Permit number: AR0020010

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.),

City of Fayetteville – Paul R. Noland WWTP
1400 North Fox Hunter Road
Fayetteville, AR 72701

is authorized to discharge from a facility located at

from downtown Fayetteville north on Hwy 71B, then east on Hwy 45 to Fox Hunter Road, then 1.7 miles on North Hunter Road, in Section 7 and 8, Township 16 North, Range 29 West in Washington County, Arkansas.

Latitude: 36° 04' 45"; Longitude: 94° 05'16"

to receiving waters named:

Outfall 001: White River, thence to Beaver Lake, thence to the White River in Segment 4 K of the White River Basin

Outfall 002: an unnamed tributary of Mud Creek, thence to Mud Creek, thence to the Illinois River, thence to the Arkansas River in Segment 3J of the Arkansas River Basin.

The outfalls are located at the following coordinates:

Outfall 001: Latitude: 36° 05' 00"; Longitude: 94° 05'00"
Outfall 002: Latitude: 36° 05' 25"; Longitude: 94° 06'38"

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

Response to comments is attached to this permit.

This permit shall become effective on June 1, 2006

This permit and the authorization to discharge shall expire at midnight, May 31, 2011

Signed this 30th day of April 2006

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

PART I
PERMIT REQUIREMENTS

SECTION A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001* - treated municipal wastewater

During the period beginning on the effective date and ending four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first, the permittee is authorized to discharge from outfall serial number 001. 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	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-May)	375	7.5	11.3	Three/week	24-hr Composite
(June-September)	250	5.0	7.5	Three/week	24-hr Composite
(October-November)	275	5.5	8.3	Three/week	24-hr Composite
(December-March)	1,051	21	31.5	Three/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	250	5.0	7.0	Four/week	24-hr Composite
(December-March)	751	15.0	22.0	Four/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-May)	150	3.0	4.5	Four/week	24-hr Composite
(June-September)	90	1.8	3.0	Four/week	24-hr Composite
(October-November)	125	2.5	4.5	Four/week	24-hr Composite
(December-March)	305	6.1	10.5	Four/week	24-hr Composite
Dissolved Oxygen[2]					
(April-May)	N/A	7.7 (Monthly Average Min)		Four/week	Grab
(June-September)	N/A	6.9(Monthly Average Min)		Four/week	Grab
(October-November)	N/A	7.5(Monthly Average Min)		Four/week	Grab
(December-March)	N/A	8.7 (Monthly Average Min)		Four/week	Grab
Total Phosphorus	50	1.0	2.0	Four/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Four/week	Grab
(October-March)	N/A	1000	2000	Four/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Four/week	Grab
Chronic Biomonitoring[3]	N/A	N/A	N/A	Once/quarter	24-hr composite

Pimephales promelas (Chronic)[3]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP6C		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP6C		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP6C		Report %	Once/quarter	24-hr composite
Ceriodaphnia dubia (Chronic)[3]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP3B		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP3B		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP3B		Report %	Once/quarter	24-hr composite

* See Condition 10 of Part III. Mass effluent limitations have been calculated using a flow of 6.0 MGD.

1 Report monthly average and daily maximum as MGD.
2 See item #27(a) of Part IV.
3 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. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 001* - treated municipal wastewater with 11.2 MGD flow

During the period beginning four years after the effective date of the permit or 30 days after the West Side WWTP is operational, whichever comes first, and lasting until date of expiration, the permittee is authorized to discharge from outfall serial number 001. Such discharges shall be limited and monitored by the permittee as specified below:

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	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-May)	701	7.5	11.3	Three/week	24-hr Composite
(June-September)	467	5.0	7.5	Three/week	24-hr Composite
(October-November)	514	5.5	8.3	Three/week	24-hr Composite
(December-March)	1,962	21.0	31.5	Three/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	467	5.0	7.0	Five/week	24-hr Composite
(December-March)	1,401	15.0	22.0	Five/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-May)	280	3.0	4.5	Five/week	24-hr Composite
(June-September)	159	1.7	4.2	Five/week	24-hr Composite
(October-November)	280	2.4	4.5	Five/week	24-hr Composite
(December-March)	514	5.0	12.6	Five/week	24-hr Composite
Dissolved Oxygen[2]					
(April-May)	N/A	7.7 (Monthly Average Min)		Five/week	Grab
(June-September)	N/A	6.9(Monthly Average Min)		Five/week	Grab
(October-November)	N/A	7.5(Monthly Average Min)		Five/week	Grab
(December-March)	N/A	8.7 (Monthly Average Min)		Five/week	Grab
Total Phosphorus	93.4	1.0	2.0	Five/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Five/week	Grab
(October-March)	N/A	1000	2000	Five/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Five/week	Grab
Chronic Biomonitoring[3]	N/A	N/A	N/A	Once/quarter	24-hr composite

Pimephales promelas (Chronic)[4]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP6C		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP6C		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP6C		Report %	Once/quarter	24-hr composite
Ceriodaphnia dubia (Chronic)[4]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP3B		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP3B		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP3B		Report %	Once/quarter	24-hr composite

* See Condition 10 of Part III.

1 Report monthly average and daily maximum as MGD.
2 See item #27(a) of Part IV.
3 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 002* - treated municipal wastewater with 6 MGD flow

During the period beginning on the effective date and ending two years after the effective date or 90 days after the West Side WWTP is operational, the permittee is authorized to discharge from outfall serial number 002. 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	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-November)	250	5.0	7.0	Two/week	24-hr Composite
(December-March)	500	10.0	15.0	Two/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	250	5.0	7.5	Two/week	24-hr Composite
(December-March)	751	15.0	22.5	Two/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-October)	80	1.6	3.0	Once/week	24-hr Composite
(November)	100	2.0	3.0	Once/week	24-hr Composite
(December-March)	205	4.1	7.0	Once/week	24-hr Composite
Dissolved Oxygen[2]					
(April-November)	N/A	8.0 (Monthly Average Min)		Two/week	Grab
(December-March)	N/A	10.0 (Monthly Average Min)		Two/week	Grab
Total Phosphorus	50	1.0	2.0	Two/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Two/week	Grab
(October-March)	N/A	1000	2000	Two/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Two/week	Grab
Chronic Biomonitoring[3]	N/A	N/A	N/A	Once/quarter	24-hr composite

Pimephales promelas (Chronic)[3]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP6C		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP6C		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP6C		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP6C		Report %	Once/quarter	24-hr composite
Ceriodaphnia dubia (Chronic)[3]		7-Day Average		
Pass/Fail Lethality (7-day NOEC) TLP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Pass/Fail Growth (7-day NOEC)TGP3B		Report (Pass=0/Fail=1)	Once/quarter	24-hr composite
Survival (7-day NOEC) TOP3B		Report %	Once/quarter	24-hr composite
Coefficient of Variation TQP3B		Report %	Once/quarter	24-hr composite
Growth (7-day NOEC) TPP3B		Report %	Once/quarter	24-hr composite

* See Condition 10 of Part III.

1 Report monthly average and daily maximum as MGD.
2 See item #27(a) of Part IV.
3 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.

SECTION B. SCHEDULE OF COMPLIANCE

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

Outfall 001:

Compliance with the final effluent limitations is required on the effective date of the permit.

Outfall 002:

Compliance with the final effluent limitations is required on the effective date of this permit.

