

Permit number: AR0033316

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

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. 1251 et seq.),

Pine Bluff Wastewater Utility
Boyd Point Wastewater Treatment Facility
1520 S. Ohio St.
Pine Bluff, AR 71601

is authorized to discharge from a facility located at

900 Island Harbor Rd., in Section 22, Township 5 South, Range 9 West in Jefferson County, Arkansas.

Latitude: 34° 16' 30"; Longitude: 91° 57' 59"

to receiving waters named:

The Arkansas River in Segment 3C of the Arkansas River Basin.

The outfall is located at the following coordinates:

Outfall 001: Latitude: 34° 16' 30"; Longitude: 91° 57' 59"

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

This permit shall become effective on February 1, 2004.

This permit and the authorization to discharge shall expire at midnight, January 31, 2009

Signed this 31st day of December 2003.



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

**PART I
PERMIT REQUIREMENTS**

**SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001 (Stream Flow <5000 cfs)
-treated municipal wastewater**

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

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
Flow ¹	N/A	Report	14 MGD	Once/day	Totalizing meter
Upstream Flow ^{1,2}	N/A	Report	Report	Once/day	Record
Carbonaceous Biochemical Oxygen Demand (CBOD5) (May-Oct)	N/A	25	38	Five/week	24-hr Composite
Biochemical Oxygen Demand (BOD5) (Nov-Apr)	N/A	30	45	Five/week	24-hr Composite
Total Suspended Solids (TSS)	N/A	90	135	Five/week	24-hr Composite
Ammonia Nitrogen (NH3-N) (May-Oct)	N/A	15	23	Five/week	24-hr Composite
Fecal Coliform Bacteria (FCB) ³		(colonies/100ml)			
(Apr-Sept)	N/A	200	400	Five/week	Grab
(Oct-Mar)	N/A	1000	2000	Five/week	Grab
Total Residual Chlorine (TRC) ⁴	N/A	<0.1 mg/l (Inst. Max.)		Five/week	Grab
pH	N/A	<u>Minimum</u> 6 s.u.	<u>Maximum</u> 10.5 s.u.	One/day	Grab
Chronic Biomonitoring ⁵	N/A	N/A	N/A	once/quarter	24-hr composite

<u>Pimephales promelas (Chronic)</u> ⁵ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
<u>Ceriodaphnia dubia (Chronic)</u> ⁵ Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail Growth (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation TQP3B Growth (7-day NOEC) TPP3B		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite

- 1 Report monthly average and daily maximum as MGD. (Flow reporting)
- 2 See Conditions No. 10 and 11 of Part III. (Upstream flow Reporting)
- 3 See Condition No. 2 of Part III. (Fecal Coliform Reporting)
- 4 See Condition No. 13 of Part III. (TRC Reporting). TRC limit will become effective 3 years from the effective date of the permit. In interim monitoring and reporting are required.
- 5 See Condition No. 9 of Part III. (Biomonitoring Condition)

There shall be no discharge of distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

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

**PART I
PERMIT REQUIREMENTS**

**SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001 (Upstream Flow > = 5000 cfs)
-treated municipal wastewater**

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

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Monthly Avg.	7-Day Avg.		
Flow ¹	N/A	Report	30 MGD	Once/day	Totalizing meter
Upstream Flow ^{1,2}	N/A	Report	Report	Once/day	Record
Carbonaceous Biochemical Oxygen Demand (CBOD5) (May-Oct)	N/A	25	38	Five/week	24-hr Composite
Biochemical Oxygen Demand (BOD5) (Nov-Apr)	N/A	30	45	Five/week	24-hr Composite
Total Suspended Solids (TSS)	N/A	90	135	Five/week	24-hr Composite
Ammonia Nitrogen (NH3-N) (May-Oct)	N/A	15	23	Five/week	24-hr Composite
Fecal Coliform Bacteria (FCB) ³		(colonies/100ml)			
(Apr-Sept)	N/A	200	400	Five/week	Grab
(Oct-Mar)	N/A	1000	2000	Five/week	Grab
Total Residual Chlorine (TRC) ⁴	N/A	<0.1 mg/l (Inst. Max.)		Five/week	Grab
pH	N/A	<u>Minimum</u> 6 s.u.	<u>Maximum</u> 10.5 s.u.	One/day	Grab
Chronic Biomonitoring ⁵	N/A	N/A	N/A	once/quarter	24-hr composite
<u>Pimephales promelas (Chronic)</u> ⁵ Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation TQP6C Growth (7-day NOEC) TPP6C		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	24-hr composite 24-hr composite 24-hr composite 24-hr composite 24-hr composite
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- 1 Report monthly average and daily maximum as MGD.
- 2 See Conditions No. 10 and 11 of Part III. (Upstream flow reporting)
- 3 See Condition No. 2 of Part III. (Fecal Coliform Reporting)
- 4 See Condition No. 13 of Part III. (TRC Reporting). TRC limit will become effective 3 years from the effective date of the permit. In interim monitoring and reporting are required.
- 5 See Condition No. 9 of Part III. (Biomonitoring Reporting)

There shall be no discharge of distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

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

SECTION B. SCHEDULE OF COMPLIANCE

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

Compliance is required on the effective date of the permit for all parameters except TRC. The permittee shall monitor and report TRC for an interim period of three year following the effective date. Following the three year interim period the specified limits for TRC will become effective. 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.

PART II — STANDARD CONDITIONS

SECTION A — GENERAL CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Water Act and the Arkansas Water and Air Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Any values reported in the required Discharge Monitoring Report which are in excess of an effluent limitation specified in Part 1.A. shall constitute evidence of violation of such effluent limitation and of this permit.

2. Penalties for Violations of Permit Conditions

The Arkansas Water and Air Pollution Control Act provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than ten thousand dollars (\$10,000) or by both such fine and imprisonment for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to civil penalty in such amount as the court shall find appropriate, not to exceed five thousand dollars (\$5,000) 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 Action

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

- Violation of any terms or conditions of this permit; or
- Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- 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.
- Failure of the permittee to comply with the provisions of ADPCE Regulation No. 9 (Permit fees) as required by condition II A. 10 herein.

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

4. Toxic Pollutants

Notwithstanding Part II.A.3, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Regulation No. 2, as amended (regulation establishing water quality standards for surface waters of the State of Arkansas) or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation 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 or prohibitions established under Regulation No. 2 (Arkansas Water Quality Standards), as amended, or Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (Part II.B.4.a.) and "Upsets" (Part II.B.5.b.), nothing in this permit shall be construed to relieve the permittee from civil penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

6. Oil and Hazardous Substance Liability

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

7. State Laws

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

8. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any 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. If any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provisions to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Permit Fees

The permittee shall comply with all applicable permit fee requirements for wastewater discharge permits as described in ADPCE Regulation No. 9 (Regulation for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 CFR 122.64 and 124.5(d), as adopted in ADPCE Regulation No. 6, and the provisions of ADPCE Regulation No. 8.

SECTION B — OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

- 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.
- The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or discharges or both until the facility is restored or 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 reasonable likelihood of adversely affecting human health or the environment.

4. Bypass of Treatment Facilities

- 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 provision of Part II.B.4.b and 4.c.
- Notice

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.

- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II.D.6(24-hour notice).

- Prohibition of bypass.

- (1) Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:

- Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

- 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

- The permittee submitted notices as required by Part II.B.4.b.

- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the director determines that it will meet the three conditions listed above in Part II.B.4.c.(1).

5. Upset Conditions

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

b. Conditions necessary for a 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 cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated;
- (3) The permittee submitted notice of the upset as required by Part II.D.6; and
- (4) The permittee complied with any remedial measures required by Part II.B.3.

c. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the state. Written approval for such disposal must be obtained from the ADPCE.

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 wastestream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharges shall be monitored.

2. Flow Measurements

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

3. Monitoring Procedures

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

4. Penalties for Tampering

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

5. Reporting of Monitoring Results

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

Director
Arkansas Department of Pollution
Control and Ecology
8001 National Drive
P.O. Box 8913
Little Rock, AR 72219-8913

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

6. Additional Monitoring by the Permittee

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

7. Retention of Records

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

8. Record Contents

Records and monitoring information shall include:

- a. The date, exact place, time and methods of sampling or measurements, and preservatives used, if any;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were formed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The measurements and results of such analyses.

9. Inspection and Entry

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

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample, inspect or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D — REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give notice and provide plans and specification to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

For Industrial Dischargers

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b).
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR Part 122.42(a)(1).

For POTW Dischargers:

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

2. Anticipated Noncompliance

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

3. Transfers

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

4. Monitoring Reports

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

5. Compliance Schedule

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

6. Twenty-four Hour Report

a. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:

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

b. The following shall be included as information which must be reported within 24 hours:

- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
- (2) Any upset which exceeds any effluent limitation in the permit; and
- (3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part III of the permit to be reported within 24 hours.

c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

7. Other Noncompliance

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

8. Changes in Discharge of Toxic Substances for Industrial Dischargers

The permittee shall notify the Director as soon as he/she knows or has reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, in a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(2)[48 FR 14153, April 1983, as amended at 49 FR 38046, September 26, 1984].
- b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" described in 40 CFR Part 122.42(a)(2)[48 FR 14153, April 1, 1983, as amended at 49 FR 38046, September 26, 1984].

9. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit. Information shall be submitted in the form, manner, and time frame requested by the Director.

10. Duty to Reapply

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

11. Signatory Requirements

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

a. All permit applications shall be signed as follows:

- (1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
- (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if 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 the proprietor, respectively; or

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

- (i) the chief executive officer of the agency, or
- (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

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

- (1) The authorization is made in writing by a person described above.
- (2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- (3) The written authorization is submitted to the Director.

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

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

12. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2 and Regulation 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Pollution Control and Ecology. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits and effluent data shall not be considered confidential.

