

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

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

The applicant's mailing address is:

City Corporation - Russellville Water and Sewer System
P.O. Box 3186
Russellville, AR 72811

The facility address is:

City Corporation - Russellville Water and Sewer System
404 Jimmy Lile Road
Russellville, AR 72802

is authorized to discharge treated municipal wastewater from a facility located as follows: south of the city of Russellville, two miles south of Highway 64 in Pope County, Arkansas.

Latitude: 35° 14' 56"; Longitude: 93° 06' 58"

to receiving waters named:

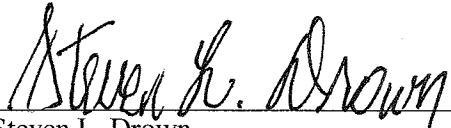
Whig Creek thence to the Arkansas River in Segment 3F of the Arkansas River Basin.

The outfall is located at the following coordinates:

Outfall 001: Latitude: 35° 14' 50"; Longitude: 93° 06' 45"

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

Issue Date:	September 30, 2010
Effective Date:	October 1, 2010
Minor Modification Effective Date:	July 29, 2012
Expiration Date:	September 30, 2015



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

**PART I
PERMIT REQUIREMENTS**

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

During the period beginning on the effective date and lasting 36 months after the effective date, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of three (3) aerated flow equalization basins, bar screens, grit removal, three (3) primary clarifiers, two (2) biotowers, one (1) intermediate clarifier, two (2) trickling rock filters, extended aeration activated sludge, two (2) final clarifiers, and two (2) chlorine contact basins with a design flow of 7.3 MGD.

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
Flow	N/A	Report, MGD	Report, MGD (Daily Maximum)	once/day	totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(May-Oct)	608.8	10.0	15.0	once/weekday	composite
(Nov-Apr)	913.2	15.0	22.5	once/weekday	composite
Total Suspended Solids (TSS)					
(May-Oct)	913.2	15.0	22.5	once/weekday	composite
(Nov-Apr)	1217.6	20.0	30.0	once/weekday	composite
Ammonia Nitrogen (NH3-N)					
(Apr-Oct)	133.9	2.2	5.6	once/weekday	composite
(Nov-March)	243.5	4.0	6.0	once/weekday	composite
Dissolved Oxygen (DO)	N/A	6.0, (Inst. Min.)		once/weekday	grab
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
	N/A	1000	2000	once/weekday	grab
Total Residual Chlorine (TRC) ¹	N/A	<0.1 mg/l (Inst. Max.)		once/weekday	grab
Total Phosphorus (TP)	Report	Report	Report	once/month	grab
Nitrates (NO3-N)	542.0	10.0	15.0	once/weekday	composite
Zinc, Total Recoverable ³	5.2	85.5 µg/l	171.6 µg/l	once/month	composite
Copper, Total Recoverable ³	0.45	9.2 µg/l	18.5 µg/l	once/month	composite
Mercury, Total Recoverable ³	Report	Report µg/l	Report µg/l	once/month	composite
pH	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/weekday	grab
Chronic WET Testing ²	N/A	Report		once/quarter	composite

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
<u>Pimephales promelas (Chronic)²</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC)TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite
<u>Ceriodaphnia dubia (Chronic)²</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC)TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

- 1 See Condition No. 11 of Part II. (TRC Condition)
- 2 See Condition No. 12 of Part II. (WET Testing Condition)
- 3 See Condition No. 10 of Part II. (Metals 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. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after final treatment at the effluent weir.

All and each unauthorized Sanitary Sewer Overflow (SSO) must be reported to ADEQ. See Condition No. 5 of Part II.

**PART I
 PERMIT REQUIREMENTS**

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

During the period beginning 36 months after the effective date and lasting until the date of expiration, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below from a treatment system consisting of three (3) aerated flow equalization basins, bar screens, grit removal, three (3) primary clarifiers, two (2) biotowers, one (1) intermediate clarifier, two (2) trickling rock filters, extended aeration activated sludge, two (2) final clarifiers, and two (2) chlorine contact basins with a design flow of 7.3 MGD.