PART II
STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

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

2. Penalties for Violations of Permit Conditions

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

3. Permit Actions

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

a. Violation of any terms or conditions of this permit; or
b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
c. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
d. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
e. Failure of the permittee to comply with the provisions of APCEC Regulation No. 9 (Permit fees) as required by condition II A.10 herein.

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

4. Toxic Pollutants

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

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

5. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (Part II.B.4.a.), and "Upsets" (Part II.B.5.b), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state and federal statues 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 exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

9. Severability

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

10. Permit Fees

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

SECTION B – OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. Duty to Mitigate

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

4. Bypass of Treatment Facilities

a. **Bypass not exceeding limitation.**

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

b. **Notice**

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

c. **Prohibition of bypass**

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

5. Upset Conditions

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

(4) The permittee complied with any remedial measures required by Part II.B.3.

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

6. **Removed Substances**

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

7. **Power Failure**

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

SECTION C - MONITORING AND RECORDS

1. **Representative Sampling**

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director. Intermittent discharges shall be monitored.

2. **Flow Measurement**

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

3. **Monitoring Procedures**

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and

maintenance activities will be conducted. An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory. At a minimum, spikes and duplicate samples are to be analyzed on 10% of the samples.

4. Penalties for Tampering

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

5. Reporting of Monitoring Results

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

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

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

6. Additional Monitoring by the Permittee

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

7. Retention of Records

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

8. **Record Contents**

Records and monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements, and preservatives used, if any;
b. The individuals(s) who performed the sampling or measurements;
c. The date(s) 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 Part122.29(b).

b. The alternation or addition could significantly change the nature or increase the quality of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CRF Part 122.42 (a)(1).

For POTW Dischargers:

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

2. **Anticipated Noncompliance**

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

3. **Transfers**

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

4. **Monitoring Reports**

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

5. **Compliance Schedule**

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

6. **Twenty-four Hour Report**

a. The permittee shall report all noncompliance. Any information shall be provided orally or on-line within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:

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

b. The following shall be included as information which must be reported within 24 hours:
(1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
(2) Any upset which exceeds any effluent limitation in the permit and
(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit to be reported within 24 hours.

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

7. 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)(1).

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

8. 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.

9. Duty to reapply

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

10. Signatory Requirements

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

a. All permit applications shall be signed as follows:
   (1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
      (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation: or
      (ii) The manager of one or more manufacturing, production, or operation facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
   (2) For a partnership or sole proprietorship: by a general partner or proprietor, respectively; or
   (3) For a municipality, State, Federal, or other public agency; by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
      (i) The chief executive officer of the agency, or
      (ii) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

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

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

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

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my

knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Availability of Reports

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

12. 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 as Class IV 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 publicly owned treatment works, the 30-day average percent removal for Biochemical Oxygen Demand and Total Suspended Solids 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 APCEC Regulation No. 6.

3. Produced sludge shall be disposed of by land application only when meeting the following criteria:

    a. Sewage sludge from treatment works treating domestic sewage (TWTDS) must meet the applicable provisions of 40 CFR Part 503; and

    b. The sewage sludge has not been classified as a hazardous waste under state or federal regulations.

4. 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).

5. 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.) All overflows 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, shall be provided within 5 days of the time the permittee becomes aware of the circumstance.

6. In accordance with 40 CFR Parts 122.62 (a) (2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge (s) to water body, or a Total Maximum Daily Load (TMDL) is established or revised for the water body that were not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance.

7. Other Specified Monitoring Requirements

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

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

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

8. **Contributing Industries and Pretreatment Requirements 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 **4/26/84** and modified on **7/14/98**. 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 per year** and the toxic pollutants in Table III at least **4/yr (once per 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 **4/yr (once per 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 **May.**

In addition, during the month of **May** 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 the North American Industrial Classification System NAICS) 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 and 002**
CRITICAL DILUTION (%):	**100**
EFFLUENT DILUTION SERIES (%):	**32%,42%,56%,74%,100%**
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

Non-ideal concentration-response relationships will occasionally be encountered in toxicity testing. In the event the results from a specific toxicity test yield a non-ideal concentration-response relationship, the permittee shall submit the toxicity report to ADEQ and request a technical review prior to initiating a retest. The test will be reviewed according to the "Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" which may reduce the number of false positives and unnecessary retests. At the conclusion of the technical review, ADEQ will advise the permittee on any follow up WET test(s) that may be required.

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

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

ii. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.

iii. 60% of the surviving control females must produce three broods.

iv. The mean dry weight of surviving fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.

v. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the fathead minnow test.

vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the fathead minnow test.

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

b. Statistical Interpretation

i. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA/600/4-91/002 or the most recent update thereof.

ii. For the Ceriodaphnia dubia reproduction test and the fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration

(NOEC) as described in EPA/600/4-91/002 or the most recent update thereof.

iii. If the conditions of Test Acceptability are met in Item 3.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 4 below.

c. Dilution Water

i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;

(A) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and

(B) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.

ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 3.a), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

(A) a synthetic dilution water control which fulfills the test acceptance requirements of Item 3.a was run concurrently with the receiving water control;

(B) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

(C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 4 below; and

(D) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the

discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. Samples and Composites

i. The permittee shall collect a minimum of three flow-weighted composite samples from the outfall(s) listed at Item 1.a above.

ii. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

iii. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 4 degrees Centigrade during collection, shipping, and/or storage.

iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 4 of this section.

v. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item 1.a above for the day the sample was collected. The permittee shall perform the toxicity test on the flow-weighted composite of the outfall samples.

If the effluent discharged from multiple outfalls is the same the permittee may collect the flow proportional samples from either outfall.

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

4. REPORTING

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA/600/4-91/002, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART II.C.7 of this permit. The permittee shall submit full reports upon the specific request of the Department. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for review.

b. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST survival results for each species during the reporting period. All invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for ADEQ review.

c. The permittee shall submit the results of each valid toxicity test on DMR for that reporting period in accordance with PART II.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following DMR. Only results of valid tests are to be reported on the DMR.

i. Pimephales promelas (fathead minnow)

(A) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C.

(B) If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C.

(C) Report the NOEC value for survival, Parameter No. TOP6C.

(D) Report the NOEC value for growth, Parameter No. TPP6C.

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

ii. Ceriodaphnia dubia

(A) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B.

(B) If the No Observed Effect Concentration (NOEC) for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B.

(B) Report the NOEC value for survival, Parameter No. TOP3B.

(C) Report the NOEC value for reproduction, Parameter No. TPP3B.

(E) Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B.

5. Monitoring Frequency Reduction

a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution without a major modification. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the fathead minnow) and not less than twice per year for the more sensitive test species (usually the Ceriodaphnia dubia).

b. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in item 3.a. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the Department will issue a letter of confirmation of the monitoring frequency reduction.

A copy of the letter will be forwarded to the Permit Compliance System section to update the permit reporting requirements.

c. SUB-LETHAL FAILURES - If a statistically significant sub-lethal effect is demonstrated at or below the critical dilution during any quarterly test, the permittee shall conduct two retests. The retests shall be conducted monthly during the next two consecutive months.

