.
10. The monitoring requirement for chromium and zinc at Internal Outfall 01A is waived during this permit term based on 40 CFR 122.44(a)(2). This waiver is only valid for the term of this permit. The permittee must request this monitoring waiver when applying for a reissued permit. The monitoring waiver request must be accompanied by a signed certification that the facility does not use cooling tower maintenance chemicals that contain chromium or zinc. The signed certification shall include the statements found in 40 CFR 122.22(d).
11. In accordance with 40 CFR 423.15(j)(1), the permittee shall not discharge detectable amounts of priority pollutants that are contained in chemicals used for cooling tower maintenance at final outfall 001. The priority pollutants are listed in Appendix A of 40 CFR 423. Prior to using any cooling tower maintenance chemical that contains any of the priority pollutants, the permittee shall submit either (1) calculations demonstrating that the priority pollutant contained in the chemical will not be detectable in the final discharge, or (2) analytical test results on the final discharge showing the priority pollutant was not detected as a result of using the chemical.

12. WHOLE EFFLUENT TOXICITY TESTING (48-HOUR ACUTE 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(S):	001
REPORTED ON DMR AS FINAL OUTFALL:	001
CRITICAL DILUTION (%):	13%
EFFLUENT DILUTION SERIES (%):	5%, 7%, 10%, 13%, 17%
TESTING FREQUENCY:	Once/quarter
COMPOSITE SAMPLE TYPE:	Defined at PART I
TEST SPECIES/METHODS:	40 CFR Part 136

Daphnia pulex acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest 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.

Pimephales promelas (Fathead minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012, or the latest 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 toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Acute 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.

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). The purpose of additional tests (also referred to as 'retests' or confirmation tests) is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation.

Such testing cannot confirm or disprove a previous test result.

If any valid test demonstrates significant lethal effects to a test species at or below the critical dilution, the frequency of testing for this species is automatically increased to once per quarter with no option for frequency reduction.

a. Part I Testing Frequency Other Than Monthly

- i. The permittee shall conduct a total of three (3) additional tests for any species that demonstrates significant lethal effects at or below the critical dilution. The additional tests shall be conducted monthly during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the additional tests in lieu of one routine toxicity test. A 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 any of the 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 intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.
- iii. 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 also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.

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. Each toxicity test control (0% effluent) must have a survival equal to or greater than 90%.
- ii. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: Daphnia pulex survival test; and Fathead minnow survival test.
- iii. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal effects are exhibited for: Daphnia pulex survival test; and Fathead minnow survival test.
- iv. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the survival in the Daphnia pulex survival test or the survival endpoint of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- v. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.

b. Statistical Interpretation

For the Daphnia pulex survival test and the Fathead minnow survival test, the statistical analyses used to determine if there is a statistically significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-012 or the most recent update thereof.

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 90% 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., 48 hours);
 - (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 two flow-weighted composite samples from the outfall(s) listed at Item 1.a above. Unless otherwise stated in this section, a composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.
- ii. The permittee shall collect a second composite sample for use during the 24-hour renewal of each dilution concentration for both tests. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.
- iii. The permittee must collect both flow-weighted composite samples within the monitoring period. The second composite sample shall not be collected into the next monitoring period; such tests will be determined to be invalid. Monitoring period definitions are listed in Part IV.

- iv. 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 a regular or intermittent basis.
- v. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. 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.

4. REPORTING

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this Part in accordance with the Report Preparation Section of EPA-821-R-02-012, for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency 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 WET test 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. The full report for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.
- c. The permittee shall report the following results of each valid toxicity test on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit. Submit retest information clearly marked as such with the following month's 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 or equal to the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM6C.

(B) Report the NOEC value for survival, Parameter No. TOM6C.

(C) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM6C.

ii. Daphnia pulex

(A) If the NOEC for survival is less than or equal to the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D

(B) Report the NOEC value for survival, Parameter No. TOM3D.

(C) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM3D.

5. 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) or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081), as appropriate.

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

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

- 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 24 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.
- e. 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).

6. MONITORING FREQUENCY REDUCTION

- a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters or first twelve consecutive months (in accordance with Item 1.a.) of testing for one or both test species, with no lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the Daphnia pulex).
- 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 effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.
- c. SURVIVAL FAILURES - If any test fails the survival endpoint at any time during the life of this permit, three 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.
- d. 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.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

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

2. Penalties for Violations of Permit Conditions

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

3. Permit Actions

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

- A. Violation of any terms or conditions of this permit; 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 Part III.A.11 herein.

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

4. Toxic Pollutants

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

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

5. Civil and Criminal Liability

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

6. Oil and Hazardous Substance Liability

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

7. State Laws

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

8. Property Rights

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

9. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Applicable Federal, State or Local Requirements

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

11. 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 Parts 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 Parts III.B.4.b and 4.c.

B. Notice

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

C. Prohibition of bypass

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

5. Upset Conditions

- A. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements

of Part III.B.5.b of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

- B. Conditions necessary for demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
1. An upset occurred and that the permittee can identify the specific cause(s) of the upset;
 2. The permitted facility was at the time being properly operated.
 3. The permittee submitted notice of the upset as required by Part III.D.6; and
 4. The permittee complied with any remedial measures required by Part III.B.3.
- C. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

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 prior to removal of substances. Additionally, the permittee shall give at least 120 days prior notice to the Director of any change planned in the permittee's sludge disposal practice or land use applications, including types of crops grown (if applicable). Produced sludge shall be disposed of by land application only when meeting the following criteria:

- A. Sewage sludge from treatment works treating domestic sewage (TWTDS) must meet the applicable provisions of 40 CFR Part 503; and
- B. The sewage sludge has not been classified as a hazardous waste under state or federal regulations.

7. Power Failure

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

SECTION C – MONITORING AND RECORDS

1. Representative Sampling

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

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

2. Flow Measurement

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

Calculated Flow Measurement

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

3. Monitoring Procedures

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

4. Penalties for Tampering

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

5. Reporting of Monitoring Results

Monitoring results must be reported on a Discharge Monitoring Report (DMR) form provided by the Department or other form/method approved in writing by the Department (e.g., electronic submittal of DMR once approved). Monitoring results obtained during the

previous monitoring period shall be summarized and reported on a DMR form postmarked no later than the 25th day of the month or submitted electronically by 6:00 p.m. of the 25th (after NETDMR is approved), following the completed reporting period beginning on the effective date of the permit. When mailing the DMRs, duplicate copies of the forms signed and certified as required by Part III.D.11 and all other reports required by Part III.D, shall be submitted to the Director at the following address:

Enforcement Branch
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

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 Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated on the DMR.

7. Retention of Records

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

8. Record Contents

Records and monitoring information shall include:

- A. The date, exact place, time and methods of sampling or measurements, and preservatives used, if any;
- B. The 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 within 180 days and provide plans and specification (if applicable) to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility. In no case are any new connections, increased flows, removal of substances, 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 III.C.5. **Discharge Monitoring Reports must be submitted even when no discharge occurs during the reporting period.**

5. **Compliance Schedule**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later

than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

6. Twenty-four Hour Report

- A. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:
1. A description of the noncompliance and its cause;
 2. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; 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 to the Enforcement Section of the Water Division of the ADEQ.
- C. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours to the Enforcement Section of the Water Division of the ADEQ.