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(Nov-March)	243.5	4.0	6.0	once/weekday	composite
Dissolved Oxygen (DO)	N/A	6.0, (Inst. Min.)		once/weekday	grab
Fecal Coliform Bacteria (FCB)		(colonies/100ml)			
	N/A	1000	2000	once/weekday	grab
Total Residual Chlorine (TRC) ¹	N/A	<0.1 mg/l (Inst. Max.)		once/weekday	grab
Total Phosphorus (TP)	Report	Report	Report	once/month	grab
Nitrates (NO ₃ -N)	542.0	10.0	15.0	once/weekday	composite
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Copper, Total Recoverable ³	0.45	9.2 µg/l	18.5 µg/l	once/month	composite
Mercury, Total Recoverable ³	0.00082	0.0134 µg/l	0.0269 µg/l	once/month	composite
pH	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/weekday	grab
Chronic WET Testing ²	N/A	Report		once/quarter	composite

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
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There shall be no discharge of distinctly visible solids, scum, or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits, or sludge banks. There shall be no visible sheen as defined in Part IV of this permit.

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. Samples shall be taken after final treatment at the effluent weir.

All and each unauthorized Sanitary Sewer Overflow (SSO) must be reported to ADEQ. See Condition No. 5 of Part II.

SECTION B. PERMIT COMPLIANCE

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

Compliance is required on the effective date of the permit for all parameters except for Mercury. Final limits for Mercury become effective three (3) years after the effective date of the permit.

The permittee shall submit progress reports addressing the progress towards attaining the final effluent limits for Mercury according to the following schedule:

<u>ACTIVITY</u>	<u>DUE DATE</u>
Progress Report	One (1) year after effective date
Progress Report	Two (2) years after effective date

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

PART II OTHER CONDITIONS

1. The operator of this wastewater treatment facility shall be licensed as Class IV by the State of Arkansas in accordance with APCEC Regulation No. 3.
2. For publicly owned treatment works, the 30-day average percent removal for Carbonaceous Biochemical Oxygen Demand (CBOD5) and Total Suspended Solids shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR Part 133.102, as adopted by reference in APCEC Regulation No. 6.
3. In accordance with 40 CFR Parts 122.62 (a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.
4. Other Specified Monitoring Requirements

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

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

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

5. Sanitary Sewer Overflow (SSO):

A. An overflow is any spill, release or diversion of sewage from a sanitary sewer collection system, including:

1. An overflow that results in a discharge to waters of the state; and
2. An overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral), even if that overflow does not reach waters of the state.

B. Immediate Reporting

All overflows shall be reported to the Enforcement Branch of the Water Division by telephone (501-682-0638), facsimile (501-682-0910), or by using the Department web site at waterenfssso@adeq.state.ar.us within 24 hours from the time the permittee becomes aware of the circumstance.

At a minimum the report shall identify:

1. The location(s) of overflow;
2. The receiving water (If there is one);
3. The duration of overflow;
4. Cause of overflow; and
5. The estimated volume of overflow (MG).

C. Discharge Monitoring Reports (DMRs)

The permittee shall report every month all overflows with the Discharge Monitoring Report (DMR) submittal. These reports shall be summarized and reported in tabular format with the minimum following information. The permittee may use the ADEQ Forms which may be obtained from the following web sites:

http://www.adeq.state.ar.us/water/branch_permits/pdfs_forms/sso_tabular_report.pdf
or http://www.adeq.state.ar.us/water/branch_enforcement/forms/sso_report.asp

1. The location(s) of overflow;
2. The receiving water (If there is one);
3. The duration of overflow;
4. Cause of overflow;
5. The estimated volume of overflow (MG);
6. A description of the sewer system component from which the release occurred (e.g., manhole, constructed overflow pipe, crack in pipe);
7. The estimated date and time when the overflow began and stopped or will be stopped;
8. The cause or suspected cause of the overflow;
9. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;

- 10. If reasonably made, an estimate of the number of persons who came into contact with wastewater from the overflow; and
 - 11. Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps.
6. Best Management Practices (BMPs) are activities, practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the State. BMPs also include treatment technologies, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw sewage. BMPs may include structural devices or nonstructural practices.
7. Biosolids practices.

The biosolids produced at the treatment plant is aerobically digested and land applied on permitted sites.