13. Penalties for Falsification of Reports

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under this permit shall be subject to civil penalties specified in Part II.A.2. and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

PART III
OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall be licensed by the State of Arkansas in accordance with Act 211 of 1971, Act 1103 of 1991, Act 556 of 1993, and Regulation No. 3, as amended.
2. For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
3. For publicly owned treatment works, the 30-day average percent removal for Biochemical Oxygen Demand shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR 133.102, as adopted by reference in ADEQ Regulation No. 6.
4. Produced sludge shall be disposed of by land application only when meeting the following criteria:
 - a. Sewage sludge from treatment works treating domestic sewage (TWTDS) must meet the applicable provisions of 40 CFR Part 503;
 - b. The sewage sludge has not been classified as a hazardous waste under state or federal regulations;
5. The permittee shall give at least 120 days prior notice to the Director of any change planned in the permittee's sludge disposal practice or land use applications, including types of crops grown (if applicable).
6. The permittee shall report all overflows with the Discharge Monitoring report (DMR) submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: the date, time, duration, location, estimated volume, and cause of overflow; observed environmental impacts from the overflow; action taken to address the overflow; and ultimate discharge location if not contained (e.g., storm sewer system, ditch, tributary.) Overflows which endanger health or the environment shall be orally reported to this department (Enforcement Section of Water Division), within 24 hours from the time the permittee becomes aware of the circumstance. A written report of overflows which endanger health or the environment, shall be provided within 5 days of the time the permittee becomes aware of the circumstance.
7. In accordance with 40 CFR Part 122.62 (a) (2), the permit may be modified if new information is received that was not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

8. **Contributing Industries and Pretreatment Requirements**

A. The permittee shall operate an industrial pretreatment program in accordance with Section 402(b)(8) of the Clean Water Act, the General Pretreatment Regulations (40 CFR Part 403) and the approved POTW pretreatment program submitted by the permittee. The pretreatment program was approved on **September 18, 1984** and modified on **September 8, 1992**. The POTW pretreatment program is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:

1. Industrial user information shall be updated at a frequency adequate to ensure that all IUs are properly characterized at all times.
2. The frequency and nature of industrial user compliance monitoring activities by the permittee shall be commensurate with the character, consistency and volume of waste. However, in keeping with the requirements of 40 CFR 403.8(f)(2)(v), the permittee must inspect and sample the effluent from each Significant Industrial User at least once a year. This is in addition to any industrial self-monitoring activities;
3. The permittee shall enforce and obtain remedies for noncompliance by any industrial users with applicable pretreatment standards and requirements.
4. The permittee shall control through permit, order, or similar means, the contribution to the POTW by each Industrial User to ensure compliance with applicable Pretreatment Standards and Requirements. In the case of Industrial Users identified as significant under 40 CFR 403.3(t), this control shall be achieved through permits or equivalent individual control mechanisms issued to each such user. Such control mechanisms must be enforceable and contain, at a minimum, the following conditions:
 - a. Statement of duration (in no case more than five years);
 - b. Statement of non-transferability without, at a minimum, prior notification to the POTW and provision of a copy of the existing control mechanism to the new owner or operator;
 - c. Effluent limits based on applicable general pretreatment standards, categorical pretreatment standards, local limits, and State and local law;

- d. Self-monitoring, sampling, reporting, notification and recordkeeping requirements, including an identification of the pollutants to be monitored, sampling location, sampling frequency, and sample type, based on the applicable general pretreatment standards in 40 CFR 403, categorical pretreatment standards, local limits, and State and local law;
 - e. Statement of applicable civil and criminal penalties for violation of pretreatment standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond federal deadlines.
- 5. The permittee shall evaluate, at least once every two years, whether each Significant Industrial User needs a plan to control slug discharges. If the POTW decides that a slug control plan is needed, the plan shall contain at least the minimum elements required in 40 CFR 403.8 (f)(2)(v).
 - 6. The permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program; and,
 - 7. The approved program shall not be modified by the permittee without the prior approval of the Department.
- B. The permittee shall establish and enforce specific limits to implement the provisions of 40 CFR Parts 403.5(a) and (b), as required by 40 CFR Part 403.5(c). Each POTW with an approved pretreatment program shall continue to develop these limits as necessary and effectively enforce such limits.
- All specific prohibitions or limits developed under this requirement are deemed to be conditions of this permit. The specific prohibitions set out in 40 CFR Part 403.5(b) shall be enforced by the permittee unless modified under this provision.
- C. The permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR 122 Appendix D (NPDES Application Testing Requirements) Table II at least Once/year and the toxic pollutants in Table III at least **Once/quarter**. If, based upon information available to the permittee, there is reason to suspect the presence of any toxic or hazardous pollutant listed in Table V, or any other pollutant, known or suspected to adversely affect treatment plant operation, receiving water quality, or solids disposal procedures, analysis for those pollutants shall be performed at least **Once/quarter** on both the influent and effluent.

1. The influent and effluent samples collected shall be composite samples consisting of at least 12 aliquots collected at approximately equal intervals over a representative 24 hour period and composited according to flow. Sampling and analytical procedures shall be in accordance with guidelines established in 40 CFR 136. Where composite samples are inappropriate, due to sampling, holding time, or analytical constraints, at least four (4) grab samples, taken at equal intervals over a representative 24 hour period, shall be taken.

- D. The permittee shall prepare annually a list of Industrial Users which during the preceding twelve months were in significant noncompliance with applicable pretreatment requirements. For the purposes of this Part, significant noncompliance shall be determined based upon the more stringent of either criteria established at 40 CFR Part 403.8(f)(2)(vii) [rev. 7/24/90] or criteria established in the approved POTW pretreatment program. This list is to be published annually in the largest daily newspaper in the municipality during the month of **March**.

In addition, during the month of **March** the permittee shall submit an updated pretreatment program status report to ADEQ containing the following information:

1. An updated list of all significant industrial users. For each industrial user listed, the following information shall be included:
 - a. Standard Industrial Classification (SIC) code and categorical determination.
 - b. Control document status. Whether the user has an effective control document, and the date such document was last issued, reissued, or modified, (indicate which industrial users were added to the system (or newly identified) within the previous 12 months).
 - c. A summary of all monitoring activities performed within the previous 12 months. The following information shall be reported:
 - (1) total number of inspections performed;
 - (2) total number of sampling visits made;
 - d. Status of compliance with both effluent limitations and reporting requirements. Compliance status shall be defined as follows:
 - (1) Compliant (C) - no violations during the previous 12 month period;

- (2) Non-compliant (NC) - one or more violations during the previous 12 months but does not meet the criteria for significant noncompliant industrial users.
 - (3) Significant Noncompliance (SNC) - in accordance with requirements described in d. above.
 - e. For significantly noncompliant industrial users, indicate the nature of the violations, the type and number of actions taken (notice of violation, administrative order, criminal or civil suit, fines or penalties collected, etc.) and current compliance status. If ANY industrial user was on a schedule to attain compliance with effluent limits, indicate the date the schedule was issued and the date compliance is to be attained.
2. A list of all significant industrial users whose authorization to discharge was terminated or revoked during the preceding 12 month period and the reason for termination.
 3. A report on any interference, pass through, upset or POTW permit violations known or suspected to be caused by industrial contributors and actions taken by the permittee in response.
 4. The results of all influent, effluent analyses performed pursuant to paragraph (c) above;
 5. A copy of the newspaper publication of the significantly noncompliant industrial users giving the name of the newspaper and the date published; and
 6. The information requested may be submitted in tabular form as per the example tables provided for your convenience (See Attachments A, B and C); and
 7. The monthly average water quality based effluent concentration necessary to meet the state water quality standards as developed in the approved technically based local limits.
- E. The permittee shall provide adequate notice to the Department of the following:
1. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Section 301 and 306 of the Act if it were directly discharging those pollutants; and

2. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Adequate notice shall include information on (i) the quality and quantity of effluent to be introduced into the treatment works, and (ii) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

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

1. **SCOPE AND METHODOLOGY**

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

APPLICABLE TO FINAL OUTFALL: 001
CRITICAL DILUTION (%): 7
EFFLUENT DILUTION SERIES (%): 3, 4, 5, 7, 9
COMPOSITE SAMPLE TYPE: Defined at PART I
TEST SPECIES/METHODS: 40 CFR Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA/600/4-91/002 or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

Pimephales promelas (fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA/600/4-91/002, or the most recent update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

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

- c. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.
 - d. Test failure is defined as a demonstration of statistically significant sub-lethal or lethal effects to a test species at or below the effluent critical dilution.
2. **PERSISTENT LETHALITY**The requirements of this subsection apply only when a toxicity test demonstrates significant lethal effects at or below the critical dilution. Significant lethal effects are herein defined as a statistically significant difference at the 95% confidence level between the survival of the appropriate test organism in a specified effluent dilution and the control (0% effluent).
- a. Part I Testing Frequency Other Than Monthly
 - i. The permittee shall conduct a total of two (2) additional tests for any species that demonstrates significant lethal effects at or below the critical dilution. The two additional tests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two additional tests in lieu of routine toxicity testing. The full report shall be prepared for each test required by this section in accordance with procedures outlined in Item 4 of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.
 - ii. If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item 5 of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest. A TRE may be also be required due to a demonstration of persistent significant sub-lethal effects or intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests.
 - iii. If one or both of the two additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall henceforth increase the frequency of testing for this species to once per quarter for the life of the permit.
 - iv. The provisions of Item 2.a are suspended upon submittal of the TRE Action Plan.

b. Part I Testing Frequency of Monthly

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

3. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

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

- i. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
- ii. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.
- iii. 60% of the surviving control females must produce three broods.
- iv. The mean dry weight of surviving fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.
- v. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the fathead minnow test.
- vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the fathead minnow test.