If during the first four quarters, statistically significant sub-lethal effects are exhibited, quarterly testing will be required for that species until the effluent passes both the lethal and sub-lethal tests endpoints for the affected species, for four consecutive quarters. After passing four consecutive quarters for the affected species the permittee may request a reduction in testing frequency. Monthly retesting is not required if the permittee is performing a TRE.

d. SURVIVAL FAILURES - If any test fails the survival endpoint at any time during the life of this permit, two monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.

e. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

6. TOXICITY REDUCTION EVALUATION (TRE)

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

i. Specific Activities. The plan shall detail the specific approach the permittee intends to utilize in conducting the TRE. The approach may include toxicity characterizations, identifications and confirmation activities, source evaluation, treatability studies, or alternative approaches. When the permittee conducts Toxicity

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

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

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

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

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 48 hours of test initiation, each composite sample shall be analyzed independently. Otherwise the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis;

iii. Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.); and

iv. Project Organization (e.g., project staff, project manager, consulting services, etc.).

b. The permittee shall initiate the TRE Action Plan within thirty (30) days of plan and schedule submittal. The permittee shall assume all risks for failure to achieve the required toxicity reduction.

c. The permittee shall submit a quarterly TRE Activities Report, with the Discharge Monitoring Report in the months of January, April, July and October, containing information on toxicity reduction evaluation activities including:

i. any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

ii. any studies/evaluations and results on the treatability of the facility's effluent toxicity; and

iii. any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution.

d. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming lethality in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

7. 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. Transition Period.

The City of Fayetteville is proposing to construct a second wastewater treatment plant on the west side of the City. After the West Side Wastewater Treatment Plant (WWTP) is constructed, the entire flow from the Noland WWTP will be discharged into the White River and Outfall 002 to Mud Creek will be eliminated. During the transition period the facility will continue discharging through Outfall 001(limitations listed on Page 1 of Part

IA) to the White River and Outfall 002 to the unnamed tributary of Mud Creek (limitations listed on Page 5 of Part IA).

The final effluent limitations listed on Page 3 of Part IA will become effective four years after the effective date of this permit or 90 days after the West Side WWTP is operational, whichever comes first.

The permittee must notify the ADEQ when the West Side WWTP is complete and at least 90 days before the anticipated discharge from the West Side WWTP. At that time, the authorization to discharge via Outfall 002 to the unnamed tributary of Mud Creek will be terminated.

PART IV
DEFINITIONS

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

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

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

7. **Monthly average**: means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. For Fecal Coliform Bacteria (FCB) report the monthly average see 30-day average below.
8. **"Daily Maximum"** discharge limitation means the highest allowable "daily discharge" during the calendar month. The 7-day average for fecal coliform bacteria is the geometric mean of the values of all effluent samples collected during the calendar week in colonies/100 ml.
9. **"Department"** means the Arkansas Department of Environmental Quality (**ADEQ**).

10. **"Director"** means the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Environmental Quality.
11. **"Grab sample"** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
12. **"Industrial User"** means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly-owned treatment works.
13. **"National Pollutant Discharge Elimination System"** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the Clean Water Act.
14. **"POTW"** means a Publicly Owned Treatment Works.
15. **"Severe property damage"** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in products.
16. **"APCEC"** means the Arkansas Pollution Control and Ecology Commission.
17. **"Sewage sludge"** means the solids, residues, and precipitate separated from or created in sewage by the unit processes a publicly-owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly-owned treatment works.
18. **"7-day average"** discharge limitation, other than for fecal coliform bacteria, is the highest allowable arithmetic means of the values for all effluent samples collected during the calendar week. The 7-day average for fecal coliform bacteria is the geometric mean of the values of all effluent samples collected during the calendar week in colonies/100 ml. The DMR should report the highest 7-day average obtained during the calendar month. For reporting purposes, the 7-day average values should be reported as occurring in the month in which the Saturday of the calendar week falls in.
19. **"30-day average"**, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.
For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
20. **"24-hour composite sample"** consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.
21. **"12-hour composite sample"** consists of 12 effluent portions, collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.
22. **"6-hour composite sample"** consists of six effluent portions collected no closer together than one hour(with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

23. **"3-hour composite sample"** consists of three effluent portions collected no closer together than one hour(with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
24. **"Treatment works"** means any devices and systems used in storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes, of a liquid nature to implement section 201 of the Act, or necessary to recycle reuse water at the most economic cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.
25. **"Upset"** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. Any upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack or preventive maintenance, or careless of improper operations.
26. **"For Fecal Coliform Bacteria"**, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
27. **"Dissolved oxygen limit"**, shall be defined as follows:

a. When limited in the permit as a monthly average minimum, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month;

b. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.

28. **The term "MGD"** shall mean million gallons per day.
29. **The term "mg/l** "shall mean milligrams per liter or parts per million (ppm).
30. **The term "µg/l"** shall mean micrograms per liter or parts per billion (ppb).
31. **The term "cfs"** shall mean cubic feet per second.
32. **The term "ppm"** shall mean part per million.
33. **The term "s.u."** shall mean standard units.
34. **Monitoring and Reporting:**

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

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

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

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

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

Final Fact Sheet

for reissuance of final NPDES Permit Number AR0020010 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:

City of Fayetteville – Paul R. Noland WWTP
1400 North Fox Hunter Road
Fayetteville, AR 72701

3. **PREPARED BY.**

The permit was prepared by:

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

4. **DATE PREPARED.**

The permit was prepared on April 20, 2006.

5. **PREVIOUS PERMIT ACTIVITY.**

Effective Date:	June 30, 2004
Modification Date:	N/A
Expiration Date:	November 30, 1997

The permittee submitted a permit renewal application on 10/01/2004. 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 outfalls are located at the following coordinates:

Outfall 001: Latitude: 36° 05' 00"; Longitude: 94° 05'00"
Outfall 002: Latitude: 36° 05' 25"; Longitude: 94° 06'38"

The receiving waters named:

Outfall 001: the White River, thence to Beaver Lake, thence to the White River in Segment 4 K of the White 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.

Outfall 002: an unnamed tribuatry of Mud Creek, thence to Mud Creek, thence to the Illinois River, thence to the Arkansas River in Segment 3J of the Arkansas River Basin. The receiving stream is a Water of the State classified for secondary 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.

Transition Period.

The City of Fayetteville is proposing to construct a second wastewater treatment plant on the west side of the City. After the West Side Wastewater Treatment Plant (WWTP) is constructed, the entire flow from the Noland WWTP will be discharged into the White River and Outfall 002 to Mud Creek will be eliminated. During the transition period the facility will continue discharging through Outfall 001 to the White River and Outfall 002 to the unnamed tributary of Mud Creek. The final effluent limitations will become effective four* years after the effective date of this permit or 90 days after the West Side WWTP is operational, whichever comes first. **The permittee must notify the ADEQ when the West Side WWTP is complete and at least 90 days before the anticipated discharge from the West Side WWTP.** At that time, the authorization to discharge via Outfall 002 to the unnamed tributary of Mud Creek will be terminated.

***The Department originally anticipated that these limitations will become effective two years after the effective date of the permit or 90 days after the West Side WWTP is operational, whichever comes first. The permittee requested that this timeline is extended to 4 years due to the unforeseen difficulties encountered with a construction project of this magnitude.**

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

i. **303d List**

Outfall 001: The receiving stream for Outfall 001, the White River is listed on the 303d list for siltation with source of this impairment identified as surface erosion. Due to this impairment, the effluent limitations for Total Suspended Solids are continued.