7. Other Noncompliance

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

8. Changes in Discharge of Toxic Substances for Industrial Dischargers

The 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); or
- 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 as follows:

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

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

2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively; 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:
 - (a) The chief executive officer of the agency, or
 - (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- B. All **reports** required by the permit and **other information** requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
1. The authorization is made in writing by a person described above.
 2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); 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 APCEC Regulation No. 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. Penalties for Falsification of Reports

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit shall be subject to civil penalties specified in Part III.A.2. and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

14. Applicable Federal, State or Local Requirements

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

PART IV DEFINITIONS

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

1. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
2. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
3. **“APCEC”** means the Arkansas Pollution Control and Ecology Commission.
4. **“Applicable effluent standards and limitations”** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
5. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (APCEC) Regulation No. 2, as amended.
6. **“Best Management Practices (BMPs)”** are activities, practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the State. BMPs also include treatment technologies, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw sewage. BMPs may include structural devices or nonstructural practices.
7. **“Bypass”** As defined at 122.41(m).
8. **“Composite sample”** is a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of 4 effluent portions collected at equal time intervals (but not closer than one hour apart) during operational hours, within the 24-hour period, and combined proportional to flow or a sample collected at more frequent intervals proportional to flow over the 24-hour period.
9. **“Daily Discharge”** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.
 - A. **Mass Calculations:** For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total mass of pollutant discharged over the sampling day.
 - B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
10. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month. The 7-day average for Fecal Coliform Bacteria (FCB) or E-Coli is the geometric mean of the values of all effluent samples collected during the calendar week in colonies per 100 ml.
11. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
12. **“Director”** means the Director of the Arkansas Department of Environmental Quality.
13. **“Dissolved oxygen limit”**, shall be defined as follows:

14. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month;
15. 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.
16. **“E-Coli”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For E-Coli, report the monthly average as a 30-day geometric mean in colonies per 100 ml.
17. **“Fecal Coliform Bacteria (FCB)”**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.
18. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
19. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
20. **“Instantaneous Maximum”** when limited in the permit as an instantaneous maximum value, shall mean that no value measured during the reporting period may fall above the stated value.
21. **“Instantaneous Minimum”** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
22. **“Monthly average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or E-Coli, report the monthly average.
23. **“National Pollutant Discharge Elimination System”** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under Sections 307, 402, 318, and 405 of the Clean Water Act.
24. **“POTW”** means a Publicly Owned Treatment Works.
25. **“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.
26. **“Sewage sludge”** means the solids, residues, and precipitate separated from or created in sewage by the unit processes at a POTW. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and stormwater runoff that are discharged to or otherwise enter a POTW.
27. **“7-day average”** Also known as Average weekly. means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week.
28. **“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.
29. **“Upset”** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless of improper operations.
30. **“Visible sheen”** means the presence of a film or sheen upon or a discoloration of the surface of the discharge. A sheen can also be from a thin glistening layer of oil on the surface of the discharge.
31. **“MGD”** shall mean million gallons per day.
32. **“mg/l”** shall mean milligrams per liter or parts per million (ppm).
33. **“µg/l”** shall mean micrograms per liter or parts per billion (ppb).
34. **“cfs”** shall mean cubic feet per second.
35. **“ppm”** shall mean parts per million.
36. **“s.u.”** shall mean standard units.
37. **“Weekday”** means Monday – Friday.
38. **Monitoring and Reporting:**
39. When a permit becomes effective, monitoring requirements are of the immediate period of the permit effective date. Where the monitoring requirement for an effluent characteristic is monthly or more frequently, the Discharge Monitoring Report (DMR) shall be submitted by the 25th of the month following the sampling. Where the monitoring requirement for an effluent characteristic is Quarterly, Semi-Annual, Annual, or Yearly, the DMR shall be submitted by the 25th of the month following the monitoring period end date.
- A. MONTHLY:**
is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.
- B. BI-MONTHLY:**
is defined as two (2) calendar months or any portion of 2 calendar months for monitoring requirement frequency of once/2 months or more frequently.
- C. QUARTERLY:**
1. is defined as a **fixed calendar quarter** or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; 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.

D. SEMI-ANNUAL:

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

E. ANNUAL or YEARLY:

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

Fact Sheet

This Fact Sheet is for information and justification of the permit limits only. Please note that it is not enforceable. This final permitting decision is for renewal of the discharge Permit Number AR0049611 with Arkansas Department of Environmental Quality (ADEQ) Facility Identification Number (AFIN) 30-00337 to discharge to Waters of the State.

1. PERMITTING AUTHORITY.

The issuing office is:

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

2. APPLICANT.

The applicant's mailing and facility address is:

Arkansas Electric Cooperative Corporation – Magnet Cove Generating Station
410 Henderson Road
Malvern, AR 72104

3. PREPARED BY.

The permit was prepared by:

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

4. PERMIT ACTIVITY.

Previous Permit Effective Date: 5/1/2007
Previous Permit Expiration Date: 4/30/2012

Hot Spring Power Company (HSPC) submitted a permit renewal application on 10/27/2011. An ownership transfer was submitted on 8/2/2012 to transfer the permit to Arkansas Electric Cooperative Corporation (AECC). A draft permit was public noticed on 10/13/2012 and the facility submitted comments on the draft permit on 11/13/2012 concerning the revised mass limits proposed at outfall 001. In subsequent discussions with the facility concerning their comments, the facility stated that they preferred to demonstrate compliance with the effluent limitation guideline at the two internal wastestreams as done in the previous permit, rather

than at the final outfall. The permit was redrafted to include limits on the two internal wastestreams to demonstrate compliance with the ELG. Due to the significant changes in permit limits from the first draft permit, the ADEQ sent the draft permit to public notice again on 3/16/2013 and no comments were received. The discharge permit is being reissued to AECC for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

DOCUMENT ABBREVIATIONS

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

BAT - best available technology economically achievable
BCT - best conventional pollutant control technology
BMP - best management practice
BOD₅ - five-day biochemical oxygen demand
BPJ - best professional judgment
BPT - best practicable control technology currently available
CBOD₅ - carbonaceous biochemical oxygen demand
CD - critical dilution
CFR - Code of Federal Regulations
cfs - cubic feet per second
COD - chemical oxygen demand
COE - United States Corp of Engineers
CPP - continuing planning process
CWA - Clean Water Act
DMR - discharge monitoring report
DO - dissolved oxygen
ELG - effluent limitation guidelines
EPA - United States Environmental Protection Agency
ESA - Endangered Species Act
FCB - fecal coliform bacteria
gpm - gallons per minute
MGD - million gallons per day
MQL - minimum quantification level
NAICS - North American Industry Classification System
NH₃-N - ammonia nitrogen
NO₃ + NO₂-N - nitrate + nitrite nitrogen
NPDES - National Pollutant Discharge Elimination System
O&G - oil and grease
Reg. 2 - APCEC Regulation No. 2
Reg. 6 - APCEC Regulation No. 6
Reg. 8 - APCEC Regulation No. 8
Reg. 9 - APCEC Regulation No. 9
RP - reasonable potential
SIC - standard industrial classification
TDS - total dissolved solids

TMDL - total maximum daily load
TP - total phosphorus
TRC - total residual chlorine
TSS - total suspended solids
UAA - use attainability analysis
USF&WS - United States Fish and Wildlife Service
WET - Whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

DMR Review:

The Discharge Monitoring Reports (DMR's) for the last three years (January 2009 to December 2011) were reviewed during the permit renewal process. There were no violations noted during the review of permit data.