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

b. Statistical Interpretation

- i. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA/600/4-91/002 or the most recent update thereof.
- ii. For the Ceriodaphnia dubia reproduction test and the fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA/600/4-91/002 or the most recent update thereof.
- iii. If the conditions of Test Acceptability are met in Item 3.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 4 below.

c. Dilution Water

- i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;
 - (A) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and
 - (B) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.
- ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 3.a), the permittee may substitute synthetic dilution water for the receiving water in all

subsequent tests provided the unacceptable receiving water test met the following stipulations:

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

d. Samples and Composites

- i. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item 1.a above.
- ii. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.
- iii. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 4 degrees Centigrade during collection, shipping, and/or storage.
- iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period.

However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 4 of this section.

- v. The permittee shall not allow the sample to be dechlorinated at the laboratory. At the time of sample collection the permittee shall measure the TRC of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

4. REPORTING

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA/600/4-91/002, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART II.C.7 of this permit. The permittee shall submit full reports upon the specific request of the Department. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for review.
- b. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST survival results for each species during the reporting period. All invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for ADEQ review.
- c. The permittee shall submit the results of each valid toxicity test on DMR for that reporting period in accordance with PART II.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following DMR. Only results of valid tests are to be reported on the DMR.

- i. Pimephales promelas (fathead minnow)
 - (A) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C.
 - (B) If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C.
 - (C) Report the NOEC value for survival, Parameter No. TOP6C.
 - (D) Report the NOEC value for growth, Parameter No. TPP6C.
 - (E) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C.

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

5. Monitoring Frequency Reduction

- a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the fathead minnow) and not less than twice per year for the more sensitive test species (usually the Ceriodaphnia dubia).

- b. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in item 3.a. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the Department will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the Permit Compliance System section to update the permit reporting requirements.
- c. SUB-LETHAL FAILURES - If, during the first four quarters of testing, sub-lethal effects are demonstrated to a test species, two monthly retests are required. In addition, quarterly testing is required for that species until the effluent passes both the lethal and sub-lethal test endpoints for the affected species for four consecutive quarters. Monthly retesting is not required if the permittee is performing a TRE.
- d. SURVIVAL FAILURES - If any test fails the survival endpoint at any time during the life of this permit, two monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.
- e. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

6. TOXICITY REDUCTION EVALUATION (TRE)

- a. Within ninety (90) days of confirming lethality in the retests, the permittee shall submit a Toxicity Reduction Evaluation (TRE) Action Plan and Schedule for conducting a TRE. The TRE Action Plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is an investigation intended to determine those actions necessary to achieve compliance with water quality-based effluent limits by reducing an effluent's toxicity to an acceptable level. A TRE is defined as a step-wise process which combines toxicity testing and analyses of the physical and chemical characteristics of a toxic effluent to identify the constituents causing effluent toxicity and/or treatment methods which will reduce the effluent toxicity. The TRE Action Plan shall lead to the successful elimination of effluent toxicity at the critical dilution and include the following:

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

The documents referenced above may be obtained through the National Technical Information Service (NTIS) by phone at (800) 553-6847, or by writing:

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

- ii. Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified;

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 48 hours of test

- c. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity reduction evaluation activities including:
- i. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - ii. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - iii. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution.
- d. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming lethality in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).

10. **Upstream Flow Requirements**

The permittee must monitor the upstream flow. Receiving stream flow shall be obtained from the U.S. Corps of Engineers at Arkansas River Lock and Dam No. 5 by contacting the local Lock Master via telephone or using www.swlwc.usace.army.mil/arkansas_river_projects.htm. Records shall be kept and available for inspection upon request.

11. **Discharge flow is restricted as follows:**

A. **Upstream < 5,000 cfs**

When the river flow (Upstream flow) is less than 5,000 cfs, the permittee can only discharge 14 MGD. The permittee shall report the number of days per month that the facility average discharge exceeds this condition.

B. **Upstream > = 5,000 cfs**

When the river flow (Upstream flow) is great than or equal to 5,000 cfs, the permittee can only discharge 30 MGD. The permittee shall report the number of days per month that the facility average discharge exceeds this condition.

12. **Monitoring and Reporting :**

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

MONTHLY:

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

QUARTERLY:

(1) is defined as a fixed calendar quarter or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of Once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; or

(2) is defined as a fixed three month period (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of Once/quarter that does not coincide with the fixed calendar quarter Seasonal calendar quarters May through July, August through October, November through January, and February through April.

SEMI-ANNUAL:

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

ANNUAL or YEARLY :

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

13. Total Residual Chlorine Requirements

If TRC test results are less than Detection Level Achieved (DL), a value of zero (0) may be used for the Discharge Monitoring Report (DMR) calculations and reporting requirements. Total residual chlorine (TRC) in the effluent composite sample shall be measured and reported both at the time of sample termination and at the time of toxicity test initiation. The permittee shall ensure that the effluent composite used in toxicity testing is representative of normal facility residual chlorine discharge concentration.

PART IV — SECTION A — DEFINITIONS

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

1. "Act" means the Clean Water Act, Public Law 95-217(33. U.S.C. 1251 et seq.) as amended.
2. "Administrator" means the Administrator of the U.S. Environmental Protection Agency.
3. "Applicable effluent standards and limitations" means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
4. "Applicable water quality standards" means all water quality standards to which a discharge is subject under the federal Clean Water Act and which have been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas).
5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
6. "Daily Discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all the samples collected during that sampling day.
7. "Daily Average" (also known as monthly average) discharge limitations means the highest allowable average of "daily discharge(s)" over a calendar month, calculated as the sum of all "daily discharge(s)" measured during a calendar month divided by the number of "daily discharge(s)" measured during that month. When the permit establishes daily average concentration effluent limitations or conditions, the daily average concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar month where C = daily concentration, F = daily flow and n = number of daily samples; daily average discharge =

$$\frac{C1F1 + C2F2 + \dots + CnFn}{F1 + F2 + \dots + Fn}$$
8. "Daily Maximum" discharge limitation means the highest allowable "daily discharge" during the calendar month.
9. "Department" means the Arkansas Department of Pollution Control and Ecology (ADPCE).
10. "Director" means the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Pollution Control and Ecology.
11. "Grab sample" means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
12. "Industrial User" means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly-owned treatment works.
13. "National Pollutant Discharge Elimination System" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Clean Water Act.
14. "POTW" means a Publicly Owned Treatment Works.
15. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in productions.
16. "ADPCE" means the Arkansas Department of Pollution Control and Ecology.
17. "Sewage sludge" means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a publicly-owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly-owned treatment works.
18. "7-day average" discharge limitation, other than for fecal coliform bacteria, is the highest allowable arithmetic means of the values for all effluent samples collected during the calendar week. The 7-day average for fecal coliform bacteria is the geometric mean of the values of all effluent samples collected during the calendar week. The DMR should report the highest 7-day average obtained during the calendar month. For reporting purposes, the 7-day average values should be reported as occurring in the month in which the Saturday of the calendar week falls in.
19. "30-day average", other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.
20. "24-hour composite sample" consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.
21. "12-hour composite sample" consists of 12 effluent portions collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.
22. "6-hour composite sample" consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
23. "3-hour composite sample" consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
24. "Treatment works" means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes, of a liquid nature to implement section 201 of the Act, or necessary to recycle reuse water at the most economic cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.
25. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventive maintenance, or careless or improper operations.
26. For "fecal coliform bacteria", a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.
27. "Dissolved oxygen", shall be defined as follows:
 - a. When limited in the permit as a monthly minimum, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month;
 - b. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
28. The term "MGD" shall mean million gallons per day.
29. The term "mg/l" shall mean milligrams per liter or parts per million (ppm).
30. The term "µg/l" shall mean micrograms per liter or parts per billion (ppb).

FINAL Fact Sheet

for renewal of NPDES Permit Number AR0033316 to discharge to Waters of the State

1. **PERMITTING AUTHORITY.**

The issuing office is:

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

2. **APPLICANT.**

The applicant is:

Pine Bluff Wastewater Utility
Boyd Point Wastewater Treatment Facility
1520 S. Ohio St.
Pine Bluff, AR 71601

3. **PREPARED BY.**

The permit was prepared by:

Mo Shaffi
NPDES Branch, Water Division

4. **DATE PREPARED.**

The permit was prepared on December 23, 2003.

5. **PREVIOUS PERMIT ACTIVITY.**

Effective Date: May 1, 1988
Expiration Date: 04/30/2003

The permittee has submitted a permit renewal application on 10/08/2002 and an additional information on July 31, 2003 . It is proposed that the current NPDES permit be reissued for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

6. **RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION.**

The outfall is located at the following coordinates:

Latitude: 34° 16' 30" Longitude: 91° 57' 59"

The receiving waters named:

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

a. **303d List and Endangered Species Considerations**

i. **303d List**

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

ii. **Endangered Species:**

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

7. **OUTFALL AND TREATMENT PROCESS DESCRIPTION.**

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

- a. Design Flow: HCR (14 MGD)
- b. Type of treatment: two aerated lagoons, two primary ponds, two polishing ponds, and chlorine contact chamber.
- c. Discharge Description: treated municipal wastewater.

A quantitative and qualitative description of the discharge described in the NPDES Permit Application Forms received are available for review.

8. **INDUSTRIAL WASTEWATER CONTRIBUTIONS.**

a. **INDUSTRIAL USERS**

This facility receives industrial wastewater. Based on the applicant's effluent compliance history and the type of industrial contributions, standard Pretreatment Program implementation language is included. The permittee has recently submitted additional information for re-evaluation of Maximum Allowable Headworks Loadings (MAHL) and the need for Technically Based Local Limits (TBLL). This submittal is presently being responded to by Pretreatment personnel. The following requirement(s) will not be necessary in this permit: The permittee shall, within sixty(60) days of the effective date of this permit, (1) submit a **written certification** that a technical evaluation has demonstrated that the existing technically based local limits (TBLL) are based on current state water quality standards and are adequate to prevent pass through of pollutants, inhibition of or interference with the treatment facility, **or** (2) submit a **written notification** that a technical evaluation revising the current TBLL and a sewer use ordinance which incorporates such revisions will be submitted within 12 months of the effective date of this permit.