8. Approval to land apply biosolids under this permit is limited to a maximum of one (1) year after this permit's effective date. A separate permit must be obtained within this time period or land application of biosolids must cease. Reporting requirements of this permit continue for the term of this permit unless they are superseded by similar conditions in one or more separate land application permits.
9. Biosolids Land Application Conditions

- A. The waste disposal system shall be operated in accordance with the Waste Management Plan (WMP) approved by the Department.
- B. Plant Available Nitrogen (PAN) shall not be applied at a rate exceeding the annual nitrogen uptake of the crop or allowed to exceed the site specific rate approved by the Department. The PAN shall be calculated using the following equations:

Surface applied waste: $PAN = 0.3(TKN - NH_3) + 0.5NH_3 + NO_3 + NO_2$

Incorporated waste: $PAN = 0.3(TKN - NH_3) + NH_3 + NO_3 + NO_2$

- C. Land application sites are as follows:

Name	Field ID	Section	Township	Range	Acreage	Latitude	Longitude
City Corp	1	22	7 North	20 West	49	35° 14' 36" N	93° 6' 39" W
Baker	2	21	7 North	20 West	67.5	35° 14' 35" N	93° 7' 25" W
Old Pope County Landfill	3	21	7 North	20 West	76	35° 14' 44" N	93° 7' 40" W

- D. The biosolids generator must issue a signed certification stating that the Pathogen Reduction, Vector Attraction Reduction, and Pollutant Concentration Limits have been met. The State requirements on Pathogen Reduction, Vector Attraction Reduction, and

Pollutant Concentration Limits are the same as those listed in 40 CFR Part 503. All the above information must be made available to the land-applicator before the biosolids materials are delivered. Concurrently, a signed copy of each certification must be also submitted to the ADEQ Water Division.

- E. Biosolids can only be stored in accordance with the permit and the approved waste management plan, if provisions are made in the plan for that purpose. The utilization of improvised field storage sites or any other site not approved by the Department is prohibited.
- F. Transportation of the biosolids must be such that will prevent the attraction, harborage or breeding of insects or rodents. It must not produce conditions harmful to public health, the environment, odors, unsightliness, nuisances, or safety hazards.
- G. The containers used for the transportation of the biosolids must be of the closed type. Transportation equipment must be leak-proof and kept in sanitary condition at all times. Biosolids must be enclosed or covered as to prevent littering, vector attraction, or any other nuisances.
- H. The permittee shall be responsible for assuring that the landowner, and the waste applicator (if different from the permittee) abide by the conditions of this permit.
- I. Waste shall be land applied by subsoil injection to a depth of 6 - 8 inches or surface applied. Surface applied waste must be evenly distributed over the entire application area.
- J. Waste shall not be applied to slopes with a gradient greater than 12%; or to soils that are saturated, frozen or covered with snow, and during rain or when precipitation is imminent, meaning a substantial natural occurrence of precipitation that could cause significant damage to property or threaten human life in the near future.
- K. Disposal of waste in a flood plain shall not restrict the flow of the base flood, reduce the temporary storage capacity of the flood plain, or result in a washout of solid waste, so as to pose a hazard to human life, wildlife or land and water uses.
- L. Waste shall not be spread within; 50 feet of property lines and rock outcrops; 100 feet of lakes, ponds, springs, wetlands, streams, and sinkholes; 200 feet of drinking water wells; 300 feet of occupied buildings or bodies of water classified as an "extraordinary resource body of water."
- M. The soil pH of the sludge application sites must be adjusted with lime in accordance with the University of Arkansas Cooperative Extension Service. Representative soil samples must be taken in accordance with Condition Number 14. If the resulting pH is 5.7 or lower, lime must be applied in accordance with the soil test recommendations. Soil pH is to be monitored in an annual basis and adjusted, if necessary, to the above requirements.

N. The permittee is responsible for the biosolids analyses, soil analyses, and reporting schedule in accordance with the requirements in the following tables.

TABLE I				
Waste Analysis, Reporting, and Record Keeping				
Parameter	Ceiling Concentrations (mg/kg)	Cumulative Pollutant Loading Rate (lb/ac)	Monitoring Frequency	Reporting
Arsenic	75	37	Quarterly	Annually by May 1
Cadmium	85	35	Quarterly	Annually by May 1
Copper	4300	1350	Quarterly	Annually by May 1
Lead	840	270	Quarterly	Annually by May 1
Mercury	57	15	Quarterly	Annually by May 1
Molybdenum	75	Report	Quarterly	Annually by May 1
Nickel	420	378	Quarterly	Annually by May 1
Selenium	100	90	Quarterly	Annually by May 1
Zinc	7500	2520	Quarterly	Annually by May 1
Chromium	Report	Report	Quarterly	Annually by May 1
Polychlorinated Biphenyls (PCB's)	50	N/A	Quarterly	Annually by May 1

