

**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.),

Albemarle Corporation
West Plant

is authorized to discharge treated sanitary wastewater, non-contact cooling water, boiler blowdown, boiler de-aerator blowdown, cooling tower purge, miscellaneous sources (including steam condensate, external seal flushes, freeze protection, and safety showers), hot weather make-up, and stormwater through Outfall 001, and treated sanitary wastewater through Internal Outfall 001A from a facility located as follows: 1550 Highway 371 South, Magnolia, AR 71753, in Columbia County. From the intersection of US Hwy 371 and US Highway 82B in Magnolia, proceed 4.2 miles west on Highway 371 and turn right onto a private entrance road at the "Albemarle" sign. Proceed approximately 0.6 miles north to the security gate.

Facility Coordinates: Latitude: 33° 15' 51.4" N; Longitude: 93° 18' 49.9" W

Discharge is to receiving waters named:

an unnamed tributary, thence to Dismukes Creek, then to Big Creek, then to Bayou Dorcheat in Segment 1A of the Red River Basin.

The outfall is located at the following coordinates:

Outfall 001: Latitude: 33° 15' 37.5" N; Longitude: 93° 18' 42.3" W
Internal Outfall 001A: Latitude: 33° 15' 43.9" N; Longitude: 93° 18' 52.3" W

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 180 days prior to the expiration date below for permit coverage to continue beyond the expiration date.

Effective Date: October 1, 2022
Minor Modification Effective Date: September 27, 2022
Expiration Date: September 30, 2027

09/27/2022

Alan J. York
Associate Director, Office of Water Quality
Arkansas Department of Energy and Environment
Division of Environmental Quality

Minor Modification Issue Date

<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.		
<i>C. dubia</i> Chronic WET Limits 51710 ^{5, 6}			<u>7-Day Minimum</u> Sub-lethality Not < 80% (June-Nov) Not < 59% (Dec-May)		once/quarter ⁵	composite
<u><i>Ceriodaphnia dubia</i> (Chronic)</u> ^{5, 6} Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Reproduction (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter ⁵ once/quarter once/quarter ⁵ once/quarter ⁵	composite composite composite composite composite

¹. See Part II.7 (MQL Condition).

². For one year from the effective date of the permit. See Part II.8 (Arsenic Condition).

³. See Part II.5 (WET Testing – Monitoring Condition).

⁴. **CONDITIONAL REPORTING:** Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under retest parameters (reported on a quarterly DMR). This condition applies to *P. promelas*.

⁵. See Part II.6 (WET Testing – Limits Condition).

⁶. As per Part II.6 (WET Testing – Limits Condition), the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs (51710, TPP3B, TGP3B, TQP3B). This condition applies to *C. dubia*.

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. 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 the final treatment unit, prior to the receiving stream.

<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.		
<i>C. dubia</i> Chronic WET Limits 51710 ^{5, 6}			<u>7-Day Minimum</u> Lethality Not < 100% (June-Nov) Not < 54% (Dec-May) Sub-lethality Not < 80% (June-Nov) Not < 54% (Dec-May)		once/quarter ⁵	composite
<u><i>Ceriodaphnia dubia</i> (Chronic)</u> ^{5, 6} Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Reproduction (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Minimum</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter ⁵ once/quarter once/quarter ⁵ once/quarter ⁵	composite composite composite composite composite

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⁴. **CONDITIONAL REPORTING:** Use only if conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution). If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one routine toxicity test. If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under retest parameters (reported on a quarterly DMR). This condition applies to *P. promelas*.

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⁶. As per Part II.6 (WET Testing – Limits Condition), the permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs (51710, TLP3B, TGP3B, TOP3B, TQP3B, TPP3B). This condition applies to *C. dubia*.

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. 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 the final treatment unit, prior to the receiving stream.

SECTION A3. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: INTERNAL OUTFALL 001A - treated sanitary wastewater

During the period beginning on the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 001A. Such discharges shall be limited and monitored by the permittee as specified below as well as Parts II and III. See Part IV for all definitions.

<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	two/week	totalizing meter
Biochemical Oxygen Demand (BOD5)	3.8	5.6	30.0	45.0	once/quarter	grab
Total Suspended Solids (TSS)	3.8	5.6	30.0	45.0	once/quarter	grab
Fecal Coliform Bacteria (FCB)			(colonies/100ml)			
	N/A	N/A	1000	2000	once/quarter	grab

Oil, grease, or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota. 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 the final treatment unit, at the internal outfall.

SECTION B. PERMIT COMPLIANCE SCHEDULE

Compliance with the Final Whole Effluent Toxicity Lethality Limits for *C. dubia* is required three years after the effective date of the permit. The permittee shall submit progress reports addressing the progress towards attaining the Final Effluent Limitations for the aforementioned parameters according to the following schedule:

<u>ACTIVITY</u>	<u>DUE DATE</u>
Progress Report ^{1,2}	One (1) year from effective date
Progress Report ^{1,3}	Two (2) years from effective date
Achieve Final Compliance ^{1,4}	Three (3) years from effective date

All progress reports must be submitted to the Division at the following address:

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

Information can also be submitted electronically via email at water-enforcement-report@adeq.state.ar.us.

- ¹ If the permittee is already in compliance with a final permit limit, only documentation demonstrating compliance with the final limit will be required for the progress report.
- ² If the permittee is not in compliance with the Final Limitations following one (1) year of sampling, the initial Progress Report must detail how the permittee plans to come into compliance with the final limits within the remaining 2 years of the interim period. Options must be provided that were considered along with which option* was selected. Any Best Management Practices (BMPs) that have been instituted to reduce the concentration in the influent must also be discussed. If a study will be performed, a milestone schedule for the study must be provided.
 - * The permittee has the option to undertake any study deemed necessary to meet the final limitations during the interim period. Any additional treatment (including chemical addition) must be approved and construction approval granted prior to final installation.
- ³ The second Progress Report must contain an update on the status of the chosen option from the initial Progress Report. If the facility is not meeting any of the milestones provided in the initial Progress Report, the facility must update the milestone schedule to show how the final limits will be met by the deadline.
- ⁴ A final Progress Report must be submitted no later than 30 days following the final compliance date and include a certification that the final effluent limits were met on the effective date and that the limits are still being met.

PART II OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall hold at least a Class II and Basic Industrial licenses from the State of Arkansas in accordance with APC&EC Rule 3.
2. In accordance with 40 C.F.R. §§ 122.62(a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

3. Other Specified Monitoring Requirements

The permittee may use alternative appropriate monitoring methods and analytical instruments other than as specified in Part I 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 Branch of the Office of Water Quality of the DEQ for use of the alternate method or instrument.
- The method and/or instrument is in compliance with 40 C.F.R. § 136 or approved in accordance with 40 C.F.R. § 136.5.
- All associated devices are installed, calibrated, and maintained to ensure 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 Assurance/Quality Control (QA/QC) 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. DEQ must be notified in writing and the permittee must receive written approval from DEQ if the permittee decides to return to the original permit monitoring requirements.

4. Best Management Practices (BMPs), as defined in Part IV.7, must be implemented for the facility to prevent or reduce the pollution of waters of the State from stormwater runoff, spills or leaks, and/or waste disposal. The permittee must amend the BMPs whenever there is a change in the facility or a change in the operation of the facility.

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

This section applies to *P. promelas* only.