9. **SEWAGE SLUDGE PRACTICES.**

Sludge is accumulating in the bottom of the pond.

10. **PERMIT CONDITIONS.**

The Arkansas Department of Environmental Quality has made a tentative determination to issue a permit for the discharge described in the application. Permit requirements are based on NPDES regulations (40 CFR Parts 122, 124, and Subchapter N), Pretreatment regulations under 40 CFR 403 and regulations promulgated pursuant to the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et. seq.).

a. **Final Effluent Limitations**

Outfall 001 (Upstream Flow <5,000 cfs)- treated municipal wastewater

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

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified) Monthly Avg.	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	7-Day Avg.		
Flow (MGD)	N/A	Report	14	Once/day	Totalizing meter
Upstream Flow (MGD)	N/A	Report	Report	Once/day	Record
Carbonaceous Biochemical Oxygen Demand (CBOD5) (May-Oct)	N/A	25	38	Five/week	24-hr Composite
Biochemical Oxygen Demand (BOD5) (Nov-Apr)	N/A	30	45	Five/week	24-hr Composite
Total Suspended Solids (TSS)	N/A	90	135	Five/week	24-hr Composite
Ammonia Nitrogen (NH3-N) (May-Oct)	N/A	15	23	Five/week	24-hr Composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(Apr-Sept)	N/A	200	400	Five/week	Grab
(Oct-Mar)	N/A	1000	2000	Five/week	Grab
Total Residual Chlorine (TRC)	N/A	<0.1 mg/l (Inst. Max.)		Five/week	Grab
pH	N/A	<u>Minimum</u> 6 s.u.	<u>Maximum</u> 10.5 s.u.	One/day	Grab
Chronic Biomonitoring	N/A	See Page #12g below		once/quarter	24-hr composite

ii. **Solids, Foam, and Free Oil:** There shall be no discharge of distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

a. **Final Effluent Limitations**

Outfall 001 (Upstream Flow > = 5,000 cfs) - treated municipal wastewater

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

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Monthly Avg.	7-Day Avg.		
Flow (MGD)	N/A	Report	30	Once/day	Totalizing meter
Upstream Flow (MGD)	N/A	Report	Report	Once/day	Record
Carbonaceous Biochemical Oxygen Demand (CBOD5) (May-Oct)	N/A	25	38	Five/week	24-hr Composite
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Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(Apr-Sept)	N/A	200	400	Five/week	Grab
(Oct-Mar)	N/A	1000	2000	Five/week	Grab
Total Residual Chlorine (TRC)	N/A	<0.1 mg/l (Inst. Max.)		Five/week	Grab
pH	N/A	<u>Minimum</u> 6 s.u.	<u>Maximum</u> 10.5 s.u.	One/day	Grab
Chronic Biomonitoring	N/A	See Page #12g below		once/quarter	24-hr composite

ii. **Solids, Foam, and Free Oil:** There shall be no discharge of distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks. No visible sheen (Sheen means an iridescent appearance on the surface of the water).

11. **BASIS FOR PERMIT CONDITIONS.**

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

a. **Technology-Based versus Water Quality-Based Effluent Limitations and Conditions**

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

b. **Technology-Based Effluent Limitations and/or Conditions**

i. **General Comments**

The permit must at least comply with 40 CFR 133 (Secondary Treatment Regulation) when applicable.

c. **State Water Quality Numerical Standards Based Limitations**

i. **Conventional and Non-Conventional Pollutants**

Final effluent limits under two flow conditions are based on a desk top model performed by staff on October 6, 2001 and approved by EPA March 15, 2002. These limitation are included in the updated Arkansas Water Quality management Plan (WQMP). No mass limits are included in the permit due to HCR conditions. Fecal coliform bacteria and pH, limitations are based on chapter 5, Sections 2.507 and 2.504 of Regulation No. 2 as amended, respectively.

Note:

This permit has ammonia limits based on modeling for dissolved oxygen which are higher than the federal requirement. EPA has recently updated its national criteria for ammonia toxicity, which coincides with EPA Region 6 studies which indicate that discharge of ammonia in excess of 4 mg/l at the critical dilution increases potential of toxic effects instream. Calculations below show maximum level of NH₃-N in the effluent can be discharged and show no violation of EPA criteria:

$$C_e = [((IWC)X(Q_e + Q_b)) - (C_b X Q_b)] / Q_e$$

The following values were used;

EPA NH₃-N =IWC = 4 mg/l

Q_e = 14 MGD = 21.63 cfs This is the worst case

C_b = 0.06 mg/l (2002 Integrated Water Quality Monitoring and assessment 305 (b) Station ARK0049)

7Q10 = 1100 cfs this is the lowest value which was used in Water Quality Model

Q_b = 0.25 X 1100 = 275 cfs

$$C_e = [((4)X(21.63 + 275)) - (0.06 X 275)] / 21.63 = 54.09 \text{ mg/l}$$

Therefore;

1. May – October limit of 15 mg/l based on D.O. modeling will not violate the EPA criteria.
2. Limit for months of November – April are not necessary.

d. **Toxics Pollutants-Priority Pollutant Scan (PPS)**

i. **General Comments**

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

ii. **Post Third Round Policy and Strategy**

Section 101 of the Clean Water Act(CWA) states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited...". To insure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations by Toxic Pollutants"(49 FR 9016-9019,3/9/84). In support of the national policy, Region 6 adopted the "Policy for post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. The Regional policy and strategy are designed to insure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State water quality standard resulting in non-conformance with the provisions of 40 CFR Part 122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

iii. **Implementation**

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

iv. **Priority Pollutant Scan**

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

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

The concentration of each pollutant after mixing with the receiving stream was compared to the applicable water quality standards as established in the Arkansas Water Quality Standards, Reg. No. 2 and with the aquatic toxicity, human health, and drinking water criteria obtained from the "Quality Criteria for Water, 1986 (Gold Book)". The following expression was used to calculate the pollutant instream waste concentration(IWC):

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

where:

- IWC = instream concentration of pollutant after mixing with receiving stream ($\mu\text{g/l}$)
- C_e = pollutant concentration in effluent ($\mu\text{g/l}$)
- Q_e = effluent flow of facility (cfs)
- C_b = background concentration of pollutant in receiving stream ($\mu\text{g/l}$)
- Q_b = background flow of receiving stream (cfs)

The following values were used in the IWC calculations:

- C_e = varies with pollutant. A single value from the Priority Pollutant Screen (PPS) submitted by the permittee as part of the NPDES permit application or the geometric mean of a group of data points (less than 20 data points) is multiplied by a factor of 2.13. This factor is based on EPA's Region VI procedure (See attachment IV of Continuing Planning Process(CPP)) to extrapolate limited data sets to better evaluate

the potential toxicity for higher effluent concentrations to exceed water quality standards. This procedure employs a statistical approach which yields an estimate of a selected upper percentile value (the 95th percentile) of an effluent data set which would be expected to exceed 95% of effluent concentrations in a discharge. If 20 or more data points during the last two years are available, do not multiply by 2.13, but instead use the maximum reported values.

$$Q_e = \text{HCR (14) MGD} = 21.63 \text{ cfs}$$

$$C_b = 0 \mu\text{g/l}$$

$$Q_b = \text{(See below):}$$

(e) Aquatic Toxicity

Chronic Toxicity: Flow = 275 cfs, for comparison with chronic aquatic toxicity. This flow is 25 percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of 1100 cfs is based on "Identification and Classification of Perennial Stream of Arkansas", Arkansas Geological Commission Map.

Acute Toxicity: Flow = 66 cfs, for comparison with acute aquatic toxicity. This flow is 6 percent of the 7Q10 for the receiving stream.

(f) Bioaccumulation

Flow = 4065.86 cfs, for comparison with bioaccumulation criteria. This flow is the long term average (LTA) of the receiving stream which is based on EPA's STORET (Storage and retrieval), Water Quality Data Base System, from the existing permit.

(g) Drinking Water

Flow = 1100 cfs, for comparison with drinking water criteria. This flow is the 7Q10 for the receiving stream.

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

Hardness = 125 mg/l, based on attachment VI of CPP.

pH = 7.88 s.u., based on compliance data from "Arkansas Water Quality Inventory Report"305(b) utilizing ADEQ accumulated data for Station ARK0049.

v. **Water Quality Standards for Metals and Cyanide**

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

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

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

vi. **Conversion of Dissolved Metals Criteria for Aquatic Life to Total Recoverable Metal**

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

vii. **Results of the comparison of the submitted information with the appropriate water quality standards and criteria**

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

Pollutant	Concentration Reported, $\mu\text{g/l}$	MQL, $\mu\text{g/l}$
Total Phenols	47	5

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

Additionally, the current NPDES permit contained a report-only requirement for mercury. Since January 1998, all analytical test results for total mercury in the discharge have been below MQL limit of 0.2 ug/l. Therefore, monitoring and reporting requirements for total mercury have been removed from the permit. Based on 40 CFR 122.44 (l)(i) (B)(1) removal of mercury from the permit does not constitute backsliding.

e. Total Residual Chlorine (TRC) Requirements

A review of the 15 data for TRC from submitted toxicity reports (8/17/95 – 5/11/2001) shows TRC values ranging from 0.02 mg/l to 0.5 mg/l with average of 0.35 mg/l. The facility has a critical dilution of 7 %, and thus, at the edge of the mixing zone, concentrations of TRC are at least 0.025 mg/l (7% X 0.35 mg/l). EPA considers concentrations at the edge of the mixing zone higher than 0.011 mg/l (Chronic Criteria) to be toxic to aquatic organisms. The concentration seen at the edge of the mixing zone at the facility during this time was higher than EPA's criteria for chlorine toxicity. Therefore, final Total Chlorine Toxicity limit of less than 0.1 mg/l (No Measurable) is included in the permit with effective three years from effective date of the permit. In interim, monitoring and reporting for TRC are required. Additionally, the permittee has the option to undertake any study deemed necessary to meet the final limitations for TRC during the interim period. Any additional treatment must be approved and construction approval granted prior to final installation.

f. Final Limitations

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

Upstream flow < 5000 cfs

Parameter	Water Quality-Based		Technology-Based/BPJ		Previous NPDES Permit		Final Permit	
	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l
Flow (MGD)	Report	14	Report	14	Report	Report	Report	14
Upstream flow	Report	<5000	Report	<5000	N/A	N/A	Report	<5000
CBOD5 (May-Oct)	25	38	25	40	25	38	25	38
BOD5 (Nov-Apr)	30	45	30	45	30	45	30	45

TSS	90	135	90	135	90	135	90	135
NH3-N								
(May-Oct)	15	23	N/A	N/A	15	23	15	23
FCB (col/100ml)								
(Apr-Sept)	200	400	N/A	N/A	200	400	200	400
(Oct-Mar)	1000	2000	N/A	N/A	1000	2000	1000	2000
TRC (Inst. Max)	N/A		< 0.1 mg/l		N/A		<0.1 mg/l	
pH	6-10.5 s.u.		6-10.5 s.u.		6-10.5 s.u.		6-10.5 s.u.	