Legal Order Review:

There are currently no active Consent Administrative Orders (CAOs) or Notice of Violations (NOVs) for this facility.

Inspections

The most recent inspection by ADEQ was performed on 12/15/2011. The following two violations were noted during this inspection:

1. The monthly averages on the DMRs were not being calculated as specified by the permit.
2. Annual inspections of the stormwater discharge locations were not being documented as required by the permit.

The facility responded to these issues in a letter dated 1/9/2012 stating the following:

1. DMRs for the past 36 months were corrected and resubmitted with the correct monthly average.
2. Inspections are now being documented for the stormwater discharges.

5. FINANCIAL ASSURANCE

Financial Assurance is not required since the permittee does not operate a "non-municipal domestic sewage treatment works" as defined in Arkansas Code § 8-4-203(b).

6. SIGNIFICANT CHANGES FROM THE PREVIOUS DRAFT PERMIT WHICH WAS PUBLIC NOTICED ON 10/13/2012.

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

1. Internal Outfalls 01A and 01B limits and monitoring requirements were added.
2. Mass and concentration limits for Free Available Chlorine, Chromium, and Zinc were removed from Outfall 001 and assigned to Internal Outfall 01A (cooling tower blowdown wastestream).
3. Concentration limits for TSS and Oil & Grease were reinstated at Outfall 001.
4. Mass limits for TSS and Oil & Grease were revised at Outfall 001 based on expected flow rates from the plant water balance diagram at 100% load conditions.
5. The critical dilution was revised from 5% to 13% for whole effluent toxicity testing at Outfall 001 based on new published 7Q10 of receiving stream and revised facility flow rates.
6. Footnotes were added to flow sample type on all outfalls to allow alternate flow determination method during periods of totalizing meter malfunction provided the totalizer meter is repaired and returned to service as soon as possible.

7. COMMENTS SUBMITTED BY FACILITY ON DRAFT PERMIT PUBLIC NOTICED ON 10/13/2012 AND DEPARTMENT RESPONSES TO THESE COMMENTS.

ISSUE #1

AECC purchased the plant on 9/10/2012. Soon after the purchase, AECC changed the name of the plant from Hot Spring Generating Station to Magnet Cove Generating Station (MCGS). A form requesting this facility name change was submitted with the comment letter dated 11/13/2012.

RESPONSE #1

The facility name will be updated on the final permit.

ISSUE #2

AECC requested that the description of the plant activity be revised beginning with the fourth sentence in Section 13 of the Fact Sheet. The fourth sentence should be revised as follows:

“The facility has a total of three (3) electric generating units including two (2) natural gas fired combustion turbine generators and one (1) ~~heat recovery~~ steam turbine generator. Exhaust gases produced from the combustion turbines are routed through the two heat recovery steam generators where boiler feed water is converted into steam.”

RESPONSE #2

The requested changes to the plant activity description will be made as indicated. The underlined text will be added and the strikeout text will be removed.

ISSUE #3

AECC stated that the mass limits for TSS and O&G at Outfall 001 imposed in the draft permit are drastically lower than in the previous permit because ADEQ based the mass limit calculations on a flow weighted average of the two internal outfalls using the highest monthly average flow rates reported for the two internal outfalls during the past two years. A review of the past two years of data shows six exceedances of the proposed new mass limits. AECC believes that the existing mass limits for Outfall 001 should remain unchanged because the discharge characteristics are not expected to change and the plant's flow rate will likely increase over the next few years.

The mass limits for TSS and O&G in the previous permit and the October 2012 draft permit are summarized in the following table:

Parameter	Previous Permit		October 2012 Draft Permit	
	Monthly Avg (lb/day)	Daily Maximum (lb/day)	Monthly Avg (lb/day)	Daily Maximum (lb/day)
TSS	288	959	12.3	35.9
O&G	96	144	9.0	12.9

AECC stated that the flow value used to calculate the mass limits for Outfall 001 is not characteristic of what the flow will likely be over the next few years. AECC stated the the flow will likely be higher due to increased operation in the near future. AECC stated that due to fluctuating natural gas prices and unfavorable market conditions, the plant did not operate much over the last few years. AECC expects to operate this plant more and at a higher capacity than historically operated based on the following factors:

- Upcoming federal environmental regulations that are expected to limit generation from base-load electricity generating plants within the same load-control area as MCGS.
- Increased electrical load growth in Arkansas which is expected to continue. With higher load growth comes higher demands on all electricity generating facilities, especially more efficient, low-emission plants like MCGS.
- With the price of natural gas near all time lows and the fact that this plant is the most efficient lowest emitting fossil-fueled plant in the state, it's likely that this plant will operate more.

With higher electricity production comes higher water flow due to the increased need to blowdown water from the cooling towers. Therefore, the highest monthly average flow for the past two years used to calculate the new mass limits are not characteristic of what the

flow will likely be in the next few years. For these reasons, AECC believes that the original flow estimate of 1.15 MGD should be used in the mass calculations for Outfall 001 and not the highest monthly average flow of the past two years which is only 0.226 MGD. The original flow estimate is a more representative flow of what the plant is capable of producing at the higher capacity operating levels expected in the future.

AECC believes that the mass limits for all effluent characteristics for Outfall 001 should be based on technology-based concentration limits and the plant's design flow, rather than a flow-weighted limit. AECC requested that the mass limits for Outfall 001 be calculated using the technology-based concentrations and a facility flow rate of 1.15 MGD, which is the original flow estimate based on operating at or near the rated generating capacity of the plant. AECC stated that this calculation procedure would result in the following mass limits at Outfall 001:

Effluent Characteristic	Mass Limits	
	Monthly Avg (lb/day)	Daily Max (lb/day)
Total Suspended Solids (TSS)	288	959
Oil & Grease (O&G)	144	192
Free Available Chlorine (FAC)	1.9	4.8
Chromium, Total Rec. (Cr)	1.9	1.9
Zinc, Total Rec. (Zn)	9.6	9.6

RESPONSE #3

ADEQ does not agree with the mass limits proposed by AECC at Outfall 001 for two reasons discussed below:

First, the mass limit calculation procedure proposed by AECC for TSS and O&G does not account for dilution provided by the cooling tower blowdown mixing with the low volume wastestream prior to the final compliance point (Outfall 001) which was proposed in the draft permit. As stated in the draft Fact Sheet, whenever a wastestream regulated for a pollutant is combined with a wastestream not regulated for that pollutant, mass limits or flow-weighted concentration limits should be applied to the combined wastestream. Some credit may be given for a pollutant present in the unregulated wastestream if data for the pollutant is available. In this case, the Low Volume wastestream is regulated for TSS and O&G in the effluent limitation guideline (ELG), but the Cooling Tower Blowdown wastestream is not regulated for these pollutants in the ELG. Since the flow rate of the unregulated wastestream for TSS and O&G is much higher than the regulated wastestream, a significant amount of dilution from the cooling tower blowdown occurs after the two wastestreams combine prior to final discharge. 40 CFR 122.45(f)(1)(iii) states that permit conditions must ensure that dilution will not be used as a substitute for treatment. Therefore, the mass limits for TSS and O&G that AECC proposed do not ensure that the regulated wastestream is complying with the ELG.