Outfall 002: The receiving stream for Outfall 002, an unnamed tributary of Mud Creek 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.

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

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

a. Flow used to calculate limits: Outfall 001: 6.0 MGD
11.2 MGD
Outfall 002: 6.0 MGD

b. Type of treatment: coarse screens, fine screens, grit chamber, primary clarifiers (optional), advanced biological nutrient removal system utilizing anaerobic and oxic chambers, secondary clarifiers, alum precipitation (optional), sand filters, UV disinfection units, and post aeration.

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 Significant Industrial process wastewater.

Industrial Contributor	Principal Product	Process Wastewater Flow
Ayrshire Electronics, LLC	Printed circuit boards	0.012 MGD
Cooper Power	Electrical Devices	0.0023 MGD

Systems/Kearney Operation		
Elkhart products Corporation	Wrought Copper Fittings	0.0002 MGD
Hiland Dairy Company	Bottled Milk and Juice	0.0437 MGD
Danaher Tool Group/K-D Tools	Hand and Edge Tools	0.0159 MGD
Marshalltown Tools	Hand and Edge Tools	0.0044 MGD
Mexican Original(East)	Tortillas and Chips	0.0719 MGD
Pinnacle Foods Corporation	Frozen Entrees, Breakfast, Meat Pies, Prepared Meats	0.546 MGD
Superior Industries International, Inc.	Cast Aluminum and Chrome-plated Wheels	0.560 MGD
Tyson Foods, Inc.	Frozen Meals and Entrees, Flour Tortillas	0.253 MGD

Based on the applicant's effluent compliance history and the type of industrial contributions, standard Pretreatment Program implementation conditions are deemed appropriate at this time.

9. **SEWAGE SLUDGE PRACTICES.**

Sludge is typically transported to the landfill. However, it may be land applied under state permit No. 4748-W.

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), the National Pretreatment Regulation in 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**

Outfalls 001 & 002- treated municipal wastewater

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

Outfall 001, Effluent Limitations-effective during the period beginning on effective date and ending four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first,

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, mgd	N/A	Report	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-May)	375	7.5	11.3	Three/week	24-hr Composite
(June-September)	250	5.0	7.5	Three/week	24-hr Composite
(October-November)	275	5.5	8.3	Three/week	24-hr Composite
(December-March)	1,051	21	31.5	Three/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	250	5.0	7.0	Four/week	24-hr Composite
(December-March)	751	15.0	22.0	Four/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-May)	150	3.0	4.5	Four/week	24-hr Composite
(June-September)	90	1.8	3.0	Four/week	24-hr Composite
(October-November)	125	2.5	4.5	Four/week	24-hr Composite
(December-March)	305	6.1	10.5	Four/week	24-hr Composite
Dissolved Oxygen					
(April-May)	N/A	7.7 (Min Monthly Avg)		Four/week	Grab
(June-September)	N/A	6.9(Min Monthly Avg)		Four/week	Grab
(October-November)	N/A	7.5(Min Monthly Avg)		Four/week	Grab
(December-March)	N/A	8.7 (Min Monthly Avg)		Four/week	Grab
Total Phosphorus	50	1.0	2.0	Four/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Four/week	Grab
(October-March)	N/A	1000	2000	Four/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Four/week	Grab
Chronic Biomonitoring	N/A	See Page 23 below		Once/quarter	24-hr composite

Outfall 001, Effluent Limitations, effective four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first,

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 mgd	N/A	Report	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-May)	701	7.5	11.3	Three/week	24-hr Composite
(June-September)	467	5.0	7.5	Three/week	24-hr Composite
(October-November)	514	5.5	8.3	Three/week	24-hr Composite
(December-March)	1,962	21.0	31.5	Three/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	467	5.0	7.0	Five/week	24-hr Composite
(December-March)	1,401	15.0	22.0	Five/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-May)	280	3.0	4.5	Five/week	24-hr Composite
(June-September)	159	1.7	4.2	Five/week	24-hr Composite
(October-November)	280	2.4	4.5	Five/week	24-hr Composite
(December-March)	514	5.0	12.6	Five/week	24-hr Composite
Dissolved Oxygen					
(April-May)	N/A	7.7 (Min Monthly Avg		Five/week	Grab
(June-September)	N/A	6.9(Min Monthly Avg)		Five/week	Grab
(October-November)	N/A	7.5(Min Monthly Avg)		Five/week	Grab
(December-March)	N/A	8.7 (Min Monthly Avg)		Five/week	Grab
Total Phosphorus	93.4	1.0	2.0	Five/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Five/week	Grab
(October-March)	N/A	1000	2000	Five/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Five/week	Grab
Chronic Biomonitoring	N/A	See Page 23 below		Once/quarter	24-hr composite

Outfall 002, treated municipal wastewater:

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, mgd	N/A	Report	Report	Once/day	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(April-November)	250	5.0	7.5	Two/week	24-hr Composite
(December-March)	500	10.0	15.0	Two/week	24-hr Composite
Total Suspended Solids (TSS)					
(April-November)	250	5.0	7.5	Two/week	24-hr Composite
(December-March)	751	15.0	22.5	Two/week	24-hr Composite
Ammonia Nitrogen (NH3-N)					
(April-October)	80	1.6	3.0	Once/week	24-hr Composite
(November)	100	2.0	3.0	Once/week	24-hr Composite
(December-March)	205	4.1	7.0	Once/week	24-hr Composite
Dissolved Oxygen					
(April-November)	N/A	8.0 (Min Monthly Avg)		Two/week	Grab
(December-March)	N/A	10.0 (Min Monthly Avg)		Two/week	Grab
Total Phosphorus	50	1.0	2.0	Two/week	24-hr composite
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
(April-September)	N/A	200	400	Two/week	Grab
(October-March)	N/A	1000	2000	Two/week	Grab
pH	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	Two/week	Grab
Chronic Biomonitoring	N/A	See Page 23 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 draft permit and the reasons for them or, in the case of notices of intent to deny or terminate, reasons suggesting the tentative decisions as required under 40 CFR 124.7 (48 FR 1413, April 1, 1983).

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

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

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

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**

Outfall 001:

Effective during the period beginning on effective date and ending four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first,

Final effluent limits basis for CBOD5, NH3-N (April-May), and DO is a "multi-SMP" model performed by CH2M HILL and approved by the EPA.

The limitations for CBOD5, TSS, NH3-N, and DO are included in the updated Arkansas Water Quality Management Plan (WQMP). The effluent limitations for TSS are continued from the previous permit. The calculation of the loadings (lbs per day) uses a flow of 6.0 MGD and the following equation (See below).

lbs/day = Concentration (mg/l) X Flow (MGD) X 8.34

Fecal Coliform Bacteria and pH limitations are based on chapter 5, Sections 2.507 and 2.504 of Regulation No. 2 as amended, respectively.

Total Phosphorus:

The draft permit includes Total Phosphorus limit based on the current permit. This limit is also consistent with Section 2.509 of Regulation No. 2.

Ammonia-Nitrogen

The water quality effluent limitations for Ammonia are based on either AWQMP-based effluent limits or on toxicity-based standards, whichever are more stringent.