TABLE II				
Waste Analysis, Reporting, and Record Keeping				
Parameter	Maximum Limit	Reporting Units	Monitoring Frequency	Reporting
Total Solids	Report	Percentage (%)	Quarterly	Annually by May 1
Nitrate Nitrogen	Report	mg/kg	Quarterly	Annually by May 1
Nitrite Nitrogen	Report	mg/kg	Quarterly	Annually by May 1
Ammonia Nitrogen	Report	mg/kg	Quarterly	Annually by May 1
Total Kjeldahl Nitrogen	Report	mg/kg	Quarterly	Annually by May 1
Total Phosphorus	Report	mg/kg	Quarterly	Annually by May 1
Total Potassium	Report	mg/kg	Quarterly	Annually by May 1
Total Volume Applied	Report	Gallons	Each land application event	Annually by May 1
Application Rate	Nitrogen Uptake of Cover Crop	lb/ac	Prior to land application	Maintain for records

TABLE III			
Soils			
Parameter	Reporting Units	Monitoring Frequency	Reporting
Conductivity	µmhos/cm	Prior to application	Annually by May 1
Cation Exchange Capacity	meq/100g	Prior to application	Annually by May 1
Nitrate-Nitrogen	mg/kg	Prior to application	Annually by May 1
Phosphorus	mg/kg	Prior to application	Annually by May 1
pH	S.U.	Prior to application	Annually by May 1
Potassium	mg/kg	Prior to application	Annually by May 1
Magnesium	mg/kg	Prior to application	Annually by May 1
Arsenic	mg/kg	Annually	By May 1 of the reporting year
Cadmium	mg/kg	Annually	By May 1 of the reporting year
Chromium	mg/kg	Annually	By May 1 of the reporting year
Copper	mg/kg	Annually	By May 1 of the reporting year
Lead	mg/kg	Annually	By May 1 of the reporting year
Mercury	mg/kg	Annually	By May 1 of the reporting year
Molybdenum	mg/kg	Annually	By May 1 of the reporting year
Nickel	mg/kg	Annually	By May 1 of the reporting year
Selenium	mg/kg	Annually	By May 1 of the reporting year
Zinc	mg/kg	Annually	By May 1 of the reporting year

- O. Annual reports must be sent to the Department and to the owner of the land receiving biosolids prior to May 1, which must include the following:

The biosolids and soil analyses conducted under Condition No. 9.N. above (including a statement that the analyses were performed in accordance with EPA Document SW-846, "Test Methods for Evaluation of Solid Wastes" or other approved procedures by the Department), application dates, and locations, quantities of biosolids applied in dry tons per acre per year and in gallons per acre per year, methods of disposal, amounts of nutrients applied, total elements added (in that particular year) in lbs per acre, total elements applied to date, and copies of soil analyses.

- P. The Permittee shall maintain complete copies of all the reports including the waste and soil analysis as listed in Condition No. 9.O. above for Department personnel review. In addition, the permittee must keep the land application log that includes records of waste source, waste type, field name or number (locations), application date, volumes of waste applied (in dry tons/acre-year or gallons/acre-year of waste), methods of disposal, identity of hauler, and type of crop grown for Department personnel review.
- Q. The permittee must also maintain copies of the above records for Department personnel review at the biosolids generating facility for a period of three (3) years.

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

Pollutant	MQL ($\mu\text{g/l}$)
Copper, Total Recoverable	0.5
Zinc, Total Recoverable	20
Mercury, Total Recoverable	0.005

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

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

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

11. Prior to final disposal, the effluent shall contain NO MEASURABLE TRC at any time. NO MEASURABLE will be defined as no detectable concentration of TRC as determined

by any approved method established in 40 CFR Part 136 as less than 0.1 mg/l. Thus, the “no measurable TRC concentration” for chlorine becomes the permit limit. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting purposes. TRC shall be measured within fifteen (15) minutes of sampling.