Second, the mass limits calculated by AECC are based on a flow rate of 1.15 MGD. However, ADEQ could not find any justification for that flow rate in the 2006 or 2011 permit applications. A plant water balance based on 100% load conditions was included in the application (Figure 3). The average flow rate based on 100% load conditions given in the plant water balance is 0.631 MGD for Outfall 001. A summary of the estimated average flow rates compared with the highest reported monthly average flow rates over the last five years (2007-2011) are shown in the table below. Based on the actual average flow rates reported and the average flow rates given on the water balance diagram, there does not appear to be any justification for using 1.15 MGD to calculate mass limits at Outfall 001 as proposed by AECC.

	Water Balance Diagram (MGD)	2007-2011 Highest Actual Monthly Average Flows (MGD)
Cooling Tower Blowdown (01A)	0.595	0.356
Low Volume Wastewater (01B)	0.036	0.038
Outfall 001	0.631	0.229

In further discussions with the facility following the submittal of the written comments, the facility verbally expressed interest in keeping the internal outfalls in the permit for demonstrating compliance with the ELG and calculating mass limits for the two internal outfalls based on average flow rates given on the plant water balance diagram. The facility stated that they would prefer this method of compliance demonstration with the ELG rather than demonstrating compliance with the ELG at the final outfall. Therefore, the Department has redrafted the permit using the internal outfalls to demonstrate compliance with the ELG as done in the previous two permits. The flow rates used to calculate the mass limits at each outfall were taken from the water balance diagram. A more detailed discussion on the flow rates and internal outfalls is in Section 17 of this Fact Sheet.

8. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION.

The outfalls are located at the following coordinates based on Google Earth using WGS84 map datum (Outfall 001 end of pipe), and hand held Garmin GPS unit for monitoring locations:

Outfall 001 (end-of-pipe):	Latitude: 34° 25' 41.4" Longitude: 92° 51' 31"
Outfall 001 (monitoring location):	Latitude: 34° 25' 48.7" Longitude: 92° 49' 59.6"
Internal Outfall 01A:	Latitude: 34° 25' 48.8" Longitude: 92° 49' 59.3"
Internal Outfall 01B:	Latitude: 34° 25' 48.8" Longitude: 92° 49' 59.3"

The receiving waters named:

Ouachita River in Segment 2F of the Ouachita River Basin. The receiving stream with USGS Hydrologic Unit Code (H.U.C) of 8040102 and reach # 007 is a Water of the State classified for primary and secondary contact recreation, raw water source for domestic (public and private), industrial, and agricultural water supplies, propagation of desirable species of fish and other aquatic life, and other compatible uses.

9. 316(B) REQUIREMENTS FOR COOLING WATER INTAKE STRUCTURE

This facility does not operate a cooling water intake structure. This facility acquires all cooling water from the Kimzey Water District.

10. FLUE GAS DESULFURIZATION (FGD) WASTESTREAM CONSIDERATIONS

This facility does not operate an FGD scrubber system, thus there is no wastestream generated from this type of scrubber system.

11. COAL COMBUSTION RESIDUALS (CCR) WASTESTREAM CONSIDERATIONS

This facility is natural gas fired and does not combust coal, therefore no CCR wastestreams are generated.

12. 303(d) LIST, ENDANGERED SPECIES, AND ANTI-DEGRADATION CONSIDERATIONS.

A. 303(d) List:

This facility discharges to Reach 007 of the Ouachita River. Reach 007 of the Ouachita River is listed on the 2008 303(d) list for Beryllium. Since Beryllium was not detected in the most recent priority pollutant scan for this facility, this facility is not considered to be causing or contributing to the impairment. Therefore, no further permit action is deemed necessary concerning Beryllium.

B. Endangered Species:

No comments on the application were received from the U.S. Fish and Wildlife Service (USF&WS). The draft permit and Fact Sheet were sent to the USF&WS for their review and no comments were received. In the previous renewal permit comment period, the Department of Arkansas Heritage identified the following species of conservation concern within five miles downstream of the outfall in a letter dated 3/19/2007:

Arkansia wheeleri, Ouachita rock pocketbook – federal concern (endangered)
Toxolasma lividus, purple Lilliput – state concern
Lampsilis abrupta, pink mucket – federal concern (endangered)
Ligumia recta, black sandshell – state concern

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

C. Anti-Degradation:

The limitations and requirements set forth in this permit for discharge into waters of the State are consistent with the Antidegradation Policy and all other applicable water quality standards found in APC&EC Regulation No. 2.

13. OUTFALL, TREATMENT PROCESS DESCRIPTION, AND FACILITY CONSTRUCTION.

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

A. Average Flows (Based on Figure 3 Plant Water Balance at 100% load conditions):

Internal Outfall 01A:	0.595 MGD
Internal Outfall 01B:	0.036 MGD
Outfall 001:	0.631 MGD

B. Type of Treatment:

Internal Outfall 01A:	dechlorination with Sodium Bisulfite injection
Internal Outfall 01B:	oil/water separator
Outfall 001:	combined discharge from above listed wastestreams, no additional treatment besides those listed above.

C. Discharge Description:

Internal Outfall 01A:	cooling tower blowdown
Internal Outfall 01B:	low volume wastewater
Outfall 001:	combined discharge of cooling tower blowdown and low volume wastewater

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

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

14. ACTIVITY.

Under the Standard Industrial Classification (SIC) code of 4911 or North American Industry Classification System (NAICS) code of 221112, the applicant's activities are the operation of a steam electric power generating station. This station is a natural gas fired combined cycle electric generating station with a total gross generating capacity of 750 megawatts. The facility uses a closed cycle recirculating water system with a 12-cell mechanical draft cooling tower. The facility has a total of three (3) electric generating units including two (2) natural gas fired combustion turbine generators and one (1) steam turbine generator. Collectively, the natural gas fired combustion turbine generators and the steam turbine generator form the combined cycle power plant.