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2 and memo dated March 28, 2005. The following formula has been used to calculate toxicity based Ammonia limits:

Cd = (IWC(Qd + Qb) – CbQb)/Qd,

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the site specific data are as follows:

April-May- temp. 21.8 deg.C. -
6.2 mg/l 7-day Average, 2.5 mg/l Monthly Average

June-September- temp. 29 deg. C. –
3.9 mg/l 7-day Average, 1.6 mg/l Monthly Average

October- November- temp. 23.3 deg. C. –
5.7 mg/l 7-day Average, 2.3 mg/l Monthly Average

December- March-temp. 17.25 deg. C. –
9.3 mg/l 7-day Average, 3.7 mg/l Monthly Average

Qd = flow = 6 MGD = 9.2 cfs
Qb = critical flow of the receiving stream =

April-May – 38.12 cfs
June –Sept – 1.21 cfs
Oct-Nov – 0.8 cfs
Dec-March – 6.2 cfs

for comparison with chronic aquatic toxicity. This flow is **67** percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of

April-May – 56.9 cfs
June –Sept – 1.8 cfs
Oct-Nov – 1.2 cfs
Dec-March – 9.24 cfs

is based on Exhibit 3 of Evaluation of Effluent Limits for the City of Fayetteville-Technical Memorandum

Cb = background concentration =

June –Sept – 0.05 m/l
Oct-May – 0.08 mg/l

Permit limits are as follows (See attachment 1) :

Month	Monthly Avg*	7-Day Max*
April-May	3.0	4.5
June-Sept	1.8	3.0
Oct-Nov	2.5	4.5
Dec-March	6.1	10.5

*** See attachment 1**

Effluent Limitations effective during the period beginning four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first, and lasting until date of expiration:

Final effluent limits basis for CBOD5, NH3-N (April-May), and DO is a "multi-SMP" model performed by CH2M HILL and approved by the EPA.

The limitations for CBOD5, TSS, NH3-N, and DO are included in the updated Arkansas Water Quality Management Plan (WQMP). The reach of the White River into which the Noland Wastewater Treatment Facility discharges is on the State's 303(d) list for siltation. Therefore, the effluent limitations for TSS are continued from the previous permit. The calculation of the loadings (lbs per day) uses a flow of 11.2 MGD and the following equation (See below).

lbs/day = Concentration (mg/l) X Flow (MGD) X 8.34

Fecal Coliform Bacteria and pH limitations are based on Chapter 5, Sections 2.507 and 2.504 of Regulation No. 2 as amended, respectively.

Total Phosphorus:

The draft permit includes Total Phosphorus limit of 1.0 mg/l.

Ammonia-Nitrogen

The water quality effluent limitations for Ammonia are based on either AWQMP-based effluent limits or on toxicity-based standards, whichever are more stringent.

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2 and memo dated March 28, 2005. The following formula has been used to calculate toxicity based Ammonia limits:

$$Cd = (IWC(Qd + Qb) - CbQb)/Qd,$$

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the site specific data are as follows:

April-May- temp. 21.8 deg.C. -
6.2 mg/l 7-day Average, 2.5 mg/l Monthly Average

June-September- temp. 29 deg. C. –
3.9 mg/l 7-day Average, 1.6 mg/l Monthly Average

October- November- temp. 23.3 deg. C. –
5.7 mg/l 7-day Average, 2.3 mg/l Monthly Average

December- March-temp. 17.25 deg. C. –
9.3 mg/l 7-day Average, 3.7 mg/l Monthly Average

Qd = flow = 11.2 MGD = 17.25 cfs
Qb = critical flow of the receiving stream =

April-May – 38.12 cfs
June –Sept – 1.21 cfs
Oct-Nov – 0.8 cfs
Dec-March – 6.2 cfs

for comparison with chronic aquatic toxicity. This flow is **67** percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of

April-May – 56.9 cfs
June –Sept – 1.8 cfs
Oct-Nov – 1.2 cfs
Dec-March – 9.24 cfs

is based on Exhibit 3 of Evaluation of Effluent Limits for the City of Fayetteville-Technical Memorandum
Cb = background concentration =

June –Sept – 0.05 m/l
Oct-May – 0.08 mg/l

Permit limits are as follows (See attachment 1) :

Month	Monthly Avg*	7-Day Max*
April-May	3.0	4.5
June-Sept	1.7	3.0
Oct-Nov	2.4	4.5
Dec-March	5.0	10.5

*** See attachment 1**

Outfall 002:

The water quality-based limits for CBOD5, TSS, NH3-N (November), and DO have been based on the current NPDES permit, and 40 CFR Part 122.44(l). The calculation of the loadings (lbs per day) uses a flow of 6.0 MGD and the following equation (See below). These limitations are included in the updated Arkansas Water Quality Management Plan (AWQMP). Fecal coliform bacteria and pH limitations are based on chapter 5, Sections 2.507 and 2.504 of Regulation No. 2 as amended, respectively.

lbs/day = Concentration (mg/l) X Flow (MGD) X 8.34

Total Phosphorus:

The draft permit includes Total Phosphorus limit based on Section 6.401(D)(1) of Regulation No. 6 and the December 18, 2003, Statement of Joint Principles and Actions between Arkansas and Oklahoma. This limit is continued from the current permit.

Ammonia-Nitrogen

The water quality effluent limitations for Ammonia are based on either AWQMP-based effluent limits or on toxicity-based standards, whichever are more stringent.

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2 and memo dated March 28, 2005. The following formula has been used to calculate toxicity based Ammonia limits:

$$Cd = (IWC(Qd + Qb) - CbQb)/Qd,$$

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the ecoregion data are as follows:

April-October

7-day Avg – 3.9 mg/l
Monthly Avg. – 1.56 mg/l

November-March

7-day Avg. - 10.3 mg/l
Monthly Avg. - 4.11 mg/l

Qd = flow = 6.0 MGD = 9.24 cfs
The 7Q10 of 0 cfs is based on "Identification and Classification of Perennial Stream of Arkansas", Arkansas Geological Commission Map
Cb = background concentration = 0 mg/l

Permit limits are as follows (See attachment 1) :

Months	Permit limit	
	Monthly Average, mg/l	7-day Average, mg/l
April-October	1.6	3.0
November	2	3
December-March	4.1	7

*** See attachment 1**

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

i. **General Comments**

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

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 (μg/l)
C_e = pollutant concentration in effluent (μg/l)
Q_e = effluent flow of facility (cfs)
C_b = background concentration of pollutant in receiving stream (μg/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 = 11.2 MGD = 17.25 cfs (Outfall 001)
6.0 MGD = 9.24 cfs (Outfall 002)

C_b = 0 µg/l

Q_b = (See below):

(e) Aquatic Toxicity

Chronic Toxicity:

Outfall 001: Flow = 0.8 cfs, for comparison with chronic aquatic toxicity. This flow is **67** percent of the critical flow for the receiving stream-the White River. The critical flow of 1.2 cfs is based on Exhibit 3 of Evaluation of Effluent Limits for the City of Fayetteville-Technical Memorandum.

Outfall 002: Flow = 0 cfs, for comparison with chronic toxicity. This flow is 67 percent of 7Q10 = 0 cfs for the receiving stream-an unnamed tributary of Mud Creek.

Acute Toxicity:

Outfall 001: Flow = 0.4 cfs, for comparison with acute aquatic toxicity. This flow is **33** percent of the critical flow for the receiving stream.