Upstream flow >= 5000 cfs

Parameter	Water Quality-Based		Technology-Based/BPJ		Previous NPDES Permit		Final Permit	
	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l	Monthly Avg. mg/l	7-day Avg. mg/l
Flow (MGD)	Report	30	Report	30	Report	Report	Report	30
Upstream flow	Report	>=5000	Report	>=5000	N/A	N/A	Report	>=5000
CBOD5 (May-Oct)	25	38	25	40	25	38	25	38
BOD5 (Nov-Apr)	30	45	30	45	30	45	30	45
TSS	90	135	90	135	90	135	90	135
NH3-N (May-Oct)	15	23	N/A	N/A	15	23	15	23
FCB (col/100ml)								
(Apr-Sept)	200	400	N/A	N/A	200	400	200	400
(Oct-Mar)	1000	2000	N/A	N/A	1000	2000	1000	2000
TRC (Inst. Max)	N/A		< 0.1 mg/l		N/A		<0.1 mg/l	
pH	6-10.5 s.u.		6-10.5 s.u.		6-10.5 s.u.		6-10.5 s.u.	

g. **Biomonitoring**

Note

This permit should have two sets of biomonitoring requirements. Acute Biomonitoring for stream flow ≥ 5000 cfs and Chronic Biomonitoring for flow < 5000 cfs. However; the permittee may have to do both biomonitoring requirements in the same quarter. This will be costly to the permittee. After meeting with the facility, permittee agrees with the permit writer to include only chronic biomonitoring requirements instead of both acute and chronic biomonitoring requirements. Additionally; 7Q10 of 100 cfs was used in the calculations. This the lowest value of the stream and it was approved by EPA in modeling.

Section 101(a)(3) of the Clean Water Act states that ".....it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, ADEQ is required under 40 CFR Part 122.44(d)(1), adopted by reference in Regulation 6, to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act. Arkansas has established a narrative criteria which states "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. It is the national policy of EPA to use bioassays as a measure of toxicity to allow evaluation of the effects of a discharge upon a receiving water (49 Federal Register 9016-9019, March 9, 1984). EPA Region 6 and the State of Arkansas are now implementing the Post Third Round Policy and Strategy established on September 9, 1992. Biomonitoring of the effluent is thereby required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

FREQUENCY

Chronic Biomonitoring

Once/quarter

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

7Q10 is more than 100 cfs (ft^3/sec), however; dilution ratio is less than 100:1, therefore, chronic biomonitoring requirements will be included in the permit.

The calculations for dilution used for chronic biomonitoring are as follows:

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

$$Q_d = \text{Design flow or Average flow} = 14 \text{ MGD} = 21.63 \text{ cfs}$$

$$7Q_{10} = 1100 \text{ Cfs}$$

$$Q_b = \text{Background flow} = (0.25) \times 7Q_{10} = 275 \text{ cfs}$$

$$CD = (21.63) / (21.63 + 275) \times 100 = 7\%$$

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 **3%, 4%, 5%, 7%, and 9%** (See **Attachment I** of CPP). The low-flow effluent concentration (critical dilution) is defined as **7%** effluent. The requirement for chronic biomonitoring tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead Minnow (*Pimephales promelas*) are indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 CFR Part 122.48.

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

This permit may be reopened to require further biomonitoring studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if biomonitoring data submitted to the Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 CFR 122.62, as adopted by reference in ADEQ Regulation No. 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8-4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarized toxicity test submitted by the permittee during the term of the current permit at outfall **001** (See **Attachment 4**.)

h. Sample Type and Sampling Frequency

Regulations promulgated at 40 CFR 122.44(i)(1) require permit to establish monitoring requirements which assure compliance with permit limitations. Requirements for sample type and sampling frequency were based on recommended frequencies for self-monitoring of discharges with the flow of >10 MGD.

i. **Changes from the previously issued permit**

1. Flow has been changed to HCR.
2. Stream flow conditions are included.
3. Mass limits for CBOD5, BOD5, TSS, and NH3-N have been removed.
4. Requirements for HCR are included in the Part III.
5. Requirements for Mercury have been removed.
6. Part III has been revised.
7. Critical dilution as well as dilution series for revised chronic biomonitoring have been changed.
8. Reporting requirements for biomonitoring have changed.
9. Odor language has been removed.
10. Reporting months for CBOD5, BOD5, TSS, and NH3-N has been changed to May-Oct and November-April.
11. Sample type requirements have been changed.
12. Flow limits have been included.
13. Interim reporting, final limit, and schedule of compliance for TRC have been included.

j. **Storm water pollution prevention plan requirements**

SWPP requirements are not required in lieu of "No Exposure Certification" which was submitted with the renewal application.

12. **SCHEDULE OF COMPLIANCE.**

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

Compliance is required on the effective date of the permit for all parameters except TRC. The permittee shall monitor and report TRC for an interim period of three year following the effective date. Following the three year interim period the specified limits for TRC will become effective. 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.

13. **OPERATION AND MONITORING.**

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

14. **SOURCES.**

The following sources were used to the permit:

- a. NPDES application No. AR0033316 received 10/08/2002.
- b. Arkansas Water Quality Management Plan(WQMP).
- c. Regulation No. 2.
- d. Regulation No. 6.
- e. 40 CFRs 122, 125, 133 & 403.
- f. NPDES permit file AR00 33316.
- g. Discharge Monitoring Reports (DMRs).
- h. "Arkansas Water Quality Inventory Report 2000 (305B)", ADEQ.
- i. "Identification and Classification of Perennial Streams of Arkansas", Arkansas Geological Commission.
- j. EPA's STORET (Storage and Retrieval), Water Quality Data Base System.
- k. Continuing Planning Process (CPP).
- l. Technical Support Document For Water Quality-based Toxic Control.
- m. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR 131.36.
- n. Letter from Ken Johnson (Permittee) to Mo shafii dated 12/8/03.

15. **NPDES POINT OF CONTACT.**

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

Attachment 1

Attachment 2

Linear Partition Coefficients for Priority Metals in Streams and Lakes*

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

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

Kp = Linear Partition Coefficient

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

Kpo = found from table

a = found from table

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

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

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

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

**** Texas Environmental Advisory Council, 1994

Attachment 3

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

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

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

For all other discharges use the following ecoregion TSS:

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

Attachment 4

Calculations/biomonitoring

Pretreatment Attachments

(get package from Cabinet if necessary)

ATTACHMENT 1

Priority Pollutant Scan Calculation

Permittee City of Pine Bluff
 Receiving Stream Arkansas River
 Permit number AR0033316 Qe for:
 Flow (Qe) 14.00 MGD Municipalities = Design Flow
 Flow (Qe) 21.63 CFS Industrial Discharges = Highest monthly average flow of the last two years
 7Q10 = 1100.00 CFS
 Long Term Average = 4065.86 CFS TSS for:
 Using Diffusers No Yes/No Gulf Coastal 5.5 mg/l Ouach Mount = 2 mg/l
 pH = 7.88 S.U. Ark River Valley = 3 mg/l Ozark Highlands = 2.5 mg/l
 Total Hardness 125.00 mg/l Boston Mount = 1.3 mg/l Delta = 8 mg/l
 TSS 8.3 mg/l
 (% of 7Q10 for Chronic) 0.25 Total Hardness for:
 (% of 7Q10 for Acute) 0.06 Arkansas River = 125 mg/l Red River = 211 mg/l
 Ouachita River = 28 mg/l St. Francis River = 103 mg/l

For the following receiving enter 0.06 in cell "C17" White River = 116 mg/l

Mississippi, Arkansas, Red River. Gulf Coastal = 31 mg/l Ouachita Mount = 31 mg/l
 White (Below confluence with Black River) Ozark Highlands = 148 mg/l Ark River Valley = 25 mg/l
 Ouachita (below Confluence with Little Miss. River Boston Mount = 25 mg/l Delta = 81 mg/l

Upstream Flow (Qb) = 275.00 (Chronic) 66.00 (Acute)
 Pollutant Concentration Upstream (Cb) = 0 ug/l
 Water Effect Ratio(WER): 1.00
 Cancer Risk Level: 1.00E-05 (STATE); 1.00e-6 (EPA)

IWC = Instream concentration of pollutant after mixing with the receiving stream
 $IWC = (Ce \cdot Qe + Cb \cdot Qb) / (Qb + Qe)$
 Ce = Pollutant concentration in the effluent (ug/l) = Reported value as Total Recov

Reported Value (Ce) (ug/l)	Ce*2.13 (ug/l)	EPA Acute (ug/l)	STATE Acute (ug/l)	IWC Acute (ug/l)	EPA Chronic (ug/l)	STATE Chronic (ug/l)	IWC Chronic (ug/l)	EPA Bioacc. (ug/l)	STATE Bioacc. (ug/l)	IWC Bioacc. (ug/l)	Violation of Acute	Chr	Bio
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METALS and CYANIDE