15. SEWAGE SLUDGE AND SOLIDS PRACTICES.

Domestic wastewater from this facility is treated on-site within a septic tank system permitted by the Arkansas Department of Health under permit number 0029000110. Sewage sludge is pumped from the septic tank as needed by a licensed septic tank hauler and properly disposed.

Process wastewater solids are thickened with a polymer in a mixing tank and dewatered with a filter press. The resulting solids cake is disposed of as needed in an offsite landfill.

16. PERMIT CONDITIONS.

The Arkansas Department of Environmental Quality has made a determination to issue a final permit for the discharge described in the application. Permit requirements are based on federal regulations (40 CFR Parts 122, 124, and Subchapter N), the National Pretreatment Regulation in 40 CFR Part 403 and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. 8-4-101 et. seq.).

A. Effluent Limitations

Outfall 001 – combined wastestream consisting of low volume wastewater and cooling tower blowdown

1. Conventional and/or Toxic Pollutants

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ³
Total Suspended Solids (TSS)	158	526	30	100	once/month	grab
Oil and Grease (O & G)	53	79	10	15	once/month	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab
Acute WET testing ¹	N/A	N/A	Report		once/quarter	composite ²

- 1 See Condition No. 12 of Part II of the permit (WET Testing Requirements).
- 2 Composite sample for WET testing is defined in Condition No. 12 of Part II of the permit.
- 3 In the event that the totalizing meter is malfunctioning, flow may be determined by manually measuring the head at the v-notch weir until such time as the totalizing meter is repaired and returned to service. The malfunctioning totalizing meter shall be repaired and returned to service as soon as possible.

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. There shall be no visible sheen due to the presence of oil (Sheen means an iridescent appearance on the surface of the water).

B. Effluent Limitations

Internal Outfall 01A – cooling tower blowdown

1. Conventional and/or Toxic Pollutants

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ³
Free Available Chlorine (FAC) ²	0.3	0.6	0.2	0.5	once/month	grab
Chromium, Total Recoverable (Cr) ¹	1.0	1.0	0.2	0.2	N/A ¹	N/A ¹
Zinc, Total Recoverable (Zn) ¹	5.0	5.0	1.0	1.0	N/A ¹	N/A ¹
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab

- 1 Monitoring for Chromium and Zinc is waived during this permit term based on 40 CFR 122.44(a)(2). See Conditions No. 9 and 10 of Part II.
- 2 FAC samples shall be representative of periods of chlorination. See Condition No. 7 of Part II.
- 3 In the event that the totalizing meter is malfunctioning, flow may be estimated based on water balance under the current operating condition until such time as the totalizing meter is repaired and returned to service. The malfunctioning totalizing meter shall be repaired and returned to service as soon as possible.

C. Effluent Limitations

Internal Outfall 01B – low volume wastewater

1. Conventional and/or Toxic Pollutants

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow	N/A	N/A	Report, MGD	Report, MGD	once/day	totalizing meter ¹
Total Suspended Solids (TSS)	9	30	30	100	once/month	grab
Oil and Grease (O & G)	4.5	6	15	20	once/month	grab
pH	N/A	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/month	grab

- 1 In the event that the totalizing meter is malfunctioning, flow may be estimated based on water balance under the current operating condition until such time as the totalizing meter is repaired and returned to service. The malfunctioning totalizing meter shall be repaired and returned to service as soon as possible.

17. DISCUSSION ON INTERNAL OUTFALLS.

This facility has two internal wastestreams which combine in a mixing tank and subsequently discharge through the final outfall. These internal wastestreams are cooling tower blowdown (CTB) and low volume wastewater. The CTB wastestream is subject to technology-based limits for Free Available Chlorine, Chromium, Zinc, and pH. The low volume wastestream is subject to technology-based limits for Total Suspended Solids, Oil & Grease, and pH.

When the last two permits were issued in 2001 and 2007, the permits were issued with the technology-based limits applied to the internal wastestreams. In these previous permits, the concentration limits on the internal outfalls were set equal to the effluent limitation guidelines and the mass limits at the internal outfalls were calculated based on projected flow rates because the facility did not begin normal operation until April 2006. 40 CFR 122.45(h)(1) states that effluent limitations for discharges of pollutants may be imposed on internal wastestreams before mixing with other wastestreams or cooling water streams in instances when permit effluent limits imposed at the point of final discharge would be infeasible or impractical.

When preparing the renewal permit in 2012, the Department nor the facility could find any justification for the projected flow rates used in the 2001 and 2007 permits. In the draft permit public noticed in October 2012, the Department proposed mass limits on the final outfall that were calculated using the combined wastestream formula and the highest monthly average flow rates reported during the past permit term. The October 2012 draft permit also

removed the limits on the internal outfalls since compliance with the ELG limits were proposed to be demonstrated at the final outfall.

In further discussions with the facility following the submittal of written comments on the October 2012 draft permit, the facility verbally expressed interest in keeping the internal outfalls in the permit for demonstrating compliance with the ELG and calculating mass limits for the two internal outfalls based on average flow rates given on the plant water balance diagram (included as Figure 3 in the application). The facility stated that they would prefer this method of compliance demonstration with the ELG rather than demonstrating compliance with the ELG at the final outfall using the combined wastestream formula.

After further review of this issue the Department has determined that having only mass limits on the final outfall would not demonstrate compliance with the ELG in all flow situations. The average flow of the cooling tower blowdown wastestream (CTB) is about 94% of the total flow, and the average flow from the low volume wastestream (LV) is about 6% of the total flow. In situations when the CTB flow is lower than average (based on past flow data, the CTB flow can be highly variable), the LV wastestream could exceed the ELG concentrations and the facility still be in compliance with the mass limits at the final outfall. Therefore, the Department has determined that demonstrating compliance with mass limits at the final outfall will not, in all situations, adequately ensure compliance with the ELG limits for TSS and O&G on the LV wastestream. Therefore, the Department decided to place the ELG concentration limits at the internal outfalls, as was done in the previous permits.

Concerning mass limit calculations for the internal outfalls and final outfall, the average flow rates given in the water balance diagram submitted with the application can be reasonably expected to prevail during the next permit term based on the future anticipated market conditions, natural gas prices, etc. The facility expects to operate this facility at higher loads than was done in the previous permit term based on the future anticipated market conditions for natural gas. Therefore, ADEQ has calculated mass limits on the internal outfalls and final outfall using the average flow rates given in the water balance diagram submitted with the application (Figure 3). This water balance diagram shows the estimated average flow rates at each wastestream at 100% loading conditions. These average flow rates on the water balance diagram appear to be reasonable estimates of the average flow because there have been occasions during the last permit term where the facility has reported daily maximum flows slightly higher than the average flows shown on the plant water balance despite being operated at less than full capacity. The facility anticipates operating this facility at higher loads on a more consistent day to day basis than in the previous permit due to current market conditions for natural gas. The final limits and flow rates used to calculate the mass limits are shown in Section 12.A of this fact sheet.