12. 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(S): 001

REPORTED ON DMR AS FINAL OUTFALL: 001

CRITICAL DILUTION (%): 100%

EFFLUENT DILUTION SERIES (%): 32%, 42%, 56%, 75%, 100%

TESTING FREQUENCY Once/quarter

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-821-R-02-013, or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

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

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

effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.

- c. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

2. PERSISTENT LETHAL and/or SUB-LETHAL EFFECTS

The requirements of this subsection apply only when a toxicity test demonstrates significant lethal and/or sub-lethal effects at or below the critical dilution. The purpose of additional tests (also referred to as 'retests' or confirmation tests) is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

If a frequency reduction, as specified in Item 6, has been granted and any subsequent valid test demonstrates significant lethal or sub-lethal effects to a test species at or below the critical dilution, the frequency of testing for that species is automatically increased to once per quarter for the life of the permit. In addition:

a. Part I Testing Frequency Other Than Monthly

- i. The permittee shall conduct a total of three (3) additional tests for any species that demonstrates significant toxic effects at or below the critical dilution. The additional tests shall be conducted monthly during the next three consecutive months. If testing on a quarterly basis, the permittee may substitute one of the additional tests in lieu of one routine toxicity test. A full report shall be prepared for each test required by this section in accordance with procedures outlined in Item 4 of this section and submitted with the period discharge monitoring report (DMR) to the permitting authority for review.
- ii. **IF LETHAL EFFECTS HAVE BEEN DEMONSTRATED** If any of the additional tests demonstrates significant lethal effects at or below the critical dilution, the permittee shall initiate Toxicity Reduction Evaluation (TRE) requirements as specified in Item 5 of this section. The permittee shall notify ADEQ in writing within 5 days of the failure of any retest, and the TRE initiation date will be the test completion date of the first failed retest. A TRE may also be required due to a demonstration of intermittent lethal effects at or below the critical dilution, or for failure to perform the required retests. A TRE required based on lethal effects should consider any sub-lethal effects as well.

- iii. IF SUB-LETHAL EFFECTS ONLY HAVE BEEN DEMONSTRATED If any two of the three additional tests demonstrates significant sub-lethal effects at 75% effluent or lower, the permittee shall initiate the Sub-Lethal Toxicity Reduction Evaluation (TRE_{SL}) 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 Sub-Lethal Effects TRE initiation date will be the test completion date of the first failed retest. A TRE may also be required for failure to perform the required retests.
- iv. The provisions of Item 2.a.i. 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 toxic effects at or below the critical dilution. A TRE may also be required due to a demonstration of intermittent lethal and/or sub-lethal effects at or below the critical dilution, or for failure to perform the required retests.

3. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

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

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

- v. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sub-lethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test.
 - vi. If a test passes, yet the percent coefficient of variation between replicates is greater than 40% in the control (0% effluent) and/or in the critical dilution for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints of the Fathead minnow test, the test is determined to be invalid. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.
 - vii. If a test fails, test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%.
 - viii. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for Ceriodaphnia dubia reproduction;
 - ix. A PMSD range of 12 - 30 for Fathead minnow growth.
- 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/821/R-02-013 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/821/R-02-013 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 a survival 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. Unless otherwise stated in this section, a composite sample for

WET shall consist of a minimum of 12 subsamples gathered at equal time intervals during a 24-hour period.

- ii. The permittee shall collect second and third composite samples for use during 24-hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples, on use, are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on a regular or intermittent basis.
- iii. The permittee must collect all three flow-weighted composite samples within the monitoring period. Second and/or third composite samples shall not be collected into the next monitoring period; such tests will be determined to be invalid. Monitoring period definitions are listed in Part IV.
- iv. 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 6 degrees Centigrade during collection, shipping, and/or storage.
- v. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. 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.
- vi. 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.
- vii. If chlorination is part of the treatment process, the permittee shall not allow the sample to be dechlorinated at the laboratory. At the

time of sample collection the permittee shall measure the TRC of the effluent. The measured concentration of TRC for each sample shall be included in the lab report submitted by the permittee.