A. SCOPE AND METHODOLOGY

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

APPLICABLE TO FINAL OUTFALL:	001
REPORTED ON DMR AS FINAL OUTFALL:	001
CRITICAL DILUTION (%):	June – November 100 December – May 54
EFFLUENT DILUTION SERIES (%):	June – November 32, 42, 56, 80, 100 December – May 23, 30, 41, 54, 72

TESTING FREQUENCY:

Pimephales promelas twice/year (once June-Nov – once Dec-May)

COMPOSITE SAMPLE TYPE: Defined in Paragraph C.iv.a

TEST SPECIES/METHODS: 40 C.F.R. Part 136

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

- ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., growth) at test completion to a test species at or below the critical dilution.
- iii. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. PERSISTENT LETHAL and/or SUB-LETHAL EFFECTS

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution. The purpose of retests is to determine the duration of a toxic event. A test that meets all test

acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

In addition:

i. Part I Testing Frequency Other Than Monthly

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

C. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

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

- a. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

- b. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.
- c. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the growth and survival endpoints of the Fathead minnow test.
- d. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the growth and survival endpoints of the Fathead minnow test.
- e. 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 growth and survival endpoints of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- f. 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%.
- g. A PMSD range of 12 - 30 for Fathead minnow growth.

ii. Statistical Interpretation

For the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA/821/R-02-013 or the most recent update thereof.

- a. If the conditions of Test Acceptability are met in Item C.i above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item D below.

iii. Dilution Water

- a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;
 - (1) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - (2) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.

- b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item C.i), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
- (1) a synthetic dilution water control which fulfills the test acceptance requirements of Item C.i was run concurrently with the receiving water control;
 - (2) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);
 - (3) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item D below; and
 - (4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iv. Samples and Composites

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

during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item D of this section.

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

D. REPORTING

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

- (3) Report the NOEC value for growth, Parameter No. TPP6C
- (4) If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C
- (5) Report the highest (critical dilution or control) Coefficient of Variation for growth, Parameter No. TQP6C
- (6) If conducting retests due to a test failure (demonstration of significant toxic effects at or below the critical dilution):
 - (A) Consecutive Monthly Retest 1: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a "1"; otherwise, enter a "0" under Parameter No. 22418 (reported on semi-annual DMR);
 - (B) Consecutive Monthly Retest 2: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a "1"; otherwise, enter a "0" under Parameter No. 22419 (reported on semi-annual DMR);
 - (C) Consecutive Monthly Retest 3: If the NOEC (lowest lethal or sub-lethal) for *P. promelas* is less than the critical dilution, enter a "1"; otherwise, enter a "0" under Parameter No. 51444 (reported on semi-annual DMR);
 - (D) If testing on a quarterly basis, the permittee may substitute one of the retests in lieu of one scheduled toxicity test;
 - (E) If retests are not required, Report NODI=9 (Conditional Monitoring - Not Required This Period) under Parameter Nos. 22418, 22419, 51444 (reported on semi-annual DMR)

iv. DMR parameters

Report the following parameters on the DMR:

- (a) Scheduled DMR: TLP6C, TOP6C, TPP6C, TGP6C, TQP6C, 22418, 22419, 51444

E. TOXICITY REDUCTION EVALUATIONS (TREs)

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

- i. Within ninety (90) days of confirming toxicity, as outlined above, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an

investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The goal of the TRE is to maximally reduce the toxic effects of effluent at the critical dilution and includes the following:

- a. **Specific Activities.** The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity Characterization Procedures, the permittee shall perform multiple characterizations and follow the procedures specified in the documents "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA-600/6-91/003) and "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA-600/6-91/005F), or alternate procedures. When the permittee conducts Toxicity Identification Evaluations and Confirmations, the permittee shall perform multiple identifications and follow the methods specified in the documents "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081), as appropriate.

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

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

- b. **Sampling Plan** (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;
- c. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 48 hours of test initiation, each composite sample shall be analyzed independently. Otherwise, the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;

- d. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and
 - e. Project Organization (e.g., project staff, project manager, consulting services, etc.).
- ii. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve the required toxicity reduction.
 - iii. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity reduction evaluation activities including:
 - a. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - b. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - c. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at the critical dilution.
 - iv. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming toxicity in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant toxicity at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.
 - v. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).
6. WHOLE EFFLUENT TOXICITY LIMITS (7-DAY CHRONIC NOEC FRESHWATER)

This section applies to *C. dubia* only.

A. SCOPE AND METHODOLOGY

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

APPLICABLE TO FINAL OUTFALL: 001

REPORTED ON DMR AS FINAL OUTFALL: 001

CRITICAL DILUTION (%):	June – November	100
	December – May	54
EFFLUENT DILUTION SERIES (%):	June – November	32, 42, 56, 80, 100
	December – May	23, 30, 41, 54, 72
CHRONIC LIMIT - LETHALITY:	June – November	not < 100%
	December – May	not < 54%
CHRONIC LIMIT - SUB-LETHAL:	June – November	not < 80%
	December – May	not < 54%
SCHEDULE OF COMPLIANCE:	YES, Lethal only	
TESTING FREQUENCY:	once/quarter	
COMPOSITE SAMPLE TYPE:	Defined in Paragraph B.iv.a	
TEST SPECIES/METHODS:	40 C.F.R. § 136	

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

- ii. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity (lethal or sub-lethal) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., reproduction) at test completion to a test species at or below the critical dilution.
- iii. The conditions of this item are effective beginning with the effective date of the WET limit. When the effluent fails the chronic endpoint below the required limit specified in Item A.i., the permittee shall be considered in violation of this permit limit and the frequency for the affected species will increase to monthly until such time compliance with the No Observed Effect Concentration (NOEC) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in PART I of this permit. The purpose of the increased frequency WET testing 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.

- iv. If under a TRE, the permittee may conduct quarterly testing as a minimum monitoring requirement for the organism(s) under investigation for the duration of the TRE. Upon completion of the TRE, monitoring will revert back to the conditions specified in Item A.iii.
- v. This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

B. REQUIRED TOXICITY TESTING CONDITIONS

i. Test Acceptance

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

- a. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
- b. The mean number of *Ceriodaphnia dubia* neonates produced per surviving female in the control (0% effluent) must be 15 or more.
- c. 60% of the surviving control females must produce three broods.
- d. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the *Ceriodaphnia dubia* reproduction test.
- e. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the young of surviving females in the *Ceriodaphnia dubia* reproduction test;.
- f. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the young of surviving females in the *Ceriodaphnia dubia* reproduction test;, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
- g. 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%.
- h. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for *Ceriodaphnia dubia* reproduction;

ii. Statistical Interpretation

- a. For the *Ceriodaphnia dubia* survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA-821-R-02-013 or the most recent update thereof.

- b. For the *Ceriodaphnia dubia* reproduction test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA-821-R-02-013, or the most recent update thereof.
 - c. If the conditions of Test Acceptability are met in Item B.i above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item C below.
- iii. Dilution Water

- a. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water where the receiving stream is classified as intermittent or where the receiving stream has no flow due to zero flow conditions.
- b. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item B.i), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - (1) a synthetic dilution water control which fulfills the test acceptance requirements of Item B.i was run concurrently with the receiving water control;
 - (2) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);
 - (3) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item C.i below; and
 - (4) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

iv. Samples and Composites

- a. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item A.i above. Unless otherwise stated in this section, a composite sample for WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.

- b. The permittee must collect all three flow-weighted composite samples within the monitoring period. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.
- c. The permittee must collect all three flow-weighted composite samples within the monitoring period. Second and/or third composite samples shall not be collected into the next monitoring period; such tests will be determined to not meet either reporting period requirements. Monitoring period definitions are listed in Part IV.
- d. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to between 0 and 6 degrees Centigrade during collection, shipping, and/or storage.
- e. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item C of this section
- f. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item A.i above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.
- g. If chlorination is part of the treatment process, the permittee shall not allow the sample to be dechlorinated at the laboratory. At the time of sample collection the permittee shall measure the TRC of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

C. REPORTING

- i. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA-821-R-02-013, or the most current publication, for every valid or invalid toxicity

test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.

- ii. The permittee shall report the Whole Effluent Toxicity NOECs under Parameter No. 51710 for *C. dubia*, on the Scheduled DMR for that reporting period in accordance with PART III.D.4 of this permit.

A valid test for each species must be reported on the Scheduled DMR during each reporting period specified in PART I of this permit. The full reports for all valid tests, invalid tests, repeat tests (for invalid tests), and increased frequency tests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.