18. BASIS FOR PERMIT CONDITIONS.

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

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

Following regulations promulgated at 40 CFR Part 122.44, the final 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 as follows:

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
OUTFALL 001								
TSS	N/A	N/A	N/A	N/A	30	100	30	100
O&G	10	15	N/A	N/A	10	15	10	15
pH	6.0-9.0 s.u.		N/A		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 01A								
FAC	N/A	N/A	0.2	0.5	0.2	0.5	0.2	0.5
Total Chromium ¹	N/A	N/A	0.2	0.2	0.2	0.2	0.2	0.2
Total Zinc ¹	N/A	N/A	1.0	1.0	1.0	1.0	1.0	1.0
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 01B								
TSS	N/A	N/A	30	100	30	100	30	100
O&G	N/A	N/A	15	20	15	20	15	20
pH	N/A		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	

2 Technology-based Chromium and Zinc limits are included in the permit but monitoring requirements for these pollutants are waived during this permit term based on a certification submitted by the facility dated 5/11/2012 that no cooling tower maintenance chemicals containing these parameters are used at the facility.

A. Justification for Limitations and Conditions of the final permit:

Parameter	Water Quality or Technology	Justification
Internal Outfall 01A		
FAC	Technology	40 CFR 423.15(j)(1)
Chromium, Total Rec. ¹	Technology	40 CFR 423.15(j)(1)
Zinc, Total Rec. ¹	Technology	40 CFR 423.15(j)(1)
pH	Technology	40 CFR 423.15(a)
Internal Outfall 01B		
TSS	Technology	40 CFR 423.15(c)
O&G	Technology	40 CFR 423.15(c)
pH	Technology	40 CFR 423.15(a)
Outfall 001		
TSS	Technology	40 CFR 122.44(l)
O&G	Water Quality	Reg. 2.510
pH	Water Quality	Reg. 2.504
Acute WET testing	Water Quality	Arkansas Continuing Planning Process

1 Technology-based Chromium and Zinc limits are included in the permit but monitoring requirements for these pollutants are waived during this permit term based on a certification submitted by the facility that no cooling tower maintenance chemicals containing these parameters are used at the facility.

B. Anti-backsliding

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

Outfall 001

All limits imposed on Outfall 001 are as stringent or more stringent than the limits in the previous permit.

Internal Outfall 01A - Cooling Tower Blowdown

Less stringent mass limits are included for FAC because the previous permit incorrectly calculated the mass limits based on only one generating unit. The facility operates three generating units and is allowed to discharge FAC up to 2 hours per day per generating unit. The revised mass limits are not considered backsliding since a technical error was made in calculating the FAC mass limits in the previous permit (40 CFR 122.44(l)(2)(i)(B)(2)).

Internal Outfall 01B - Low Volume Wastewater

The mass limits for TSS and O&G at internal outfall 01B are slightly less stringent than those in the previous permit due to using additional significant digits for the flow rate in the calculation. Actual flow data reported in the last permit term indicated that the flow rate from this outfall was slightly higher than the projected flow used in the previous permit. The revised mass limits for TSS and O&G are not considered backsliding based on new information that was not available at the time of the previous permit issuance. (40 CFR 122.44(l)(2)(i)(B)(1)).

C. Limits Calculations

1. Mass limits:

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

Outfall 001

Mass limits for O&G are based on the following calculation using the water quality-based concentrations in Reg. 2.510:

$$\text{O\&G} = (10 \text{ mg/l})(8.34 \text{ lb/gal})(0.631 \text{ mgd}) = 53 \text{ lb/day (monthly average)}$$

$$\text{O\&G} = (15 \text{ mg/l})(8.34 \text{ lb/gal})(0.631 \text{ mgd}) = 79 \text{ lb/day (daily maximum)}$$

Mass limits for TSS are based on the following calculation using the allowable concentrations at Internal Outfall 01B and the judgement of the permit writer:

$$\text{TSS} = (30 \text{ mg/l})(8.34 \text{ lb/gal})(0.631 \text{ mgd}) = 158 \text{ lb/day (monthly average)}$$

$$\text{TSS} = (100 \text{ mg/l})(8.34 \text{ lb/gal})(0.631 \text{ mgd}) = 526 \text{ lb/day (daily maximum)}$$

Internal Outfall 01A - Cooling Tower Blowdown

Mass limits for Chromium and Zinc are based on the following calculation using the technology-based concentrations in 40 CFR 423.15(j)(1):

$$\text{Chromium} = (0.2 \text{ mg/l})(8.34 \text{ lb/gal})(0.595 \text{ mgd}) = 1 \text{ lb/day (monthly average)}$$

$$\text{Chromium} = (0.2 \text{ mg/l})(8.34 \text{ lb/gal})(0.595 \text{ mgd}) = 1 \text{ lb/day (daily maximum)}$$

$$\text{Zinc} = (1.0 \text{ mg/l})(8.34 \text{ lb/gal})(0.595 \text{ mgd}) = 5 \text{ lb/day (monthly average)}$$

$$\text{Zinc} = (1.0 \text{ mg/l})(8.34 \text{ lb/gal})(0.595 \text{ mgd}) = 5 \text{ lb/day (daily maximum)}$$

Mass limits for FAC are based on the following calculation taking into consideration the ELG limits the discharge of chlorine to 2 hours per day per generating unit:

$$\begin{aligned} \text{FAC} &= (0.2 \text{ mg/l})(8.34)(0.595 \text{ mgd})(2 \text{ hr/day/unit})(\text{day}/24 \text{ hr})(3 \text{ generating units}) \\ &= 0.3 \text{ lb/day (monthly average)} \end{aligned}$$

$$\begin{aligned} \text{FAC} &= (0.5 \text{ mg/l})(8.34)(0.595 \text{ mgd})(2 \text{ hr/day/unit})(\text{day}/24 \text{ hr})(3 \text{ generating units}) \\ &= 0.6 \text{ lb/day (daily maximum)} \end{aligned}$$

Internal Outfall 01B – Low Volume Wastewater

Mass limits for TSS and O&G are based on the following calculation using the technology-based concentrations in 40 CFR 423.15(c):

$$\text{TSS} = (30 \text{ mg/l})(8.34 \text{ lb/gal})(0.036 \text{ mgd}) = 9 \text{ lb/day (monthly average)}$$

$$\text{TSS} = (100 \text{ mg/l})(8.34 \text{ lb/gal})(0.036 \text{ mgd}) = 30 \text{ lb/day (daily maximum)}$$

$$\text{O\&G} = (15 \text{ mg/l})(8.34 \text{ lb/gal})(0.036 \text{ mgd}) = 4.5 \text{ lb/day (monthly average)}$$

$$\text{O\&G} = (20 \text{ mg/l})(8.34 \text{ lb/gal})(0.036 \text{ mgd}) = 6 \text{ lb/day (daily maximum)}$$

2. Daily Maximum Limits:

Outfall 001

TSS daily maximum mass limit is based on the flow on the plant water balance diagram in conjunction with the concentration given in 40 CFR 423.15(c). Calculation of the mass limits is shown in the previous section.

O&G daily maximum mass limit is based on the flow on the plant water balance in conjunction with the concentration given in Reg. 2.510. Calculation of the daily maximum mass limit is shown in the previous section.