Outfall 002: Flow = 0 cfs, for comparison with acute aquatic toxicity. This flow is **33** percent of the 7Q10 for the receiving stream.

(f) Bioaccumulation

Outfall 001: Flow = 4 cfs, for comparison with bioaccumulation criteria.

Outfall 002: Flow = 4 cfs, for comparison with bioaccumulation criteria.

(g) Drinking Water

Outfall 001: Flow = 1.2 cfs, for comparison with drinking water criteria. This flow is the critical flow for the receiving stream.

Outfall 002: Flow = 0 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 = 148 mg/l, based on attachment VI of CPP.

pH = 7.04 s.u., based on compliance data from "Arkansas Water Quality Inventory Report"305(b) Station WHI0052. .

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 2**). 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 2**). 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 3** 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, µg/l*	MQL, µg/l
Antimony	3.0	2.0
Cadmium	0.7	0.2
Copper	8.0	2.0
Lead	6.0	2.0
Nickel	90	20
Silver	1.8	0.5
Zinc	100	20
Total Phenols	18	5

* maximum concentration reported for 35 samples. Since more than 20 data points were available, this value has not been multiplied by 2.13, but instead the maximum reported values was used.

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.

e. **Total Residual Chlorine (TRC) Requirements**

The effluent limitations for TRC have been deleted. The UV disinfection is used in this wastewater treatment facility.

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:

Outfall 001:

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
CBOD5								
(April-May)	7.5	11.3	25	40	5	7	7.5*	11.3*
(June-Sept)	5	7.5	25	40	5	7	5.0	7.5*
(Oct-Nov)	5.5	8.3	25	40	5	7	5.5*	8.3*
(Dec-March)	21	31.5	25	40	5	7	21.0*	31.5*
TSS								
(April-Nov)	10	15	30	45	5	7	5.0	7.0
(Dec-March)	15	23	30	45	15	22	15.0	22.0
NH3-N								
(April-May)	3	4.5	N/A	N/A	2	3	3.0*	4.5*
(June-Sept)	1.7	3.0	N/A	N/A	2	3	1.7*	3.0*
(Oct-Nov)	2.4	4.5	N/A	N/A	2	3	2.4*	4.5*
(Dec-March)	5.0	10.5	N/A	N/A	5	7	5.0	10.5*
DO								
(April-May)	7.7 (Min MA)		N/A		7.6, min		7.7 (Min MA)	
(June-Sept)	6.9(Min MA)		N/A		7.6, min		6.9 (Min MA)*	

(Oct-Nov)	7.5(Min MA)		N/A		7.6, min		7.5 (Min MA)*	
(Dec-March)	8.7 (Min MA)		N/A		7.8, min		8.7 (Min MA)	
Total Phosphorus	1.0	2.0	N/A	N/A	1.0	2.0	1.0	2.0
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
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	

* This increase (NH3-N) and decrease (DO) in the effluent limitations does not constitute backsliding based on 40 CFR 122.44 (l)(2)(i)(B)(1). Information (a "multi-SMP" model performed by CH2M HILL and approved by the EPA) is available which was not available at the time of permit issuance and which would have justified the application of a less stringent effluent limitations at the time of permit issuance.

Outfall 002:

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
CBOD5								
(April-Nov)	5	7	25	40	5	7	5.0	7.5
(Dec-March)	10	15	25	40	10	15	10.0	15.0
TSS								
(April-Nov)	5	7	30	45	5	7	5.0	7.5
(Dec-March)	10	15	30	45	10	15	10.0	15.0
NH3-N								
(April-Oct)	1.6	3.0	N/A	N/A	2	3	1.6	3.0
(Nov)	2.0	3.0	N/A	N/A	2	3	2.0	3.0
(Dec-March)	4.1	7.0	N/A	N/A	5	7	4.1	7.0
Dissolved Oxygen								
(April-Nov)	8.0(Min MA)		N/A		8, min		8.0 (Min MA)	
(Dec-March)	10.0 (Min MA)		N/A		10, min		10.0 (Min MA)	

Total Phosphorus	1.0	2.0	N/A	N/A	1.0	2.0	1.0	2.0
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
pH	6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.		6.0-9.0 s.u.	

g. **Biomonitoring**

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

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

TOXICITY TESTS	**FREQUENCY**
Chronic Biomonitoring	Once/quarter

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

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

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

Critical dilution (CD) = (Qd/(Qd + Qb)) X 100

Outfall 001:

Flow of 6.0 MGD:

Qd = flow= 6.0 MGD = 9.24 cfs

7Q10 = 1.2 cfs (critical flow for the months of October-November)
Qb = Background flow = (0.67) X 7Q10 = 0.67 X 1.2 cfs = 0.8 cfs

CD = (9.24) / (9.24 +0.8) X 100 = 92%*

Flow of 11.2 MGD:

Qd = flow= 11.2 MGD = 17.25 cfs
7Q10 = 1.2 cfs (critical flow for the months of October-November)
Qb = Background flow = (0.67) X 7Q10 = 0.67 X 1.2 cfs = 0.8 cfs

CD = (17.25) / (17.25 +0.8) X 100 = 96%*

* The permittee agreed to accept the critical dilution of 100 % for Outfall 001.

Outfall 002:

Qd = flow= 6.0 MGD = 9.24 cfs
7Q10 = 0 Cfs
Qb = Background flow = (0.67) X 7Q10 = 0 cfs
CD = (9.24) / (9.24 + 0) X 100 = 100%

Toxicity tests shall be performed in accordance with protocols described in "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", EPA/600/4-91/002, July 1994. A minimum of five effluent dilutions in addition to an appropriate control (0%) are to be used in the toxicity tests. These additional effluent concentrations are **32%,42%,56%,74%,** and **100 %** (See **Attachment I** of CPP). The low-flow effluent concentration (critical dilution) is defined as **100% 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 5.**)

h. **Sample Type and Sampling Frequency**

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

Outfall 001 - During the period beginning on the effective date and ending four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first:

The monitoring frequencies for all parameters except flow, CBOD5, and Biomonitoring have been established to be four times per week. These frequencies have been requested by the Beaver Water District during the public comments period to protect the drinking water source. The monitoring frequencies for CBOD5 have been changed to three times per week consistent with an e-mail from David Jurgens, Water and Wastewater Director, City of Fayetteville dated April 20, 2006.

Outfall 001 - During the period beginning four years after the effective date or 90 days after the West Side WWTP is operational, whichever comes first and lasting till the expiration date:

The monitoring frequencies for all parameters except flow and Biomonitoring have been established to be five times per week. These frequencies have been requested by the Beaver Water District during the public comments period to protect the drinking water source. The monitoring frequencies for CBOD5 have been changed to three times per week consistent with an e-mail from David Jurgens, Water and Wastewater Director, City of Fayetteville dated April 20, 2006.

Outfall 002:

The requirements for a sample type for all parameters were based on the recommended frequencies for self-monitoring of discharges with a flow between 5 mgd and 10 mgd (Outfall 002). The monitoring frequencies for all parameters have been reduced using EPA's *Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies*. This decrease in monitoring frequency does not constitute backsliding based on 40 CFR 122.44 (l). The circumstances on which the previous permit were based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR 122.62.

The requirements for sample type and sampling frequency for flow and biomonitoring for both Outfalls have been based on the current NPDES permit.