- iii. The permittee shall submit the results of the valid toxicity test on the Scheduled DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. The permittee shall submit the results of the valid monthly increased frequency toxicity tests on the Unscheduled DMRs. If testing on a quarterly basis, the permittee may substitute one of the monthly increased frequency toxicity tests in lieu of one Scheduled toxicity test on the Scheduled DMR. Only results of valid tests are to be reported on a DMR.

- a. *Ceriodaphnia dubia*

- (1) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B
- (2) Report the NOEC value for survival, Parameter No. TOP3B
- (3) Report the NOEC value for reproduction, Parameter No. TPP3B
- (4) If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B
- (5) Report the higher (critical dilution or control) Coefficient of Variation for reproduction, Parameter No. TQP3B
- (6) Prior to the lethal limit effective date, report the NOEC value for reproduction, Limit Parameter No. 51710.
- (7) Once the lethal limit is effective, report the lowest NOEC value for survival or reproduction, Limit Parameter No. 51710.
- (8) The permittee shall submit the results of the monthly increased frequency toxicity tests on the Unscheduled DMRs.

iv. DMR parameters

Report the following parameters on the DMR:

(a) Scheduled DMR: 51710, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B

(b) Unscheduled DMR: 51710, TLP3B, TOP3B, TPP3B, TGP3B, TQP3B

7. Minimum Quantification Levels for Metals

The permittee may use any EPA approved method based on 40 CFR Part 136 provided the MQL for the chosen method is equal to or less than what has been specified in chart below:

Pollutant	MQL (µg/l)
Arsenic, Total Recoverable	0.5
Chromium IV, Dissolved	10
Copper, Total Recoverable	0.5
Lead, Total Recoverable	0.5
Zinc, Total Recoverable	20

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

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

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

8. Monitoring and Reporting of Arsenic

The requirement to sample, analyze, and report the Monthly Average and Daily Maximum values of Concentration of Total Recoverable Arsenic (As) in the effluent, in accordance with the requirements in Part IA Section A1 of the permit, is applicable for one year from the effective date of the permit. After the results of four (4) samples have been reported in accordance with the above requirements, the permittee may cease the monitoring and reporting of Total Recoverable Arsenic.

9. The discharge of process wastewaters is prohibited, in accordance with 40 CFR 415.292.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

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

2. Penalties for Violations of Permit Conditions

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

3. Permit Actions

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

- A. Violation of any terms or conditions of this permit.
- B. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.
- C. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- D. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
- E. Failure of the permittee to comply with the provisions of APC&EC Rule 9 (Permit fees) as required by Part III.A.11 herein.

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

4. **Toxic Pollutants**

Notwithstanding Part III.A.3, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under APC&EC Rule 2, as amended, or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the permittee so notified.

The permittee shall comply with effluent standards, narrative criteria, or prohibitions established under APC&EC Rule 2, as amended, or Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. **Civil and Criminal Liability**

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

6. **Oil and Hazardous Substance Liability**

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

7. **State Laws**

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

8. **Property Rights**

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

9. **Severability**

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

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

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

11. **Permit Fees**

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for wastewater discharge permits as described in APC&EC Rule 9 (Rule 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 C.F.R. §§ 122.64 and 124.5(d), as adopted in APC&EC Rule 6 and the provisions of APC&EC Rule 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 ensure compliance with the conditions of this permit.

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

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

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

3. **Duty to Mitigate**

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

4. **Bypass of Treatment Facilities**

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

A. Bypass not exceeding limitation

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

B. Notice

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

C. Prohibition of bypass

1. Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime 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.
 4. The permittee complied with any remedial measures required by Part III.B.3.
- C. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

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

7. Power Failure

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

SECTION C – MONITORING AND RECORDS

1. Representative Sampling

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

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

2. **Flow Measurement**

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure 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 Division approved method (i.e., as allowed in the *Other Specified Monitoring Requirements* condition under Part II), 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 Division.

3. **Monitoring Procedures**

Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 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 ensure accuracy of measurements and shall ensure 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 ensure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory. At a minimum, spikes and duplicate samples are to be analyzed on 10% of the samples.

4. **Penalties for Tampering**

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

5. **Reporting of Monitoring Results**

40 C.F.R. § 127.11(a)(1) and 40 C.F.R. § 127.16(a) require that monitoring reports must be reported on a Discharge Monitoring Reports (DMR) and filed electronically. Signatory

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

6. **Additional Monitoring by the Permittee**

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

7. **Retention of Records**

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

8. **Record Contents**

Records and monitoring information shall include:

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

9. **Inspection and Entry**

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
- B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

- C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
- D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D – REPORTING REQUIREMENTS

1. Planned Changes

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

- A. The alteration or addition to a permitted facility may meet one of the criteria for new sources at 40 C.F.R. § 122.29(b).
- B. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to the notification requirements under 40 C.F.R. § 122.42(b).

2. Anticipated Noncompliance

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

3. Transfers

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

4. Monitoring Reports

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

5. Compliance Schedule

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

6. **Twenty-four Hour Report**

Please be aware that the notifications can be sent by email to water-enforcement-report@adeq.state.ar.us or at 501-682-0624 for immediate reporting:

A. The permittee shall report any noncompliance which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances to the Enforcement Branch of the Office of Water Quality of DEQ. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:

1. A description of the noncompliance and its cause.
2. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue.
3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

B. The following must be reported within 24 hours:

1. Any unanticipated bypass which exceeds any effluent limitation in the permit.
2. Any upset which exceeds any effluent limitation in the permit.
3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit.

C. The Director may waive the written report on a case-by-case basis if the notification has been received within 24 hours to the Enforcement Branch of the Office of Water Quality of the DEQ.

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 including Existing Manufacturing, Commercial, Mining, and Silvicultural Dischargers**

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

A. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant including those listed in 40 C.F.R. § 401.15 which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 C.F.R. § 122.42(a)(1).

- B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant including those listed in 40 C.F.R. § 401.15 which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 C.F.R. § 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 implemented through procedures outlined by APC&EC Rule 6.

11. **Signatory Requirements**

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

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

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

2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively.
 3. For a municipality, State, Federal, or other public agency, by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - (a) The chief executive officer of the agency.
 - (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- B. All **reports** required by the permit and **other information** requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
1. The authorization is made in writing by a person described above.
 2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).
 3. The written authorization is submitted to the Director.
- C. Certification. Any person signing a document under this section shall make the following certification:
- “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

12. **Availability of Reports**

Except for data determined to be confidential under 40 C.F.R. § 2 and APC&EC Rule 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Environmental Quality. As required by the Rules, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. **Penalties for Falsification of Reports**

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

14. **Other Information**

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

PART IV DEFINITIONS

All definitions contained in Section 502 of the Clean Water Act and 40 C.F.R. § 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. **“7-Day Average”** also known as “average weekly,” means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week. The 7-Day Average for Fecal Coliform Bacteria (FCB) or *E. coli* is the geometric mean of the “daily discharges” of all effluent samples collected during a calendar week in colonies per 100 ml.
2. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
3. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
4. **“APC&EC”** means the Arkansas Pollution Control and Ecology Commission.
5. **“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.
6. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (APC&EC) Rule 2, as amended.
7. **“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.
8. **“Bypass”** means the intentional diversion of waste streams from any portion of a treatment facility, as defined at 40 C.F.R. § 122.41(m)(1)(i).
9. **“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.
10. **“CV”** means coefficient of variation.
11. **“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.

12. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month.
13. **“Director”** means the Director of the Division of Environmental Quality.
14. **“Dissolved oxygen limit”** shall be defined as follows:
 - A. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month.
 - B. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
15. **“E. coli”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For *E. coli*, report the Daily Maximum as the highest “daily discharge” during the calendar month and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
16. **“Division”** means the Division of Environmental Quality (DEQ).
17. **“Fecal Coliform Bacteria (FCB)”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For FCB, report the Daily Maximum as the highest “daily discharge” during the calendar month and the Monthly Average as the geometric mean of all “daily discharges” within a calendar month, in colonies per 100 ml.
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 C.F.R. § 403, introducing pollutants to a publicly owned treatment works (POTW).
20. **“Instantaneous flow measurement”** means the flow measured during the minimum time required for the flow-measuring device or method to produce a result in that instance. To the extent practical, instantaneous flow measurements coincide with the collection of any grab samples required for the same sampling period so that together the samples and flow are representative of the discharge during that sampling period.
21. **“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.
22. **“Instantaneous Minimum”** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
23. **“Monitoring and Reporting”**

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

 - A. **MONTHLY:**

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

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

C. QUARTERLY:

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

D. SEMI-ANNUAL:

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

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.

24. **“Monthly Average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or *E. coli*, report the Monthly Average as the geometric mean of all “daily discharges” within a calendar month.
25. **“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.
26. **“NOEC”** means No Observed Effect Concentration.
27. **“PMSD”** means Percent Minimum Significant Difference.
28. **“POTW”** means Publicly Owned Treatment Works;
29. **“Reduction of CBOD₅/BOD₅ and TSS in mg/l Formula”**
[(Influent – Effluent) / Influent] × 100
30. **“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.
31. **“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.
32. **“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.

33. **Units of Measure:**

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

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

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

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

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

“**s.u.**” shall mean standard units.

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

35. “**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.

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

Final Statement of Basis

This Statement of Basis is for information and justification of the permit requirements only. Please note that it is not enforceable. This permitting decision is for the renewal of discharge Permit Number AR0047635 with Arkansas Department of Energy and Environment – Division of Environmental Quality (DEQ) Arkansas Facility Identification Number (AFIN) 14-00011 to discharge to Waters of the State.

1. PERMITTING AUTHORITY

The issuing office is:

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

2. APPLICANT

The applicant's mailing address is:

Albemarle Corporation - West Plant
P.O. Box 729
Magnolia, AR 71754-0729

The facility address is:

Albemarle Corporation - West Plant
1550 Highway 371 South
Magnolia, AR 71753

3. PREPARED BY

The permit was prepared by:

Guy Lester, P.E.
Staff Engineer
NPDES Discharge Permits Section
Office of Water Quality
(501) 519-0304
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Jessica Sears, P.E.
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NPDES Discharge Permits Section
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4. PERMIT ACTIVITY

Previous Permit Effective Date: September 1, 2016
Previous Permit Expiration Date: August 31, 2021

The permittee submitted a permit renewal application on February 24, 2021, and all additional information was received by July 19, 2021. The current discharge permit is being reissued for a 5-year term in accordance with regulations promulgated at 40 C.F.R. § 122.46(a).

DOCUMENT ABBREVIATIONS

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

APC&EC - Arkansas Pollution Control and Ecology Commission

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

Rule 2 - APC&EC Rule 2

Rule 6 - APC&EC Rule 6

Rule 8 - APC&EC Rule 8

Rule 9 - APC&EC Rule 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

USGS - United States Geological Survey

WET - whole effluent toxicity
WQMP - water quality management plan
WQS - Water Quality standards
WWTP - wastewater treatment plant

Compliance and Enforcement History:

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

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0047635_Compliance%20Review_20210426.pdf

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT

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

1. The applicant's mailing address has been removed from the cover page of the permit.
2. Cooling tower purge has been added to wastestream description for Outfall 001.
3. The facility coordinates have been revised for accuracy.
4. Monitoring and reporting requirements for Chromium VI, Copper, and Zinc have been included in the permit. See Section 11.F below for details.
5. The Critical Dilution and the Dilution Series for December – May have been revised. See Section 12 below for details.
6. WET Lethality limits for *C. dubia* have been included in the permit. See Section 12 below for details.
7. The Schedule of Compliance in Part IB of the previous permit has been removed because the Lead limitations are now in effect.
8. A Schedule of Compliance for the new WET Lethality limits for *C. dubia* has been included in Part IB of the permit.
9. Part II.10 of the previous permit, the sludge disposal condition, was removed from the permit. Sludge disposal is addressed in Part III.B.6 of the permit.
10. Part III.C.5 of the permit now requires that DMRs be submitted electronically via NetDMR.

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION

The outfall is located at the following coordinates based on the renewal application, and confirmed with Google Earth using WGS84:

Latitude: 33° 15' 37.5" N; Longitude: 93° 18' 42.3" W

The receiving waters named:

an unnamed tributary, thence to Dismukes Creek, then to Big Creek, then to Bayou Dorcheat in Segment 1A of the Red River Basin. The receiving stream with Assessment Unit AR_11140203_924 (closest downstream 3-digit reach code assigned to Dismukes Creek) is a Water of the State classified for secondary contact recreation, industrial, and agricultural water supplies; propagation of desirable species of fish and other aquatic life; and other compatible uses.

7. 303(d) LIST, TOTAL MAXIMUM DAILY LOADS, ENDANGERED SPECIES, AND ANTI-DEGRADATION CONSIDERATIONS

A. 303(d) List

The initial receiving stream is not listed on the 2018 303(d) list. Approximately 13.6 miles downstream of the outfall, the receiving stream flows into Assessment Unit AR_11140203_022 (Bayou Dorcheat), which is on the 2018 303(d) list as impaired for Siltation/Turbidity. The permit includes limitations for TSS. A TMDL has not been developed for the Siltation/Turbidity impairment. When a TMDL is issued, and if a waste load allocation is assigned to the facility, conditions consistent with the assumptions and requirements of the TMDL will be implemented in the subsequent permit renewal. No additional permit action is required at this time.

B. Applicable Total Maximum Daily Load (TMDL) Reports

“TMDLs for Chloride, Copper, Dissolved Oxygen, Lead, pH, Sulfate, TDS, and Turbidity in the Bodcau Creek and Dorcheat Bayou Watersheds, Arkansas” (the TMDL) was issued on September 27, 2012. Big Creek (HUC+Reach 11140203+923), downstream from the discharge point, is listed as impaired for Lead and pH. Bayou Dorcheat (HUC+Reach 11140203+022), further downstream, is listed as impaired for Lead, Sulfates, and pH.

The TMDL specifies Waste Load Allocations (WLAs) for the facility for Total Lead of 2.67 µg/l concentration and 0.0101 lbs/day mass. These WLAs were included in the previous permit as Monthly Avg. concentration and mass limitations, respectively. These limitations have been continued in the permit. No additional permit action for Lead is required.

Concerning pH, the TMDL states, “The WLA for each pH TMDL in this report is expressed as the following statement: All point source discharges must have a pH between 6.0 s.u. and 9.0 s.u. The permit includes these limits for pH. No additional permit action for pH is required.

Concerning Sulfates, the TMDL does not assign a WLA for Sulfates to the facility. Therefore, no permit action for Sulfates is required.

C. Endangered Species

No comments on the application were received from the USF&WS. The draft permit and Statement of Basis were sent to the USF&WS for their review.

D. Anti-Degradation

The limitations and requirements set forth in this permit for discharge into Waters of the State are consistent with the Anti-degradation Policy and all other applicable water quality standards found in APC&EC Rule 2.

8. OUTFALL, TREATMENT PROCESS DESCRIPTION, AND FACILITY CONSTRUCTION

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

A. Outfall 001 Average Flow: 0.287 MGD (highest monthly avg. flow June 2019-May 2021)

Internal Outfall 001A Design Flow: 0.015 MGD

B. Type of Treatment:

Outfall 001: 2 cell artificial marsh

Internal Outfall 001A: activated sludge package plant with chlorine disinfection

C. Discharge Description:

Outfall 001: treated sanitary wastewater, non-contact cooling water, boiler blowdown, boiler de-aerator blowdown, cooling tower purge, miscellaneous sources (including steam condensate, external seal flushes, freeze protection, and safety showers), hot weather make-up, and stormwater

Internal Outfall 001A: treated sanitary 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 20 is less than 80, this facility is classified as a minor 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 Rule 6.202.