Internal Outfall 01A – Cooling Tower Blowdown

FAC daily maximum mass limit is based on the flow on the plant water balance in conjunction with the concentration given in 40 CFR 423.15(j)(1). Calculation of the daily maximum mass limit is shown in the previous section and is based on an allowable discharge of FAC of 2 hours per day per generating unit. There are three generating units at this facility.

Chromium and Zinc daily maximum mass limits are based on the flow on the plant water balance in conjunction with the concentrations given in 40 CFR 423.15(j)(1). Calculations of the daily maximum mass limits is shown in the previous section.

Internal Outfall 01B – Low Volume Wastewater

TSS and O&G daily maximum mass limits are based on the flow on the plant water balance in conjunction with the concentrations given in 40 CFR 423.15(c). Calculation of the daily maximum mass limits are shown in the previous section.

3. Applicable Effluent Limitations Guidelines

Discharges from facilities of this type are covered by Federal effluent limitations guidelines promulgated under 40 CFR Part 423, Steam Electric Power Generating Point Source Category. Since this facility was constructed after 11/19/1982, the New Source Performance Standards within this effluent limitation guideline are applicable to this facility. These technology-based limits are summarized in the tables below:

40 CFR Part 423.15(j)(1) Technology-based Effluent Limits for Cooling Tower Blowdown		
Pollutant	Monthly Average	Daily Maximum
Free Available Chlorine	0.2 mg/L	0.5 mg/L
The priority pollutants contained in chemicals added for cooling tower maintenance, except for Chromium and Zinc	No detectable amount	No detectable amount
Chromium, Total Recoverable*	0.2 mg/L	0.2 mg/L
Zinc, Total Recoverable*	1.0 mg/L	1.0 mg/L
pH	6.0 – 9.0 s.u.	

* Chromium and Zinc monitoring at Internal Outfall 01A is waived during this permit term because the facility has certified that no cooling tower maintenance chemicals containing chromium or zinc are used at this facility.

40 CFR Part 423.15(c) Technology-based Effluent Limits for Low Volume Wastewater		
Pollutant	Monthly Average	Daily Maximum
Total Suspended Solids	30 mg/L	100 mg/L
Oil & Grease	15 mg/L	20 mg/L
pH	6.0 – 9.0 s.u.	

Technology-based Effluent Limits Included in the Permit		
Outfall 001 (combined discharge of Cooling Tower Blowdown and Low Volume Wastewater)		
Pollutant	Monthly Average	Daily Maximum
TSS	30 mg/l	100 mg/l
pH	6.0 – 9.0 s.u.	
Priority pollutants contained in cooling tower maintenance chemicals	See Condition Nos. 11 and 12 of Part II of the permit.	

Chemical metal cleaning wastes

The permit does not include the effluent guideline limits for chemical metal cleaning wastes in 40 CFR Part 423.15(d) because any wastewater generated by metal cleaning activities is collected, characterized, then transported off-site for proper disposal, and no metal cleaning waste is authorized to be discharged as stated in Part II, Condition No. 5 of the permit.

4. Stormwater Runoff

All stormwater runoff from this facility is discharged through stormwater outfalls 001, 002, and 003 and are covered under NPDES Industrial General Permit Tracking No. ARR000955 which was issued on 5/21/2012.

5. Temperature Calculations

Reg. 2.502 states that "Heat shall not be added to any waterbody in excess of the amount that will elevate the natural temperature, outside the mixing zone, by more than 5 degrees Fahrenheit based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) in streams, lakes, or reservoirs. Reg. 2.502 also states that "The maximum allowable temperatures from man-induced causes in the Ouachita River is 89.6 degrees Fahrenheit". Therefore it is imperative that two conditions be met to insure an appropriate temperature limitation on the discharge at Outfall 001.

First, the prohibition of raising the temperature outside the mixing zone by more than 5 degrees Fahrenheit was analyzed as follows:

The following equation was used to calculate the maximum temperature that the facility could discharge that would cause a 5 degree Fahrenheit rise of temperature in the receiving stream:

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

Where,

T_e = Maximum effluent temperature

Q_e = Effluent flow = 0.631 MGD = 0.978 cfs

T_u = Upstream temperature = 42.8°F (OUA006 lowest value from 1998-2010)

Q_u = Upstream flow = 271 cfs (7Q10 reported in 2008 USGS report for station 07359002 at Remmell Dam)

T_d = Downstream temperature after mixing = 47.8°F (increase of 5°F over upstream)

Q_d = Downstream flow = $Q_e + Q_u = 0.978 \text{ cfs} + 271 \text{ cfs} = 271.978 \text{ cfs}$

Solving for T_e ,

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

$$T_e = [(47.8 \times 271.978) - (42.8 \times 271)] / 0.978$$
$$T_e = 3919^\circ\text{F}$$

This shows that the effluent temperature would have to be 1433°F to cause a 5°F rise in the Ouachita River. Therefore, it is not necessary to impose a temperature limitation in the permit to prevent a temperature rise exceeding 5°F in the Ouachita River.

Next, the maximum allowable effluent temperature that would not cause a violation of the temperature standard of the Ouachita River was calculated using the following equation:

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

Where,

T_e = Maximum effluent temperature

Q_e = Effluent flow = 0.631 MGD = 0.978 cfs

T_u = Upstream temperature = 77.8°F (Avg summer (July-August) temperature from 1998-2010 at OUA006)

Q_u = Upstream flow = 271 cfs (7Q10 reported in 2008 USGS report for station 07359002 at Remmell Dam)

T_d = Downstream temperature after mixing = 89.6°F (Reg. 2 Temperature criteria)

Q_d = Downstream flow = $Q_e + Q_u = 0.978 \text{ cfs} + 271 \text{ cfs} = 271.978 \text{ cfs}$

Solving for T_e ,

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

$$T_e = [(89.6 \times 271.978) - (77.8 \times 271)] / 0.978$$

$$T_e = 3359^\circ\text{F}$$

This calculation shows that the effluent temperature would have to be over 3359°F to cause the temperature in the Ouachita River to exceed the temperature standard of 89.6°F, based on the average daily summer temperatures measured in July and August in the Ouachita River upstream of the outfall from 1998-2010. Therefore, it is not necessary to impose a temperature limitation in the permit to prevent a violation of the temperature standard in the Ouachita River.

D. Priority Pollutant Scan (PPS)

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

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

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

The following items were used in calculations:

Parameter	Value	Source
Effluent Flow (Q) Outfall 001	0.631 MGD = 0.978 cfs	Plant Water Balance diagram at 100% load (Figure 3 of application)
7Q10	271 cfs	USGS Station 07359002
TSS	2 mg/l	CPP Table 5-4 for Ouachita River above Caddo River
Hardness as CaCo3	28 mg/l	CPP Table 5-3 for Ouachita River
pH	7.2 s.u.	Average pH value of 85 values measured at ADEQ Station OUA0006 between 1998 and 2012.