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

1. The mailing address has been changed.
2. The narrative description has been revised.
3. The coordinates of the facility location have been included.
4. The name of the receiving stream for Outfall 001 has been corrected.
5. The description of the receiving stream for Outfall 002 has been expanded.
6. Two sets of the effluent limitations calculated using a flow of 6 mgd and a flow of 11.2 mgd have been included for Outfall 001.
7. All mass effluent limitations for CBOD5, TSS, NH3-N, and Total Phosphorus for Outfall 001 and Outfall 002 have been revised. These effluent limitations were calculated using a flow of 6.0 mgd instead of 6. 2 mgd.
8. The effluent limitations for CBOD5 for Outfall 001for the months of October through May have been revised.
9. The effluent limitations for NH3-N and DO for Outfall 001have been revised.
10. The monitoring frequencies for all parameters, except flow and biomonitoring, for Outfalls 001 and 002 have been revised.
11. The sample types for CBOD5, TSS, NH3-N, and total Phosphorus have been revised.
12. The effluent limitations for TRC for Outfalls 001 and 002 have been deleted.
13. The requirement for monitoring of the receiving stream flow and the temperature of the White River have been deleted.
14. The monthly average Flow limit has been replaced by a monitor and report requirement.
15. The special condition addressing the White River temperature and flow criteria has been deleted.
16. The special condition for the land application of sludge has been deleted.
17. The special condition for Chronic Biomonitoring has been revised.
19. Parts II, III, and IV have been revised.

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

In lieu of storm water pollution prevention plan requirements the permittee has submitted a "No exposure certification for exclusion from NPDES Storm water". This certification was approved by the Department.

12. **SCHEDULE OF COMPLIANCE.**

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

Outfall 001:

Compliance with the final effluent limitations is required on the effective date of the permit.

Outfall 002:

Compliance with the final effluent limitations is required on the effective date of this permit.

13. MONITORING AND REPORTING.

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

14. SOURCES.

The following sources were used to draft the final permit:

a. NPDES application No. AR0020010 received 10/01/2004.
b. Arkansas Water Quality Management Plan(WQMP).
c. Regulation No. 2.
d. Regulation No. 6.
e. 40 CFRs 122, 125, 133 and 403.
f. NPDES permit file AR00 20010.
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 .Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR 131.36.
m. Evaluation of Effluent Limits for City of Fayetteville-Noland and Proposed West Side Plants dated September 3, 2004.
n. The State of Arkansas and Oklahoma Statement of Joint Principles and Actions signed December 18, 2003.
o. EPA's *Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies.*
p. E-mail dated August 25, 2005, from Clem to Jastrzebski.
q. E-mail dated May 31, 2005, from Gilliam to Jastrzebski.
r. E-mail dated November 29, 2005, from Steward to Jastrzebski.
s. Letters dated April 15, 2005 and July 18, 2005, from Alan Fortenberry, Beaver Water District to Doug Szenher, ADEQ.
t. Letter dated April 13, 2005, from Reed Green, USGS to Alan Fortenberry, Beaver Water District.
u. " Classification of Municipal Wastewater Treatment Plants" calculation form.
v. E-mail dated November 28, 2005, from Tran Duyen, OMI to Jastrzebski.
w. E-mail dated December 2, 2005, from Billy Ammons, OMI to Jastrzebski.

x. Letter from David Jurgens, P. E., Water and Wastewater Director, City of Fayetteville to Jastrzebski dated March 10, 2006
y. Letter from Colene Gaston, Gaston Law Firm to Jastrzebski dated March 10, 2006
z. Letter from Larry Lloyd, P. E., Chief Operating Officer, Beaver Water District dated March 13, 2006.
aa. Meeting with the permittee on April 13, 2006.
bb. Letter from David Jurgens, Water and Wastewater Director, City of Fayetteville dated April 20, 2006.

Attachment 1

Ammonia Nitrogen Discussion

Outfall 001 (flow of 6.0 MGD was used to calculate mass limitations)

Site specific Ammonia Nitrogen Discussion

The water quality effluent limitations for Ammonia are based on either DO-based effluent limits or on toxicity-based standards, whichever are more stringent.

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2, memo dated March 28, 2005, and the site specific data used in the water quality modeling. The following formula has been used to calculate toxicity based Ammonia limits:

$Cd = (IWC(Qd + Qb) - CbQb)/Qd,$

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the site specific data are as follows:

April-May- temp. 21.8 deg.C. -
6.2 mg/l 7-day Average, 2.5 mg/l Monthly Average

June-September- temp. 29 deg. C. –
3.9 mg/l 7-day Average, 1.6 mg/l Monthly Average

October- November- temp. 23.3 deg. C. –
5.7 mg/l 7-day Average, 2.3 mg/l Monthly Average

December- March-temp. 17.25 deg. C. –
9.3 mg/l 7-day Average, 3.7 mg/l Monthly Average

Qd = flow = 6.0 MGD = 9.24 cfs
Qb = critical flow of the receiving stream =

April-May – 38.12 cfs
June –Sept – 1.21 cfs

Oct-Nov – 0.8 cfs
Dec-March – 6.2 cfs

for comparison with chronic aquatic toxicity. This flow is **67** percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of

April-May – 56.9 cfs
June –Sept – 1.8 cfs
Oct-Nov – 1.2 cfs
Dec-March – 9.24 cfs

is based on Exhibit 3 of Evaluation of Effluent Limits for the City of Fayetteville-Technical Memorandum

Cb = background concentration =

June –Sept – 0.05 m/l
Oct-May – 0.08 mg/l

Calculations:

April-May:

7-day Average:
Cd = [6.2 mg/l X (9.24 cfs + 38.12 cfs) – 0.08 mg/l X 38.12 cfs]9.24 = 31.4 mg/l

Monthly Average:
Cd = [2.5 mg/l X (9.24 cfs + 38.12 cfs) – 0.08 mg/l X 38.12 cfs]/9.24 = 12.5 mg/l

June-September:

7-day Average:
Cd = [3.9 mg/l X (9.24 cfs + 1.21 cfs) – 0.05 mg/l X 1.21 cfs]9.24 = 4.4 mg/l

Monthly Average:
Cd = [1.6 mg/l X (9.24 cfs + 1.21 cfs) – 0.05 mg/l X 1.21 cfs]/9.24 = 1.8 mg/l

October-November:

7-day Average:
Cd = [5.7 mg/l X (9.24 cfs + 0.8 cfs) – 0.08 mg/l X 0.8 cfs]9.24 = 6.2 mg/l

Monthly Average:
Cd = [2.3 mg/l X (9.24 cfs + 0.8 cfs) – 0.08 mg/l X 0.8 cfs]/9.24 = 2.5 mg/l

December-March:

7-day Average:
Cd = [9.3 mg/l X (9.24 cfs + 6.2 cfs) – 0.08 mg/l X 6.2 cfs]9.24 = 15.5 mg/l

Monthly Average:
Cd = [3.7 mg/l X (9.24 cfs + 6.2 cfs) – 0.08 mg/l X 6.2 cfs]/9.24 = 6.1 mg/l

Months	DO based limit		Toxicity based limit		Permit limit	
	Monthly Average mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l
April-May	3	4.5	12.5	31.4	3	4.5
June-September	2	3	1.8	4.4	1.8	3
October-November	3	4.5	2.5	6.2	2.5	4.5
December-March	7	10.5	6.1	15.5	6.1	10.5

Outfall 001 (flow of 11.2 MGD was used to calculate mass limitations)

Site specific Ammonia Nitrogen Discussion

The water quality effluent limitations for Ammonia are based on either DO-based effluent limits or on toxicity-based standards, whichever are more stringent.