9. ACTIVITY

Under the Standard Industrial Classification (SIC) code of 2819 or North American Industry Classification System (NAICS) code of 325188, the applicant's activities are the operation of a bromine production plant.

10. SEWAGE SLUDGE PRACTICES

Waste sludge shall be removed from the sanitary wastewater treatment system, as required, by a septic tank hauler licensed by the Arkansas Department of Health.

11. DEVELOPMENT AND BASIS FOR PERMIT CONDITIONS

The Division of Environmental Quality has determined to issue a permit for the discharge described in the application. Permit requirements are based on federal regulations (40 C.F.R. §§ 122, 124, and Subchapter N), and regulations promulgated pursuant to the Arkansas

Water and Air Pollution Control Act (Ark. Code Ann. 8-4-101 et seq.). All of the information contained in the application, including all of the submitted effluent testing data, was reviewed to determine the need for effluent limits and other permit requirements.

The following is an explanation of the derivation of the conditions of the 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 C.F.R. § 124.7.

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

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

Parameter	Water Quality-Based		Technology-Based		Previous Permit		Final Permit	
	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l	Monthly Avg. mg/l	Daily Max. mg/l
OUTFALL 001								
TSS	N/A	N/A	35.0	52.5	35.0	52.5	35.0	52.5
Temperature	86°F (Inst. Max.)		N/A		86°F (Inst. Max.)		86°F (Inst. Max.)	
TOC	N/A	N/A	N/A	50.0	N/A	50.0	N/A	50.0
DO	2.0 (Inst. Min.)		N/A		2.0 (Inst. Min.)		2.0 (Inst. Min.)	
O&G	10	15	N/A	N/A	10	15	10	15
Total Dissolved Chromium VI	N/A	N/A	Report (µg/l)	Report (µg/l)	N/A	N/A	Report (µg/l)	Report (µg/l)
Total Recoverable Copper	N/A	N/A	Report (µg/l)	Report (µg/l)	N/A	N/A	Report (µg/l)	Report (µg/l)
Total Recoverable Lead	2.67 µg/l	5.36 µg/l	N/A	N/A	2.67 µg/l	5.36 µg/l	2.67 µg/l	5.36 µg/l
Total Recoverable Zinc	N/A	N/A	Report (µg/l)	Report (µg/l)	N/A	N/A	Report (µg/l)	Report (µg/l)
Total Recoverable Arsenic	N/A	N/A	Report (µg/l)	Report (µg/l)	Report (µg/l)	Report (µg/l)	Report (µg/l)	Report (µg/l)
pH	6.0-9.0 s.u.		N/A		6.0-9.0 s.u.		6.0-9.0 s.u.	
INTERNAL OUTFALL 001A								
BOD ₅	N/A	N/A	30	45	30.0	45.0	30	45
TSS	N/A	N/A	30.0	45.0	30.0	45.0	30.0	45.0
FCB (col/100ml)	1000	2000	N/A	N/A	1000	2000	1000	2000

A. Justification for Limitations and Conditions of the Final Permit

Parameter	Water Quality or Technology	Justification
OUTFALL 001		
TSS	Technology	40 C.F.R. § 122.44(l) and previous permit
Temperature	Water Quality	Rule 2.502, CWA 402(o), and previous permit
TOC	Technology	40 C.F.R. § 122.44(l) and previous permit
DO	Water Quality	Rule 2.505, CWA 402(o), and previous permit
O&G	Water Quality	Rule 2.510, CWA 402(o), and previous permit
Total Dissolved Chromium VI ¹	Technology	Rule 2.508 and best engineering judgment of the permit writer
Total Recoverable Copper ¹	Technology	Rule 2.508 and best engineering judgment of the permit writer
Total Recoverable Lead	Water Quality	“TMDLs for Chloride, Copper, Dissolved Oxygen, Lead, pH, Sulfate, TDS, and Turbidity in the Bodcau Creek and Dorcheat Bayou Watersheds, Arkansas”, FTN Associates, Ltd., 9/27/2012, CWA § 402(o), and previous permit
Total Recoverable Zinc ¹	Technology	Rule 2.508 and best engineering judgment of the permit writer
Total Recoverable Arsenic ^{1,2}	Technology	Rule. 2.409 and the CPP (Appendix D, ADEQ Discharge permit, Toxic Control Implementation Procedure § IV.C)
pH	Water Quality	Rule 2.504, CWA § 402(o), and previous permit
INTERNAL OUTFALL 001A		
BOD ₅	Technology	40 C.F.R. § 122.44(l) and previous permit
TSS	Technology	40 C.F.R. § 122.44(l) and previous permit
FCB	Water Quality	Rule 2.504, CWA 402(o), and previous permit

¹ See Section 11.F below for details.

² Monitoring and reporting for one year from the effective date of the permit. See Section 11.F.2 below for details.

No new information, except for WET, was received to warrant adding, removing, or revising any limitations in the permit. Therefore, the limitations in the permit, except for WET, are consistent with the limitations in the previous permit.

B. Anti-backsliding

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

The permit meets or exceeds the requirements of the previous permit.

C. Limits Calculations

1. Mass Limits:

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

Outfall 001

The Monthly Avg. mass limitation for Lead is the Waste Load Allocation from “TMDLs for Chloride, Copper, Dissolved Oxygen, Lead, pH, Sulfate, TDS, and Turbidity in the Bodcau Creek and Dorcheat Bayou Watersheds, Arkansas” (the TMDL) issued on September 27, 2012. See Section 11.F below for details.

The Daily Max. mass limitation for Lead has been calculated from the Daily Max. concentration limitation and the following equation:

$$\text{lbs/day} = \text{Concentration } (\mu\text{g/l}) \times \text{Avg. Flow (MGD)} \times 8.34/1000$$

$$\text{Average flow} = 0.287 \text{ MGD}$$

Outfall 001A (internal)

The calculation of the loadings (lbs per day) uses the following equation:

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

$$\text{Design flow} = 0.015 \text{ MGD}$$

No other pollutants have been assigned mass limitations due the variable nature of the discharge flow due to stormwater.

2. Daily Maximum Limits:

The daily maximum limits for TSS, and BOD₅, are based on Section 5.4.2 of the Technical Support Document for Water Quality-based Toxics Control:

$$\text{Daily Maximum limits} = \text{monthly average limits} \times 1.5$$

The daily maximum limit for TOC is based on 40 C.F.R. § 122.44(l) and the previous permit.

The daily maximum limit for Lead is based on Section 5.4.2, page 103, of the Technical Support Document for Water Quality-Based Toxics Control and Part IV.B of the Toxic Control Implementation Procedure in Appendix D of the CPP.

$$\text{Daily Maximum limit} = \text{Monthly average limit} \times (3.11/1.55)$$

The daily maximum limits for FCB and O&G are based on Rules 2.507 and 2.510, respectively.

D. 208 Plan (Water Quality Management Plan)

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

There are no changes to the 208 Plan occurring with this permit renewal.

E. Applicable Effluent Limitations Guidelines

Discharges from facilities of this type are covered by Federal effluent limitations guidelines promulgated under 40 C.F.R. Part 415, Subpart AC, Bromine Production Subcategory. 40 C.F.R. § 415.292 gives an ELG representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). The ELG states: “There shall be no discharge of process wastewater pollutants...”. Therefore, this permit does not allow the discharge of process wastewater to Waters of State.

F. Priority Pollutant Scan (PPS)

DEQ 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), Rule 2 (Rule 2.508) and criteria obtained from the “Quality Criteria for Water, 1986 (Gold Book).”

Under Federal Regulation 40 C.F.R. § 122.44(d), as adopted by Rule 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 C.F.R. § 122.45(c).