The following pollutants were reported above the required MQL:

Pollutant	Concentration Reported, µg/l	MQL, µg/l
Arsenic	15	0.5
Copper	7.21	0.5
Mercury	0.0017	0.005
Nickel	1.87	0.5

ADEQ has determined from the submitted information that the discharge does not pose the reasonable potential to cause or contribute to an exceedance above a water quality standard.

19. WHOLE EFFLUENT TOXICITY.

Section 101(a)(3) of the Clean Water Act states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, ADEQ is required under 40 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 toxicity (WET) testing is the most direct measure of potential toxicity which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. It is the national policy of EPA to use bioassays as a measure of toxicity to allow evaluation of the effects of a discharge upon a receiving water (49 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.

Whole effluent toxicity testing of the effluent is thereby required as a condition of this permit to assess potential toxicity. The whole effluent toxicity testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS	FREQUENCY
48 hour Acute WET	Once/quarter

Requirements for measurement frequency are based on the CPP.

Since 7Q10 is greater than 100 cfs (ft³/sec) and dilution ratio is greater than 100:1, acute WET testing requirements will be included in the permit.

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

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

$$Q_d = \text{Average Flow} = 0.631 \text{ MGD} = 0.978 \text{ cfs}$$

$$7Q_{10} = 271 \text{ cfs}$$

$$Q_b = \text{Background flow} = 0.1 \times 0.25 \times 7Q_{10} = 6.78 \text{ cfs}$$

$$CD = ((0.978) / (0.978 + 6.78)) \times 100 = 13\%$$

Toxicity tests shall be performed in accordance with protocols described in "Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms", EPA/600/4-90/027. A minimum of five effluent dilutions in addition to an appropriate control

(0%) are to be used in the toxicity tests. These additional effluent concentrations are 5%, 7%, 10%, 13%, and 17% (See the CPP). The low-flow effluent concentration (critical dilution) is defined as 13% effluent. The requirement for acute WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species *Daphnia pulex* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 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-821-R-02-012, October 2002 and shall be submitted as an attachment to the Discharge Monitoring Report (DMR).

This permit may be reopened to require further WET testing studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if WET testing data submitted to the Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 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 outfall 001:

Permit Number: AR0049611 AFIN: 30-00343 Outfall Number: 001
 Date of Review: 12/10/2012 Reviewer: M. Barnett
 Facility Name: Arkansas Electric Cooperative Corporation – Magnet Cove Generating Station
 Previous Dilution series: 9, 12, 17, 22, 29 Proposed Dilution Series: 5, 7, 10, 13, 17
 Previous Critical Dilution: 22 Proposed Critical Dilution: 13
 Previous TRE activities: None

Frequency recommendation by species

Pimephales promelas (Fathead minnow): once per quarter
Daphnia pulex (water flea): once per quarter

TEST DATA SUMMARY

TEST DATE	Vertebrate		Invertebrate	
	Lethal	NOEC	Lethal	NOEC
12/6/2007	35		35	
3/6/2008	35		35	
6/6/2008	35		35	
9/6/2008	35		35	
12/6/2008	35		35	
3/6/2009	35		35	
6/6/2009	35		35	
9/6/2009	29		29	
12/31/2009	29		29	
3/31/2010	29		29	
6/30/2010	29		29	
9/30/2010	29		29	
12/31/2010	29		29	
3/31/2011	29		29	
6/30/2011	29		29	
9/30/2011	29		29	
12/31/2011	29		29	
3/31/2012	29		29	
6/30/2012	29		29	
9/30/2012	29		29	

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal		Invertebrate Lethal	
Min NOEC Observed	29		29	
TU at Min Observed	3.45		3.45	
Count	20		20	
Failure Count	0		0	
Mean	3.241		3.241	
Std. Dev.	0.289		0.289	
CV	0.1		0.1	
RPMF	1.1		1.1	
Reasonable Potential	0.493		0.493	
100/Critical dilution	7.692		7.692	
Does Reasonable Potential Exist	No		No	

PERMIT ACTION

<i>P. promelas</i> lethal -	Monitoring
<i>D. pulex</i> lethal -	Monitoring

20. SAMPLE TYPE AND FREQUENCY.

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40 CFR Part 122.48(b)] and to ensure compliance with permit limitations [40 CFR Part 122.44(i)(1)].

Sample type for flow at outfall 01B was changed from calculated to totalizing meter since facility already operates a totalizing meter on this outfall. Sample frequencies for TSS, O&G, pH at Outfall 001 were reduced based on compliance history. Sample frequencies for FAC and pH at Internal Outfall 01A were reduced based on compliance history. Sample frequency for pH at Internal Outfall 01B was reduced based on compliance history.

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Outfall 001				
Flow	once/day	totalizing meter	once/day	totalizing meter
TSS	once/week	grab	once/month	grab
O&G	once/week	grab	once/month	grab
pH	once/week	grab	once/month	grab
WET testing	once/quarter	24-hr composite	once/quarter	composite*
Internal Outfall 01A				
Flow	once/day	totalizing meter	once/day	totalizing meter
FAC	once/week	grab	once/month	grab
pH	once/week	grab	once/month	grab
Internal Outfall 01B				
Flow	once/day	calculated	once/day	totalizing meter
TSS	once/month	grab	once/month	grab
O&G	once/month	grab	once/month	grab
pH	once/week	grab	once/month	grab

*Composite sample for WET testing is defined in Condition No. 14 of Part II.

21. PERMIT COMPLIANCE.

A Schedule of Compliance has not been included in this permit. Compliance with all permit requirements is required on the effective date of the permit.

22. 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.

23. SOURCES.

The following sources were used to redraft the permit:

- A. Application No. AR0049611 received 10/27/2011.
- B. APCEC Regulation No. 2.
- C. APCEC Regulation No. 3.
- D. APCEC Regulation No. 6.
- E. 40 CFR Parts 122, 125, and 423.
- F. Discharge permit file AR0049611.
- G. Discharge Monitoring Reports (DMRs).
- H. "Arkansas Water Quality Inventory Report 2008 (305B)", ADEQ.
- I. "Low Flow Characteristics for Selected Streams in Arkansas", 2008, USGS.
- J. Continuing Planning Process (CPP).
- K. Technical Support Document For Water Quality-based Toxic Control.
- L. Inspection Report dated 12/15/2011.
- M. Letter dated 5/11/2012 from Robert Smith, Plant Manager to Shane Byrum, ADEQ.
- N. Site visit on 8/9/2012.
- O. Figure 3 of renewal application (Plant Water Balance diagram).
- P. Letter dated 11/13/2012 from Stephen Cain (AECC) to Shane Byrum (ADEQ) containing comments on draft permit public noticed on 10/13/2012.
- Q. Emails dated 12/05/2012, 12/10/2012 and 1/2/2013 from Shane Byrum (ADEQ) to Stephen Cain (AECC).
- R. Emails dated 12/12/2012 and 1/2/2013 from Stephen Cain (AECC) to Shane Byrum (ADEQ).

24. POINT OF CONTACT.

For additional information, contact:

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