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2, memo dated March 28, 2005, and the site specific data used in the water quality modeling. The following formula has been used to calculate toxicity based Ammonia limits:

$$Cd = (IWC(Qd + Qb) - CbQb)/Qd,$$

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the site specific data are as follows:

April-May- temp. 21.8 deg.C. -
6.2 mg/l 7-day Average, 2.5 mg/l Monthly Average

June-September- temp. 29 deg. C. –
3.9 mg/l 7-day Average, 1.6 mg/l Monthly Average

October- November- temp. 23.3 deg. C. –
5.7 mg/l 7-day Average, 2.3 mg/l Monthly Average

December- March-temp. 17.25 deg. C. –
9.3 mg/l 7-day Average, 3.7 mg/l Monthly Average

Qd = flow = 11.2 MGD = 17.25 cfs

Qb = critical flow of the receiving stream =

April-May – 38.12 cfs
June –Sept – 1.21 cfs
Oct-Nov – 0.8 cfs
Dec-March – 6.2 cfs

for comparison with chronic aquatic toxicity. This flow is **67** percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream. The 7Q10 of

April-May – 56.9 cfs
June –Sept – 1.8 cfs
Oct-Nov – 1.2 cfs
Dec-March – 9.24 cfs

is based on Exhibit 3 of Evaluation of Effluent Limits for the City of Fayetteville-Technical Memorandum

Cb = background concentration =

June –Sept – 0.05 m/l
Oct-May – 0.08 mg/l

Calculations:

April-May:

7-day Average:
Cd = [6.2 mg/l X (17.25 cfs + 38.12 cfs) – 0.08 mg/l X 38.12 cfs]17.25 = 19.7 mg/l

Monthly Average:
Cd = [2.5 mg/l X (17.25 cfs + 38.12 cfs) – 0.08 mg/l X 38.12 cfs]/17.25 = 7.8 mg/l

June-September:

7-day Average:
Cd = [3.9 mg/l X (17.25 cfs + 1.21 cfs) – 0.05 mg/l X 1.21 cfs]17.25 = 4.2 mg/l

Monthly Average:
Cd = [1.6 mg/l X (17.25 cfs + 1.21 cfs) – 0.05 mg/l X 1.21 cfs]/17.25 = 1.7 mg/l

October-November:

7-day Average:
Cd = [5.7 mg/l X (17.25 cfs + 0.8 cfs) – 0.08 mg/l X 0.8 cfs]17.25 = 6.0 mg/l

Monthly Average:
Cd = [2.3 mg/l X (17.25 cfs + 0.8 cfs) – 0.08 mg/l X 0.8 cfs]/17.25 = 2.4 mg/l

December-March:

7-day Average:
Cd = [9.3 mg/l X (17.25 cfs + 6.2 cfs) – 0.08 mg/l X 6.2 cfs]17.25 = 12.6 mg/l

Monthly Average:
Cd = [3.7 mg/l X (17.25 cfs + 6.2 cfs) – 0.08 mg/l X 6.2 cfs]/17.25 = 5.0 mg/l

Months	DO based limit		Toxicity based limit		Permit limit	
	Monthly Average mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l
April-May	3	4.5	7.8	19.7	3	4.5
June-September	2	3	1.7	4.2	1.7	3
October-November	3	4.5	2.4	6.0	2.4	4.5
December-March	7	10.5	5	12.6	5	10.5

Outfall 002:

Ecoregion based Ammonia Nitrogen Discussion

The toxicity-based effluent limitations are based on Chapter 5, Section 2.512 of Regulation No. 2, memo dated March 28, 2005, and the site specific data used in the water quality modeling. The following formula has been used to calculate toxicity based Ammonia limits:

Cd = (IWC(Qd + Qb) – CbQb)/Qd,

Where:

Cd = effluent limit concentration (mg/l)
IWC = Ammonia toxicity standard for Ozark Highland Ecoregion based on pH of 7.6 s.u. per memo dated March 28, 2005 and temperature based on the ecoregion data are as follows:

April-October

7-day Avg – 3.9 mg/l
Monthly Avg. – 1.56 mg/l

November-March

7-day Avg. - 10.3 mg/l
Monthly Avg. - 4.11 mg/l

Qd = flow = 6.0 MGD = 9.24 cfs
Qb = critical flow of the receiving stream = 0 cfs,

for comparison with chronic aquatic toxicity. This flow is **67** percent of the 7-day, 10-year low-flow (7Q10) for the receiving stream.

Cb = background concentration = 0 mg/l

Calculations:

April-October:

7-day Average:
Cd = [3.9 mg/l X (9.24 cfs + 0 cfs) – 0 mg/l X 0 cfs]/9.24 cfs = 3.9 mg/l

Monthly Average:
Cd = [1.56 mg/l X (9.24 cfs + 0 cfs) – 0 mg/l X 0 cfs]/9.24 = 1.56 mg/l

November-March:

7-day Average:
Cd = [10.3 mg/l X (9.24 cfs + 0 cfs) – 0. mg/l X 0 cfs]/9.24 = 10.3 mg/l

Monthly Average:
Cd = [4.11 mg/l X (9.24 cfs + 0 cfs) – 0 mg/l X 0 cfs]/9.24 = 4.11 mg/l

Months	DO (AWQMP) based limit		Toxicity based limit		Permit limit	
	Monthly Average mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l	Monthly Average, mg/l	7-day Average, mg/l
April-October	2	3	1.6	3.9	1.6	3.0
November	2	3	4.1	10.3	2	3
December-March	5	7	4.1	10.3	4.1	7

Attachment No. 2

Attachment 3

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

$Kp = Kpo \times TSS^a$

Kp = Linear Partition Coefficient
TSS = Total Suspended Solids (mg/l)-(See **Attachment 4**)
Kpo = found from table
a = found from table

$C/Ct = 1/(1+ (Kp \times TSS \times 10^{-6}))$ C/Ct = 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 4

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 5

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **AR0020010**
Facility Name: **City of Fayetteville – Noland Plant**
Date of Review: **8-25-05** Name of Reviewer: **Clem**

Outfall 001

Previous Critical Dilution: **89%** Proposed Critical Dilution: **100%**

Number of tests performed during previous 5 years by species:
***Pimephales promelas* (Fathead minnow) :** 10
***Ceriodaphnia dubia* (water flea):** 8

Failed test dates during previous 5 years by species:
***Pimephales promelas* (Fathead minnow) :** Sublethal **:** 4-04
***Ceriodaphnia dubia* (water flea):** None

Outfall 002

Previous Critical Dilution: **100%** Proposed Critical Dilution: **100%**

Number of tests performed during previous 5 years by species:
***Pimephales promelas* (Fathead minnow) :** 12
***Ceriodaphnia dubia* (water flea):** 12

Failed test dates during previous 5 years by species:
***Pimephales promelas* (Fathead minnow) :** Lethal and sublethal**:** 7-04
***Ceriodaphnia dubia* (water flea):** Sublethal: 7-04

Outfall 001 & 002

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: *Continous Planning Process, App. D, Part III,E.1.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."