The following items were used in calculations:

Parameter	Value	Source
Discharge Flow = Q	0.287 MGD = 0.444 cfs	DMR Data
7Q10 Background Flow	0 cfs	U.S.G.S.
LTA Background Flow	0 cfs	Calculated
TSS	5.5 mg/l	CPP
Hardness as CaCO ₃	31 mg/l	CPP

The following pollutants were reported above detection levels:

Pollutant	Concentration Reported, $\mu\text{g/l}$	MQL, $\mu\text{g/l}$
Arsenic	21.0 ¹	0.5
Chromium VI	11.0 ¹	10
Copper	7.5 ¹	0.5
Lead	3.86 ²	0.5
Nickel	4.3 ¹	0.5
Zinc	150 ¹	20
1,2-Dichloroethane	8.8 ¹	5.0

¹ 1 data point from PPS/EPA Form 2C from the renewal application.

² Maximum of 21 data points from DMRs from August 2017 – May 2021 and 1 data point from the renewal application.

Instream Waste Concentrations (IWCs) were calculated in the manner described in Appendix D of the CPP and compared to the applicable Criteria. The following tables summarize the results of the analysis. The complete evaluation can be viewed on the Division's website at the following address:

https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0047635_Toxicity%20Calculations_20210715.pdf

1. Aquatic Toxicity Evaluation

a. Acute Criteria Evaluation

Pollutant	Concentration Reported (C_e) $\mu\text{g/l}$	$C_e \times 2.13^1$	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Acute, $\mu\text{g/l}$	Acute, $\mu\text{g/l}$	
Chromium VI	11.0	23.43	23.43	15.71	Yes
Copper	7.5	15.98	15.98	14.79	Yes
Lead	3.86	-	3.86	87.29	No
Nickel	4.3	9.16	9.16	1061.45	No
Zinc	150	319.5	319.5	130.87	Yes

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

² Criteria are from Rule 2.508 unless otherwise specified.

b. Chronic Criteria Evaluation

Pollutant	Concentration Reported (C _e) µg/l	C _e × 2.13 ¹	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
			Chronic, µg/l	Chronic, µg/l	
Chromium VI	11.0	23.43	23.43	10.58	Yes
Copper	7.5	15.98	15.98	10.93	Yes
Lead	3.86	-	3.86	3.40	Yes
Nickel	4.3	9.16	9.16	117.88	No
Zinc	150	319.5	319.5	119.5	Yes

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

² Criteria are from Rule 2.508 unless otherwise specified.

2. Human Health (Bioaccumulation) Evaluation

Pollutant	Concentration Reported (C _e) µg/l	C _e × 2.13 ¹	Instream Waste Concentration (IWC)	Criteria ²	Reasonable Potential (Yes/No)
Arsenic	21.0	44.73	44.73	1.4 ²	Yes
Chromium VI	11.0	23.43	23.43	100 ³	No
Copper	7.5	15.98	15.98	13,000 ²	No
Lead	3.86	-	3.86	50 ²	No
Nickel	4.3	9.16	9.16	46,000 ²	No
Zinc	150	319.5	319.5	260,000 ²	No
1,2-Dichloroethane	8.8	18.74	18.74	6,500 ²	No

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

² Adapted from “National Recommended Water Quality Criteria: 2002 – Human Health Criteria Calculation Matrix”, EPA. The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10⁻⁶. These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10⁻⁵ as stated in Rule 2.508.

³ Primary Drinking Water Maximum Contaminant Level.

As can be seen in the tables above, the calculated IWCs for Chromium VI, Copper, Lead, and Zinc were higher than the referenced Arkansas Water Quality Criteria.

Only 1 data point each was available for Chromium VI, Copper, and Zinc. Monitoring and reporting requirements for these pollutants have been included in the permit to gather more data to determine if permit limitations are required.

Limitations for Lead (based on the wasteload allocation from [“TMDLs for Chloride, Copper, Dissolved Oxygen, Lead, pH, Sulfate, TDS, and Turbidity in the Bodcau Creek and Dorcheat Bayou Watersheds, Arkansas”](#)) were included in the previous permit. These limitations are more stringent than those calculated using the procedure from the CPP. Therefore, the Lead limitations from the previous permit have been continued in the renewal permit.

As can be seen in the tables above, the calculated IWC for Arsenic is higher than the EPA Water Quality Criterion. A.C.A. § 8-4-216 authorizes the Division to require the submission of any information relevant to meeting the requirements of the Arkansas Water and Air Pollution Control Act. A requirement to monitor and report for Arsenic once per quarter for one year has been added to the permit so that, in the event that a WQS for Arsenic is added to Rule 2.508, data will be available to perform a reasonable potential analysis. This is in accordance with the procedure in Appendix D of the CPP (Appendix D, Part IV – Chemical Specific Standards and Criteria, Section E – Protection of Human Health Criteria of the Discharge Permit, Toxic Control Implementation Procedure).

The CPP requires that for all pollutants for which there are no applicable state water standards, IWCs are to be compared with the EPA Human Health Criteria (fish consumption only). If dilution calculations show that the in-stream concentration exceeds these criteria, the permit will require the permittee to monitor and report for the pollutant of concern once per quarter for one year only. A reopener clause has been included in the permit (see Part II.3) to provide permit limits if state water quality standards are developed for the applicable pollutants, and the data shows that there is a reasonable potential for the discharge to violate those water quality standards.

12. 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.....” To ensure that the CWA’s prohibitions for toxics are met, EPA has issued a “Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants (49 FR 9016-9019, 3/9/84).” In support of the national policy, Region 6 adopted the “Policy for Post Third Round NPDES Permitting” and the “Post Third Round NPDES Permit Implementation Strategy” on October 1, 1992. In addition, DEQ is required under 40 C.F.R. §122.44(d)(1), adopted by reference in Rule 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act.

The Regional policy and strategy are designed to ensure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State Water Quality Standard (WQS) resulting in non-conformance with the provisions of 40 C.F.R. §122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

Whole effluent toxicity (WET) testing has been established for assessing and protecting against impacts upon water quality and designated uses caused by the aggregate toxic effect of the discharge of pollutants. The stipulated test species, which are appropriate to measure whole effluent toxicity, are consistent with the requirements of the State Water Quality Standards. The WET testing frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility’s discharge, in accordance with the regulations promulgated at 40 C.F.R. §122.48.

Implementation

Arkansas has established a narrative water quality standard under the authority of Section 303 of the CWA 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 testing conducted by the permittee has shown potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or waterbody, at the appropriate instream critical dilution. Pursuant to 40 C.F.R. §122.44(d)(1)(v), DEQ has determined from the permittee's self-reporting that the discharge from this facility does have the reasonable potential to cause, or contribute to an instream excursion above the narrative standard within the applicable State Water Quality Standards, in violation of Section 101(a)(3) of the Clean Water Act. Therefore, the permit must establish effluent limitations for lethality and sub-lethality following Regulations promulgated by 40 C.F.R. §122.44(d)(1)(v). These effluent limitations for *C. dubia* sub-lethality (7-day NOEC) are applied at Outfall 001 on the effective date of the permit. These effluent limitations for *C. dubia* lethality (7-day NOEC) are applied at Outfall 001 three (3) years from the effective date of the permit. Prior to three (3) years from the effective date of the permit, the permit requires monitoring and reporting only for *C. dubia* lethality with no limitations being established. For Outfall 001, June-November, the *C. dubia* 7-day NOEC value for lethality shall not be less than 100% (Critical Dilution) effluent and the sub-lethality 7-day NOEC value shall not be less than 80%. For Outfall 001, December - May, the *C. dubia* 7-day NOEC value for lethality and sub-lethality shall not be less than 55% (Critical Dilution) effluent. WET testing of the effluent is thereby required as a condition of this permit to assess potential toxicity. The WET testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

Chronic WET

FREQUENCY

Once/quarter

Requirements for measurement frequency are based on the CPP.

Since 7Q10 is less than 100 cfs (ft³/sec), chronic WET testing requirements will be included in the permit.