1. Antimony Total	0.00	0.00	9000	*****	0.00	1600	*****	0.00	4300	*****	0.00	NO	NO	NO
2. Arsenic Total	0.00	0.00	665.98	*****	0.00	351.49	*****	0.00	1.40	*****	0.00	NO	NO	NO
3. Beryllium Total	0.00	0.00	130.00	*****	0.00	5.30	*****	0.00	*****	0.076	0.00	NO	NO	NO
4. Cadmium Total*	0.00	0.00	*****	19.04	0.00	*****	4.91	0.00	*****	*****	0.00	NO	NO	NO
6. Chromium (Tri)*	0.00	0.00	*****	3225.67	0.00	*****	1046.37	0.00	*****	*****	0.00	NO	NO	NO
7. Chromium (hex)	0.00	0.00	*****	15.71	0.00	*****	10.58	0.00	*****	*****	0.00	NO	NO	NO
8. Copper Total*	0.00	0.00	*****	58.86	0.00	*****	38.50	0.00	*****	*****	0.00	NO	NO	NO
9. Lead Total*	0.00	0.00	*****	434.01	0.00	*****	16.91	0.00	*****	*****	0.00	NO	NO	NO
10. Mercury Total*	0.00	0.00	*****	6.44	0.00	*****	0.0120	0.00	0.15	*****	0.00	NO	NO	NO
12. Nickel Total*	0.00	0.00	*****	3790.47	0.00	*****	420.96	0.00	4600	*****	0.00	NO	NO	NO
13. Selenium Total	0.00	0.00	*****	20.00	0.00	*****	5.00	0.00	*****	*****	0.00	NO	NO	NO
14. Silver Total*	0.00	0.00	*****	16.4704	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
15. Thallium Total	0.00	0.00	1400	*****	0.00	40.00	*****	0.00	6.30	*****	0.00	NO	NO	NO
16. Zinc Total*	0.00	0.00	*****	464.37	0.00	*****	424.04	0.00	*****	*****	0.00	NO	NO	NO
129. Phenols, Total	47.00	100.11	*****	*****	*****	*****	*****	*****	*****	*****	0.53	NO	NO	NO
17. Cyanide Total	0.00	0.00	*****	22.36	0.00	*****	5.20	0.00	220000	*****	0.00	NO	NO	NO

* See linear partition coefficient (Page 6)

Reported	Ce*2.13	EPA	STATE	IWC	EPA	STATE	IWC	EPA	STATE	IWC	Violation of
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	Value (Ce) (ug/l)	(ug/l)	Acute (ug/l)	Acute (ug/l)	Acute (ug/l)	Chronic (ug/l)	Chronic (ug/l)	Chronic (ug/l)	Bioacc. (ug/l)	Bioacc. (ug/l)	Bioacc. (ug/l)	Acute Chr	Bio	
DIOXIN														
18. 2-3-7-8-TCDD	0.00	0.00	0.01	*****	0.00	*****	*****	0.00	1.40E-07	1.00E-09	0.00	NO	NO	NO
VOLATILE COMPOUNDS														
19. Acrolein	0.00	0.00	68.00	*****	0.00	21.00	*****	0.00	780.00	*****	0.00	NO	NO	NO
20. Acrylonitrile	0.00	0.00	7550	*****	0.00	2600	*****	0.00	6.60	*****	0.00	NO	NO	NO
21. Benzene	0.00	0.00	5300	*****	0.00	*****	*****	0.00	710.00	*****	0.00	NO	NO	NO
22. Bromoform	0.00	0.00	*****	*****	0.00	*****	*****	0.00	3600.00	*****	0.00	NO	NO	NO
23. Carbon T Tet	0.00	0.00	35200	*****	0.00	*****	*****	0.00	44.00	*****	0.00	NO	NO	NO
24. Chlorobenzene	0.00	0.00	250.00	*****	0.00	50.00	*****	0.00	2.10E+04	*****	0.00	NO	NO	NO
25. Chlorodibromomethane	0.00	0.00	*****	*****	0.00	*****	*****	0.00	340.00	*****	0.00	NO	NO	NO
26. Chloroethane	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
27. 2-Chloroethylvinyl ether	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
28. Chloroform	0.00	0.00	28900	*****	0.00	1240	*****	0.00	4700.00	*****	0.00	NO	NO	NO
29. Dichlorobromomethane	0.00	0.00	*****	*****	0.00	*****	*****	0.00	220.00	*****	0.00	NO	NO	NO
30. 1-1-Dichloroethane	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
31. 1-2-Dichloroethane	0.00	0.00	118000	*****	0.00	20000	*****	0.00	990.00	*****	0.00	NO	NO	NO
32. 1-1-Dichloroethylene	0.00	0.00	11600	*****	0.00	*****	*****	0.00	32.00	*****	0.00	NO	NO	NO
33. 1,2 Dichloropropane	0.00	0.00	23000	*****	0.00	5700	*****	0.00	*****	*****	0.00	NO	NO	NO
34. 1,3 Dichloropropylene	0.00	0.00	6060	*****	0.00	244.00	*****	0.00	1700.00	*****	0.00	NO	NO	NO
35. Ethylbenzene	0.00	0.00	32000	*****	0.00	*****	*****	0.00	29000.00	*****	0.00	NO	NO	NO
37. Methyl Chloride	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
36. Methyl bromide	0.00	0.00	*****	*****	0.00	*****	*****	0.00	4000.00	*****	0.00	NO	NO	NO
38. Methylene chloride	0.00	0.00	*****	*****	0.00	*****	*****	0.00	16000.00	*****	0.00	NO	NO	NO
39. 1-1-2-2-Tetrachloroethane	0.00	0.00	9320	*****	0.00	2400	*****	0.00	110.00	*****	0.00	NO	NO	NO
40. Tetrachloroethylene	0.00	0.00	5280	*****	0.00	840	*****	0.00	88.50	*****	0.00	NO	NO	NO
41. Toluene	0.00	0.00	17500	*****	0.00	*****	*****	0.00	2.0E+05	*****	0.00	NO	NO	NO
42. 1,2-trans-dichloroethylene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
44. 1-1-2-Trichloroethane	0.00	0.00	18000	*****	0.00	9400	*****	0.00	420.00	*****	0.00	NO	NO	NO
43. 1-1-1-Trichloroethane	0.00	0.00	18000	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
45. Trichloroethylene	0.00	0.00	45000	*****	0.00	21900	*****	0.00	810.00	*****	0.00	NO	NO	NO
46. Vinyl Chloride	0.00	0.00	*****	*****	0.00	*****	*****	0.00	5250.00	*****	0.00	NO	NO	NO

	Reported Value (Ce) (ug/l)	Ce*2.13 (ug/l)	EPA Acute (ug/l)	STATE Acute (ug/l)	IWC Acute (ug/l)	EPA Chronic (ug/l)	STATE Chronic (ug/l)	IWC Chronic (ug/l)	EPA Bioacc. (ug/l)	STATE Bioacc. (ug/l)	IWC Bioacc. (ug/l)	Violation of Acute	Chr	Bio
ACID COMPOUNDS														
47. 2-Chlorophenol	0.00	0.00	4380	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
48. 2-4-Dichlorophenol	0.00	0.00	2020	*****	0.00	365	*****	0.00	*****	*****	0.00	NO	NO	NO
49. 2-4 Dimethylphenol	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
50. 4,6-Dinitro-o-Cresol	0.00	0.00	*****	*****	0.00	*****	*****	0.00	765.00	*****	0.00	NO	NO	NO
51. 2,4-Dinitrophenol	0.00	0.00	*****	*****	0.00	*****	*****	0.00	14000	*****	0.00	NO	NO	NO
52-53. Nitrophenols	0.00	0.00	230	*****	0.00	150	*****	0.00	*****	*****	0.00	NO	NO	NO
54. 4 Chloro-3-methylphenol	0.00	0.00	30.00	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
55. Pentachlorophenol	0.00	0.00	21.96	21.96	0.00	13.87	13.87	0.00	82.00	*****	0.00	NO	NO	NO
56. Phenol	0.00	0.00	10200	*****	0.00	2560	*****	0.00	4600000	*****	0.00	NO	NO	NO
57. 2-4-6-Trichlorophenol	0.00	0.00	*****	*****	0.00	*****	*****	0.00	65.00	*****	0.00	NO	NO	NO
BASE/NEUTRAL COMPOUNDS														
58. Acenaphthene	0.00	0.00	1700	*****	0.00	520	*****	0.00	*****	*****	0.00	NO	NO	NO
59. Acenaphthylene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
60. Anthracene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	110000.00	*****	0.00	NO	NO	NO
61. Benzidine	0.00	0.00	2500	*****	0.00	*****	*****	0.00	5.4E-03	*****	0.00	NO	NO	NO
62. Benzo(a) anthracene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
63. Benzo(a) pyrene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
64. 3,4-benzoflouranthene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
65. Benzo(g,h,i)perylene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
66. Benzo(k) fluoranthene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
67. Bis(2-chloroethoxy)methane	0.00	0.00	*****	*****	0.00	*****	*****	0.00	14.00	*****	0.00	NO	NO	NO
68. Bis(2-chloroethyl) Ether	0.00	0.00	*****	*****	0.00	*****	*****	0.00	1.7E+05	*****	0.00	NO	NO	NO
69. Bis(2-Chloroisopropyl) eth	0.00	0.00	*****	*****	0.00	*****	*****	0.00	59.00	*****	0.00	NO	NO	NO
70. Bis(2-ethylhexyl)phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
71. 4-Bromophenyl phenyl ether	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
72. Butylbenzy phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
73. 2-chloronaphthalene	0.00	0.00	1600	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
74. 4-chlorophenyl phenyl ether	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
75. Chrysene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
76. Dibenzo(a,h)anthracene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.310	*****	0.00	NO	NO	NO
77-79. Dichlorobenzene(1,2-1,3-1,4)	0.00	0.00	1120	*****	0.00	763	*****	0.00	2600.0	*****	0.00	NO	NO	NO
80. 3,3' Dichlorobenzidine	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.770	*****	0.00	NO	NO	NO
81. Diethyl Phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	1.2E+05	*****	0.00	NO	NO	NO
82. Dimethyl phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	2.9E+06	*****	0.00	NO	NO	NO
83. Di-n-Butyl phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	1.2E+04	*****	0.00	NO	NO	NO
84. 2-4-Dinitrotoluene	0.00	0.00	330	*****	0.00	230	*****	0.00	91.00	*****	0.00	NO	NO	NO
85. 2-6-Dinitrotoluene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
86. Di-n-octyl phthalate	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
87. 1,2-diphenylhydrazine	0.00	0.00	270	*****	0.00	*****	*****	0.00	5.400	*****	0.00	NO	NO	NO
88. Fluoranthene	0.00	0.00	3980	*****	0.00	*****	*****	0.00	370.00	*****	0.00	NO	NO	NO
89. Fluorene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	14000.000	*****	0.00	NO	NO	NO
90. Hexachlorobenzene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.00770	*****	0.00	NO	NO	NO
91. Hexachlorobutadiene	0.00	0.00	90.00	*****	0.00	9.30	*****	0.00	500.000	*****	0.00	NO	NO	NO
92. Hexachlorocyclopentadiene	0.00	0.00	7.00	*****	0.00	5.20	*****	0.00	1.70E+04	*****	0.00	NO	NO	NO
93. Hexachloroethane	0.00	0.00	980	*****	0.00	540	*****	0.00	89.00	*****	0.00	NO	NO	NO
Hexachlorocyclohexane	0.00	0.00	2.00	2.00	0.00	0.08	0.08	0.00	*****	*****	0.00	NO	NO	NO
94. Indeno(1,2,3-cd)pyrene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	0.31000	*****	0.00	NO	NO	NO
95. Isophorone	0.00	0.00	117000	*****	0.00	*****	*****	0.00	6000	*****	0.00	NO	NO	NO
96. Naphthalene	0.00	0.00	2300	*****	0.00	620	*****	0.00	*****	*****	0.00	NO	NO	NO
97. Nitrobenzene	0.00	0.00	27000	*****	0.00	*****	*****	0.00	1900.00	*****	0.00	NO	NO	NO
98. N-nitrosodimethylamine	0.00	0.00	*****	*****	0.00	*****	*****	0.00	81.00	*****	0.00	NO	NO	NO
99. N-nitrosodi-n-propylamine	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
100. N-nitrosodiphenylamine	0.00	0.00	*****	*****	0.00	*****	*****	0.00	160.00	*****	0.00	NO	NO	NO
101. Phenanthrene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO
103. 1,2,4-Trichlorobenzene	0.00	0.00	*****	*****	0.00	*****	*****	0.00	*****	*****	0.00	NO	NO	NO