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

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

$$Q_d = \text{Average flow} = 0.287 \text{ MGD} = 0.444 \text{ cfs}$$

June-November (Critical Season)

$$\text{Background flow} = 7Q10 = 0 \text{ cfs}$$

$$Q_b = \text{WET Background flow} = 0.67 \times 7Q10 = 0 \text{ cfs}$$

$$\text{CD} = (0.444) / (0.444 + 0) \times 100 = 100\%$$

December - May (Seasonal Aquatic Life)

Seasonal Aquatic Life background flow = $1 - 0.444 = 0.556$ cfs

$Q_b = \text{WET Background flow} = 0.67 \times 0.556 = 0.373$ cfs

$CD = (0.444) / (0.444 + .373) \times 100 = 54\%$

Toxicity tests shall be performed in accordance with protocols described in "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are 32%, 42%, 56%, 80%, and 100% (See the CPP). For June – November the low-flow effluent concentration (critical dilution) is defined as 100% effluent. For December – May these additional effluent concentrations are 23%, 30%, 41%, 54%, and 72% (See the CPP). For December – May the low-flow effluent concentration (critical dilution) is defined as 54% effluent. The requirement for chronic WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are representative of organisms indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 C.F.R. §122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen conductivity, and alkalinity shall be reported according to EPA-821-R-02-013, 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 Division shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 C.F.R. §122.62, as adopted by reference in APC&EC Rule 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

Permit Number:	AR0047635	AFIN:	14-00011	Outfall Number:	001
Date of Review:	11/30/2021	Reviewer:	T.Cochran/M. Barnett		
Facility Name:	Albemarle West Plant				
Previous Dilution series:	32, 42, 56, 80, 100	Proposed Dilution Series:	32, 42, 56, 80, 100		
Previous Critical Dilution:	100	Proposed Critical Dilution:	100		
Previous TRE activities:	None				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				
Seasonal Dilution Series: June - November					

TEST DATA SUMMARY

TEST DATE	Vertebrate (<i>Pimephales promelas</i>)		Invertebrate (<i>Ceriodaphnia dubia</i>)	
	Lethal	Sub-Lethal	Lethal	Sub-Lethal
	NOEC	NOEC	NOEC	NOEC
9/30/2021	100	100	100	100
9/30/2021	100	100	100	100
12/31/2020			100	100
12/31/2020	100	100	100	80
9/30/2020	100	100		
9/30/2020	100	100	100	100
12/31/2019	100	100		
12/31/2019			100	80
9/30/2019	100	100	100	100
9/30/2019	100	100	100	100
12/31/2018			100	100
12/31/2018	100	100		
12/31/2018			100	100
9/30/2018	100	100	100	100
9/30/2018	100	100	80	56
12/31/2017			100	0
12/31/2017			100	100
9/30/2017	100	100	100	100
9/30/2017	100	32	80	56
10/31/2016	100	100	100	42
10/30/2016	100	100	100	100

Failures noted in BOLD**REASONABLE POTENTIAL CALCULATIONS**

	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	100	32	80	31
TU at Min Observed	1.00	3.13	1.25	3.23
Count	15	15	18	18
Failure Count	0	1	2	6
Mean	1.000	1.142	1.028	1.315
Std. Dev.	0.000	0.549	0.081	0.615
CV	0	0.5	0.1	0.5
RPMF	0	1.4	1.1	1.3
Reasonable Potential	0.000	4.375	1.375	4.194
100/Critical dilution	1.000	1.000	1.000	1.000
Does Reasonable Potential Exist	No	Yes	Yes	Yes

PERMIT ACTION*P. promelas* Chronic - Monitor*C. dubia* Chronic - 51710: Lethal Limit: Not < 100% , 3 year compliance schedule. Sub-Lethal Limit: Not < 80%

P. promelas

Although reasonable potential appears to exist, at this time there is insufficient evidence to support inclusion of limits. During the past five years, the facility has reported only one failure below the critical dilution for *P. promelas* sub-lethality. The inclusion of requirements for retests for failures will provide sufficient documentation concerning the necessity for a TRE, and the potential for inclusion of WET limits if appropriate.

C. dubia

Reasonable potential exists for *C. dubia* lethality. Additionally, according to EPA Region 6, chronic limits are to be inclusive of both toxicity endpoints (lethality and sub-lethality). Permit will include a 3-year compliance schedule for the *C. dubia* limits.

The permittee shall submit progress reports addressing the progress towards attaining the final effluent limits for *C. dubia* lethality according to the following schedule:

ACTIVITY	DUE DATE
Progress Report	One (1) year from effective date
Progress Report	Two (2) years from effective date
Achieve Final Limits	Three (3) years from effective date

Compliance with final Chronic limits for *C. dubia* is required three (3) years from the effective date of the permit.

The permittee has the option to undertake any study deemed necessary to meet the final limitations during the interim period. Any additional treatment must be approved and construction approval granted prior to final installation.

According to EPA Region 6 WET Permitting Strategy (May, 2005) “Due to the potential difficulty of resolving toxicity related, in some cases, to identifying toxicants responsible for sub-lethal effects, EPA Region 6 will take a graduated approach to TREs and implementation of WET limits where significant sub-lethal effects are demonstrated only in effluent concentrations greater than 75% effluent. Where significant effects are demonstrated at effluent concentrations of 75% or less, aggressive TREs have demonstrated a high degree of success. While TREs may still be required, Region 6 will implement limits for sub-lethal limits at the 80% effluent level at this time. A TRE for sub-lethal effects is triggered by failure in a scheduled test followed by sub-lethal failures in two or more tests performed during the following period of increased frequency.”

Permit Number:	AR0047635	AFIN:	14-00011	Outfall Number:	001
Date of Review:	11/30/2021	Reviewer:	T.Cochran/M. Barnett		
Facility Name:	Albemarle West Plant				
Previous Dilution series:	25, 33, 44 59, 79	Proposed Dilution Series:	23, 30, 41, 54, 72		
Previous Critical Dilution:	59	Proposed Critical Dilution:	54		
Previous TRE activities:	None				
Frequency recommendation by species					
<i>Pimephales promelas</i> (Fathead minnow):	once per quarter				
<i>Ceriodaphnia dubia</i> (water flea):	once per quarter				
			Seasonal Dilution Series: December - May		
TEST DATA SUMMARY					
TEST DATE	Vertebrate (<i>Pimephales promelas</i>)		Invertebrate (<i>Ceriodaphnia dubia</i>)		
	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC	
6/30/2021			79	79	
6/30/2021	79	79	79	79	
6/30/2020			79	79	
6/30/2020	79	79	79	79	
3/31/2020	79	79	79	79	
3/31/2020	79	79	79	79	
3/30/2020	79	79	79	79	
3/30/2020	79	79	79	79	
6/30/2019			79	79	
6/30/2019			79	79	
3/31/2019	79	79	79	79	
3/31/2019	100	100	100	100	
6/30/2018	79	79	79	79	
6/30/2017			79	59	
3/31/2017	79	79	79	79	
3/31/2017	79	79	79	59	
6/30/2016	100	100	100	100	
6/30/2016	100	100	100	100	
3/31/2016	100	100	100	100	
3/31/2016	100	100	100	100	
Failures noted in BOLD					
REASONABLE POTENTIAL CALCULATIONS					
	Vertebrate Lethal	Vertebrate Sub-lethal	Invertebrate Lethal	Invertebrate Sub-Lethal	
Min NOEC Observed	79	79	79	59	
TU at Min Observed	1.27	1.27	1.27	1.69	
Count	15	15	20	20	
Failure Count	0	0	0		
Mean	1.177	1.177	1.199	1.242	
Std. Dev.	0.130	0.130	0.118	0.193	
CV	0.1	0.1	0.1	0.2	
RPMF	1.1	1.1	1.1	1.1	
Reasonable Potential	0.752	0.752	0.752	1.007	
100/Critical dilution	1.852	1.852	1.852	1.852	
Does Reasonable Potential Exist	No	No	No	No	
PERMIT ACTION					
<i>P. promelas</i> Chronic - Monitor					
<i>C. dubia</i> Chronic -51710 Lethal and Sublethal Limit: Not < 54%					

13. STORMWATER REQUIREMENTS

The federal regulations at 40 C.F.R. § 122.26(b)(14) require certain industrial sectors to have NPDES permit coverage for stormwater discharges from the facility. These requirements include the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to control the quality of stormwater discharges from the facility. This facility was issued stormwater permit coverage under NPDES Tracking number ARR00A588.