	Reported Value (Ce) (ug/l)	Ce*2.13 (ug/l)	EPA Acute (ug/l)	STATE Acute (ug/l)	IWC Acute (ug/l)	EPA Chronic (ug/l)	STATE Chronic (ug/l)	IWC Chronic (ug/l)	EPA Bioacc. (ug/l)	STATE Bioacc. (ug/l)	IWC Bioacc. (ug/l)	Violation of Acute	Chr	Bio
PESTICIDES														
104. Aldrin	0.00	0.00	3.00	3.00	0.00	*****	*****	0.00	0.00140	*****	0.00	NO	NO	NO
105. Alpha-BHC	0.00	0.00	*****	2.00	0.00	*****	0.08	0.00	1.300E-01	0.0373	0.00	NO	NO	NO
106. Beta-BHC	0.00	0.00	*****	2.00	0.00	*****	0.08	0.00	0.4600	*****	0.00	NO	NO	NO
107. Gamma-BHC	0.00	0.00	2.00	2.00	0.00	0.08	0.08	0.00	0.6300	*****	0.00	NO	NO	NO
108. Delta-BHC	0.00	0.00	*****	2.00	0.00	*****	0.08	0.00	*****	*****	0.00	NO	NO	NO
109. Chlordane	0.00	0.00	2.40	2.40	0.00	0.0043	0.0043	0.00	5.900E-03	0.0050	0.00	NO	NO	NO
110. 4,4'-DDT	0.00	0.00	1.10	1.10	0.00	0.0010	0.0010	0.00	0.0059	*****	0.00	NO	NO	NO
111. 4,4'-DDE	0.00	0.00	*****	1.10	0.00	*****	0.0010	0.00	0.0059	*****	0.00	NO	NO	NO
112. 4,4'-DDD	0.00	0.00	*****	1.10	0.00	*****	0.0010	0.00	0.0084	*****	0.00	NO	NO	NO
113. Dieldrin	0.00	0.00	2.50	2.50	0.00	0.0019	0.0019	0.00	1.400E-03	0.0012	0.00	NO	NO	NO
114. Alpha-endosulfan	0.00	0.00	0.22	0.22	0.00	0.0560	0.0560	0.00	2.00	*****	0.00	NO	NO	NO
115. Beta-endosulfan	0.00	0.00	0.22	0.22	0.00	0.0560	0.0560	0.00	2.00	*****	0.00	NO	NO	NO
116. Endosulfan sulfate	0.00	0.00	*****	0.22	0.00	*****	0.0560	0.00	2.00	*****	0.00	NO	NO	NO
117. Endrin	0.00	0.00	0.18	0.18	0.00	0.0023	0.0023	0.00	8.100E-01	*****	0.00	NO	NO	NO
118. Endrin aldehyde	0.00	0.00	*****	0.18	0.00	*****	0.0023	0.00	8.1000E-01	*****	0.00	NO	NO	NO
119. Heptachlor	0.00	0.00	0.52	0.52	0.00	0.0038	0.0038	0.00	0.0021	*****	0.00	NO	NO	NO
120. Heptachlor epoxide	0.00	0.00	0.52	0.52	0.00	0.0038	0.0038	0.00	0.0011	*****	0.00	NO	NO	NO
121. PCB-1242	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
122. PCB-1254	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
123. PCB-1221	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
124. PCB-1232	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
125. PCB-1248	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
126. PCB-1260	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
127. PCB-1016	0.00	0.00	*****	*****	0.00	0.0140	0.0140	0.00	4.500E-04	4.00E-04	0.00	NO	NO	NO
128. Toxaphene	0.00	0.00	0.73	0.73	0.00	0.00020	0.0002	0.00	4.500E-04	0.0063	0.00	NO	NO	NO
130. Chlorpyrifos	0.00	0.00	0.083	0.083	0.00	0.041	0.041	0.00	*****	*****	0.00	NO	NO	NO

	Reported Value (Ce) (ug/l)	Ce*2.13 (ug/l)	STATE	IWC	STATE	IWC	STATE	IWC	Violation of		
			Acute (ug/l)	Acute (ug/l)	Chronic (ug/l)	Chronic (ug/l)	Bioacc. (ug/l)	Bioacc. (ug/l)	Acute	Chr	Bio
AWQ, Reg. No. 2											
Alpha-BHC	0.00	0.00	2.00	0.00	0.08	0.00	0.0373	0.00	NO	NO	NO
Beta-BHC	0.00	0.00	2.00	0.00	0.08	0.00			NO	NO	
Gamma-BHC	0.00	0.00	2.00	0.00	0.08	0.00			NO	NO	
Delta-BHC	0.00	0.00	2.00	0.00	0.08	0.00			NO	NO	
Pentachlorophenol	0.00	0.00	21.96	0.00	13.87	0.00			NO	NO	
Aldrin	0.00	0.00	3.00	0.00					NO		
Chlordane	0.00	0.00	2.40	0.00	0.0043	0.00	0.005	0.00	NO	NO	NO
4,4'-DDT	0.00	0.00	1.10	0.00	0.0010	0.00			NO	NO	
4,4'-DDE	0.00	0.00	1.10	0.00	0.0010	0.00			NO	NO	
4,4'-DDD	0.00	0.00	1.10	0.00	0.0010	0.00			NO	NO	
Dieldrin	0.00	0.00	2.50	0.00	0.0019	0.00	0.0012	0.00	NO	NO	NO
Alpha-endosulfan	0.00	0.00	0.22	0.00	0.0560	0.00			NO	NO	
Beta-endosulfan	0.00	0.00	0.22	0.00	0.0560	0.00			NO	NO	
Endosulfan sulfate	0.00	0.00	0.22	0.00	0.0560	0.00			NO	NO	
Endrin	0.00	0.00	0.18	0.00	0.0023	0.00			NO	NO	
Endrin aldehyde	0.00	0.00	0.18	0.00	0.0023	0.00			NO	NO	
Heptachlor	0.00	0.00	0.52	0.00	0.0038	0.00			NO	NO	
Heptachlor epoxide	0.00	0.00	0.52	0.00	0.0038	0.00			NO	NO	
Toxaphene	0.00	0.00	0.73	0.00	0.0002	0.00	0.0063	0.00	NO	NO	NO
Chlorpyrifos	0.00	0.00	0.083	0.00	0.0410	0.00			NO	NO	
Cadmium Total*	0.00	0.00	19.04	0.00	4.91	0.00			NO	NO	
Chromium (hex)	0.00	0.00	15.71	0.00	10.58	0.00			NO	NO	
Copper Total*	0.00	0.00	58.86	0.00	38.50	0.00			NO	NO	
Lead Total*	0.00	0.00	434.01	0.00	16.91	0.00			NO	NO	
Mercury Total*	0.00	0.00	6.44	0.00	0.0120	0.00			NO	NO	
Nickel Total*	0.00	0.00	3790.47	0.00	420.96	0.00			NO	NO	
Selenium Total	0.00	0.00	20.00	0.00	5.00	0.00			NO	NO	
Silver Total*	0.00	0.00	16.4704	0.00					NO		
Zinc Total*	0.00	0.00	464.37	0.00	424.04	0.00			NO	NO	
Chromium (Tri)*	0.00	0.00	3225.67	0.00	1046.37	0.00			NO	NO	
Cyanide Total	0.00	0.00	22.36	0.00	5.20	0.00			NO	NO	
Beryllium Total	0.00	0.00					0.076	0.00			NO
PCB-1242	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1254	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1221	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1232	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1248	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1260	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
PCB-1016	0.00	0.00			0.0140	0.00	4.00E-04	0.00	NO	NO	
2-3-7-8-TCDD	0.00	0.00					1E-06	0.00			NO

* See Linear Partition Coefficient (Page 6)

Linear Partition Coefficients

Metals	Streams	Kpo	a
Arsenic	*****		-0.73
Cadmium	*****		-1.13
Chromium(3)	*****		-0.93
Copper	*****		-0.74
Lead	*****		-0.80
Mercury	*****		-1.14
Nickel	*****		-0.57
Zinc	*****		-0.70
Silver	*****		-1.03

$Kp = Kpo \times TSS^a$

Kp = Linear Partition Coefficient
 TSS = Total Suspended Solids (mg/l)
 Kpo = found from above table
 a = found from above table

$C/Ct = 1 / (1 + Kp \times TSS \times 10^{-6})$

C / Ct = Fraction of Metal Dissolved

Metals	Streams	Kp	C / Ct
Arsenic	102403	0.5406	
Cadmium	366017	0.2477	
Chromium (3)	469458	0.2042	
Copper	217228	0.3568	
Lead	515105	0.1896	
Mercury	259806	0.3168	
Nickel	146663	0.4510	
Zinc	284155	0.2978	
Silver	271369	0.3075	

Total Metal = Dissolved Metal / (C/Ct)

AQUATIC LIFE CRITERIA (DISSOLVED ACUTE VALUES)

Pollutant	Dissolved(ug/l)	Formula
Cadmium	4.72	WER X Conversion Factor* X e[1.128ln(hardness)]-3.828
Chromium(III)	658.77	WER X 0.316 X e[0.819ln(hardness)]+3.688
Chromium(V)	15.71	WER X 0.982 X 16
Copper	21.00	WER X 0.96 X e[0.9422ln(hardness)]-1.464
Lead	82.27	WER X Conversion Factor** X e[1.273ln(hardness)]-1.460
Mercury	2.04	WER X 0.85 X 2.4
Nickel	1709.49	WER X 0.998 X e[0.8460ln(hardness)]+3.3612
Silver	5.0641	WER X 0.85 X e[1.72ln(hardness)]-6.52
Zinc	138.27	WER X 0.978 X e[0.8473ln(hardness)]+0.8604

* 1.136672 - [(ln hardness)(0.041838)]

** 1.46203 - [(ln hardness)(0.145712)]

AQUATIC LIFE CRITERIA (DISSOLVED CHRONIC VALUES)

Pollutant	Dissolved(ug/l)	Formula
Cadmium	1.22	WER X Conversion Factor* X e[0.7852ln(hardness)]-3.490
Chromium(III)	213.70	WER X 0.86 X e[0.819ln(hardness)]+1.561
Chromium(V)	10.58	WER X 10
Copper	13.74	WER X 0.96 X e[0.8545ln(hardness)]-1.465
Lead	3.21	WER X Conversion Factor** X e[1.273ln(hardness)]-4.705
Nickel	190.04	WER X 0.997 X e[0.8460ln(hardness)]+1.1645
Zinc	126.26	WER X 0.986 X e[0.8473ln(hardness)]+0.7614

* 1.101672 - [(ln hardness)(0.041838)]

** 1.46203 - [(ln hardness)(0.145712)]

Attachment 2

Linear Partition Coefficients for Priority Metals in Streams and Lakes*

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

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

K_p = Linear Partition Coefficient

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

K_{po} = found from table

a = found from table

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

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

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

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

**** Texas Environmental Advisory Council, 1994

Attachment 3

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

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

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

For all other discharges use the following ecoregion TSS:

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

ATTACHMENT 4

**BIOMONITORING FREQUENCY RECOMMENDATION
AND RATIONALE FOR ADDITIONAL REQUIREMENTS**

Permit Number: **AR0033316**

Facility Name: **Pine Bluff Wastewater Utility**

Previous Critical Dilution: **6.7%** Proposed Critical Dilution: **7%**

Date of Review: **8-4-03** Name of Reviewer: **Clem**

Number of Test Performed during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow) : 8**

***Ceriodaphnia dubia* (water flea): 8**

Failed Test Dates during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow) : None**

***Ceriodaphnia dubia* (water flea): None**

Previous TRE Activities: None

Frequency Recommendation by Species:

***Pimephales promelas* (Fathead minnow) : four/year**

***Ceriodaphnia dubia* (water flea): four/year**

Additional Requirements (including WET Limits) Rationale/Comments Concerning Permitting:

Rationale: *Continuous Planning Process, 2000, Appendix D, III. E. b.*, "For permittees with a design flow greater than or equal to 2 MGD and no known problems, the toxicity testing frequency shall be four times a year for both species."

ATTACHMENT C
PRETREATMENT PERFORMANCE SUMMARY (PPS)

NOTE: ALL QUESTIONS REFER TO THE INDUSTRIAL PRETREATMENT PROGRAM AS APPROVED BY THE EPA. THE PERMITTEE SHOULD NOT ANSWER THE QUESTIONS BASED ON CHANGES MADE TO THE APPROVED PROGRAM WITHOUT DEPARTMENT AUTHORIZATION.

I. General Information

Control Authority Name _____

Address _____

City _____ State/Zip _____

Contact Person _____ Position _____

Contact Telephone _____ NPDES Permit Nos. _____

Reporting Period _____

(Beginning Month and Year) (Ending Month and Year)

Total Number of Categorical IUs _____

Total Number of Significant Noncategorical IUs _____

II. Significant Industrial User Compliance

SIGNIFICANT INDUSTRIAL USERS
Categorical NonCategorical

1) No. of SIUs Submitting BMRs/Total		
No. Required.	/	N/A*
2) No. of SIUs Submitting 90-Day Compliance		
Reports/No. Required.	/	N/A*
3) No. of SIUs Submitting Semiannual Reports/		
Total No. Required.	/	/
4) No. of SIUs Meeting Compliance Schedule/		
Total No. Required to Meet Schedule	/	/
5) No. of SIUs in Significant Noncompliance/		
Total No. of SIUs	/	/
6) Rate of Significant Noncompliance for all		
SIUs (categorical and noncategorical)		/

III. Compliance Monitoring Program

	<u>SIGNIFICANT INDUSTRIAL USERS</u>	
	<u>Categorical</u>	<u>NonCategorical</u>
1) No. of Control Documents Issued/Total No. Required.	/	/
2) No. of Nonsampling Inspections Conducted.	/	/
3) No. of Sampling Visits Conducted.	/	/
4) No. of Facilities Inspected (nonsampling)	/	/
5) No. of Facilities Sampled	/	/

IV. Enforcement Actions

	<u>SIGNIFICANT INDUSTRIAL USERS</u>	
	<u>Categorical</u>	<u>NonCategorical</u>
1) No. of Compliance Schedules Issued/No. of Schedules Required	/	/
2) No. of Notices of Violations Issued to SIUs	_____	_____
3) No. of Administrative Orders Issued to SIUs	_____	_____
4) No. of Civil Suits Filed.	_____	_____
5) No. of Criminal Suits Filed	_____	_____
6) No. of Significant Violators (attach newspaper publication).	_____	_____
7) Amount of Penalties Collected (total dollars/IUs assessed)	/	/
8) Other Actions (sewer bans, etc.).	_____	_____

The following certification must be signed in order for this form to be considered complete:

I certify that the information contained herein is complete and accurate to the best of my knowledge.

Authorized Representative

Date



ARKANSAS
Department of Environmental Quality

RESPONSE TO COMMENTS FINAL PERMIT DECISION

This is our response to comments received on the subject permit in accordance with regulations promulgated at 40 CFR Part 124.17.

Permit No. : AR0033316
Applicant : Pine Bluff Wastewater Utility
Boyd Point Wastewater Treatment Facility
Prepared by : Mo Shafii
Permit Action : Final permit decision and response to comments received on the permit publicly noticed on November 13, 2003.
Date Prepared : December 26, 2003

The following comments have been received on the permit.

Letter from Mr. Ken Johnson to Mo Shafii dated December 8, 2003.

I. Response to issues raised

ISSUE #1

Permittee has requested the footnote #1 on page 2 of Part IA be revised to read: "Report monthly average and daily total as MGD."

RESPONSE #1

Staff does not agree. There is no definition for daily total in the permit. Permittee should report the flow in accordance with the following definitions as stated in Part IV of the permit.

"Daily Maximum" discharge limitation means the highest allowable **"daily discharge"** during the calendar month.

"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. For pollutants with limitations expressed in other units of measurement (i.e. MGD), the "daily discharge" is calculated as the **average measurement** of the pollutant over the **sampling day**.

ISSUE #2

Permittee has requested that condition number 10 of Page 16 of Part III be revised to read:

The permittee must monitor the upstream flow. Receiving stream flow shall be obtained from the U.S. Corps of Engineers at Arkansas River Lock and Dam No. 5 by contacting the local Lock Master via telephone or using www.swlwc.usace.army.mil/arkansas_river_projects.htm. Records shall be kept and available for inspection upon request.

RESPONSE #2

Staff agrees.

ISSUE #3

Permittee has requested that TRC limit of 0.1mg/l be replaced with monitoring and reporting only.

RESPONSE #3

Staff does not agree. Inclusion of TRC limit in the permit was explained on page 11 of Fact Sheet .