14. SAMPLE TYPE AND FREQUENCY

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

Requirements for sample type and sampling frequency have been based on the previous discharge permit, except for Chromium VI, Copper, and Zinc.

The sample type for Chromium VI, Copper, and Zinc, has been set as “grab” because the facility has a retention time greater than 24 hours, in accordance with 40 C.F.R. § 122.21(g)(7)(i). The sampling frequency has been set at “once/month” based on the best engineering judgment of the permit writer as adequate for data collection.

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/month	grab	once/month	grab
Temperature	once/week	in-situ	once/week	in-situ
TOC	once/month	grab	once/month	grab
DO	once/month	grab	once/month	grab
O&G	once/month	grab	once/month	grab
Total Recoverable Chromium VI	N/A	N/A	once/month	grab
Total Recoverable Copper	N/A	N/A	once/month	grab
Total Recoverable Lead	once/month	grab	once/month	grab
Total Recoverable Zinc	N/A	N/A	once/month	grab
Total Recoverable Arsenic	once/quarter	grab	once/quarter ¹	grab
pH	two/month	grab	two/month	grab

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Chronic WET	<i>C. dubia</i> once/quarter <i>P. promelas</i> twice/year	24-hr composite	<i>C. dubia</i> once/quarter <i>P. promelas</i> twice/year	composite
Internal Outfall 001A				
BOD ₅	once/quarter	grab	once/quarter	grab
TSS	once/quarter	grab	once/quarter	grab
FCB (col/100ml)	once/quarter	grab	once/quarter	grab

¹ For one year from the effective date of the permit. See Part II.8 (Arsenic Condition).

15. PERMIT COMPLIANCE SCHEDULE

A Schedule of Compliance has been included in this permit for Whole Effluent Toxicity (WET) Lethality Limits for *C. dubia*. Compliance with all permit requirements is required in accordance with the schedule provided in Part IB of the permit. The Division has chosen to exercise its discretion provided for in Rule 2 to allow a 3-year Schedule of Compliance for the new WET Lethality Limits for *C. dubia*.

A Schedule of Compliance for the revised WET Sub-lethality limit (December – May) for *C. dubia* is not required because the facility is already in compliance with the revised limit.

16. MONITORING AND REPORTING

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

17. SOURCES

The following sources were used to draft the permit:

- A. Application No. AR0047635 received February 24, 2021, and all additional information received by July 19, 2021.
- B. Arkansas Water Quality Management Plan (WQMP).
- C. APC&EC Rule 2.
- D. APC&EC Rule 3.
- E. APC&EC Rule 6, which incorporates by reference certain federal regulations included in Title 40 of the Code of Federal Regulations at Rule 6.104.
- F. 40 C.F.R. §§ 122 and 125.
- G. 40 C.F.R. § Part(s) 415.
- H. Discharge permit file AR0047635.
- I. Discharge Monitoring Reports (DMRs).
- J. “2018 Integrated Water Quality Monitoring and Assessment Report,” DEQ.
- K. “2018 List of Impaired Waterbodies (303(d) List),” DEQ, May 2020.

- L. USGS StreamStats online application.
- M. [“TMDLs for Chloride, Copper, Dissolved Oxygen, Lead, pH, Sulfate, TDS, and Turbidity in the Bodcau Creek and Dorcheat Bayou Watersheds, Arkansas”](#).
- N. Continuing Planning Process (CPP).
- O. Technical Support Document for Water Quality-based Toxic Control.
- P. [Inspection Report, dated July 25, 2017.](#)
- Q. [Compliance Review Memo, dated April 26, 2021.](#)
- R. [Planning Review Memo, dated July 19, 2021.](#)
- S. [NPDES Permit Rating.](#)
- T. [Operator License Class II.](#)
- U. [WQMP Summary, dated October 8, 2021.](#)
- V. [EPA review letter, dated May 19, 2022.](#)

18. PUBLIC NOTICE

The public notice of the draft permit was published for public comment on June 12, 2022. The last day of the comment period was thirty (30) days after the publication date.

A summary of the comments received by the DEQ during the public comment period and response to the comments are included with this permit decision. The response to comments also includes a discussion of any substantial changes from the draft permit.

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

19. PERMIT FEE

In accordance with Rule 9.403(D), the annual fee for the permit is calculated from the Design/Average Flow (Q, in MGD) as follows:

$$\text{Fee} = \$200 + (5,600 \times Q) = \$200 + (5,600 \times 0.287) = \$1,807$$

20. POINT OF CONTACT

For additional information, contact:

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Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
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**RESPONSE TO COMMENTS
FINAL PERMITTING DECISION**

Permit No.: AR0047635
Applicant: Albemarle Corporation
West Plant
Prepared by: Guy Lester, P.E.

The following are responses to comments received by the Division of Environmental Quality (DEQ) regarding the draft permit number referenced above and are developed in accordance with regulations promulgated at 40 C.F.R. §124.17, Arkansas Pollution Control & Ecology Commission (APC&EC) Rule 8 (Administrative Procedures), and Arkansas Code Annotated (A.C.A.) §8-4-203(e)(2).

Introduction

The above permit was submitted for public comment on June 12, 2022. The public comment period ended on July 12, 2022.

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

The following people or organizations sent comments to the DEQ during the public notice. A total of two comments were raised by one commenter.

Commenter	Number of Comments Raised
GBMc & Associates (on behalf of permittee)	2

Comment 1 Part 1A – WET Testing *Pimephales promelas* Monitoring Frequency.

The monitoring frequency for WET Testing of *Pimephales promelas* at Outfall 001 in the draft permit is once/quarter. The current permit contains a monitoring frequency of twice/year. The Statement of Basis did not provide justification for the change in monitoring frequency. Albemarle requests that the monitoring frequency for WET Testing *Pimephales promelas* be changed back to twice/year.

If once/quarter monitoring frequency is to remain in the permit, then Albemarle requests justification for the change be added to the Statement of Basis and monitoring frequency reduction language be added to Condition No. 5 of Part II.

Response: The Division agrees with the request. The monitoring frequency for WET testing for *Pimephales promelas* has been changed to twice/year.

Comment 2 Condition No. 5 of Part II – Critical Dilution Series for December – May

The critical dilution and associated series for December - May provided in Condition No. 5 of Part II is not consistent with the Statement of Basis. Section 12 of the Statement of Basis has a calculated Critical Dilution for December-May of 54% while Condition No. 5 of Part II list a Critical Dilution for December-May as 55%. Albemarle requests that the Critical Dilution and the associated series provided in Condition No. 5 of Part II be altered to be consistent with the Statement of Basis.

Response: The Division agrees with the request. The Critical Dilution and series have been corrected in Part II.5 of the permit.

Summary of Changes to the permit				
Part	Draft Permit	Final Permit	Justification	Comment #
IA.1 IA.2	Chronic Whole Effluent Toxicity <i>Pimephales promelas</i> Frequency: once/quarter	Chronic Whole Effluent Toxicity <i>Pimephales promelas</i> Frequency: twice/year	Incorrect frequency included in draft permit	1
II.5.A.i	TESTING FREQUENCY: <i>Pimephales promelas</i> once/quarter	TESTING FREQUENCY: <i>Pimephales promelas</i> twice/year (once June-Nov – once Dec-May)	Incorrect frequency included in draft permit	1
II.5.A.i	EFFLUENT DILUTION SERIES (%): December – May 23, 31, 41, 55, 73	EFFLUENT DILUTION SERIES (%): December – May 23, 30, 41, 54, 72	Incorrect dilution series included in draft permit	2