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/821/R-02-013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.7 of this permit. The permittee shall submit full reports. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.
- b. A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of WET test data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST lethal and sub-lethal effects results for each species during the reporting period. The full reports for all invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for Agency review.
- c. The permittee shall submit the results of each valid toxicity test on the subsequent monthly DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following month's DMR. Only results of valid tests are to be reported on the DMR.
 - i. Pimephales promelas (Fathead minnow)
 - (A) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TLP6C
 - (B) Report the NOEC value for survival, Parameter No. TOP6C
 - (C) Report the NOEC value for growth, Parameter No. TPP6C
 - (D) If the NOEC for growth is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP6C

- (E) Report the highest (critical dilution or control) Coefficient of Variation for growth, 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) Report the NOEC value for survival, Parameter No. TOP3B
- (C) Report the NOEC value for reproduction, Parameter No. TPP3B
- (D) If the NOEC for reproduction is less than the critical dilution, enter a '1'; otherwise, enter a '0' for Parameter No. TGP3B
- (E) Report the higher (critical dilution or control) Coefficient of Variation for reproduction, Parameter No. TQP3B

5. TOXICITY REDUCTION EVALUATIONS (TREs)

TREs for lethal and sub-lethal effects are performed in a very similar manner. EPA Region 6 is currently addressing TREs as follows: a sub-lethal TRE (TRE_{SL}) is triggered based on three sub-lethal test failures while a lethal effects TRE (TRE_L) is triggered based on only two test failures for lethality. In addition, EPA Region 6 will consider the magnitude of toxicity and use flexibility when considering a TRE_{SL} where there are no effects at effluent dilutions of less than 76% effluent.

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

- 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 (703) 487-4650, or by writing:

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

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

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where lethality was demonstrated within 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 toxicity at the critical dilution.
 - iv. A copy of the TRE Activities Report shall also be submitted to the state agency.
- d. The permittee shall submit a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months from confirming toxicity in the retests, which provides information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to no significant toxicity at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism.

A copy of the Final Report on Toxicity Reduction Evaluation Activities shall also be submitted to the state agency.

- e. Quarterly testing during the TRE is a minimum monitoring requirement. EPA recommends that permittees required to perform a TRE not rely on quarterly testing alone to ensure success in the TRE, and that additional screening tests be performed to capture toxic samples for identification of

toxicants. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity limits per federal regulations at 40 CFR 122.44(d)(1)(v).

6. MONITORING FREQUENCY REDUCTION

- a. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters or first twelve consecutive months (in accordance with Item 1.a.) of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the Ceriodaphnia dubia).
- b. CERTIFICATION - The permittee must certify in writing that no test failures have occurred and that all tests meet all test acceptability criteria in item 3.a. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal and sub-lethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.
- c. SUB-LETHAL OR SURVIVAL FAILURES - If any test fails the survival or sub-lethal endpoint at any time during the life of this permit, three monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.

Any monitoring frequency reduction granted 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.

13. 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 **January 13, 1984**, modified on **March 10, 1992** and modified again on **July 29, 2012**. 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. The permittee must inspect and sample the effluent from each Significant Industrial User in accordance with 40 CFR 403.8(f)(2)(v). 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 (v), this control shall be achieved through individual or general control mechanisms, in accordance with 40 CFR 403.8(f)(1)(iii). Both individual and general control mechanisms must be enforceable and contain, at a minimum, the following conditions:
 1. Statement of duration (in no case more than five years);
 2. 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;
 3. Effluent limits, including Best Management Practices, based on applicable general Pretreatment Standards, categorical Pretreatment Standards, local limits, and State and local law;
 4. Self-monitoring, sampling, reporting, notification and recordkeeping requirements, including an identification of the pollutants to be monitored (including the process for seeking a waiver for a pollutant neither present nor expected to be present in the Discharge in accordance with § 403.12(e)(2), or a

specific waiver for a pollutant in the case of an individual control mechanism), 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;

5. 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; and
 6. Requirements to control slug discharges, if determined by the POTW to be necessary.
- (5) The permittee shall evaluate, whether each Significant Industrial User needs a plan or other action to control slug discharges, in accordance with 40 CFR 403.8(f)(2)(vi);
 - (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 ADEQ.
- 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). POTWs may develop Best Management Practices (BMPs) to implement paragraphs 40 CFR 403.5(c)(1) and (c)(2). Such BMPs shall be considered local limits and Pretreatment Standards. Each POTW with an approved pretreatment program shall continue to develop these limits as necessary and effectively enforce such limits or the POTW must demonstrate that local limits are not necessary per 40 CFR 403.8(f)(4). In either case, the POTW SIU base or pollutant loading must not change significantly during the current permit cycle and the current control mechanisms (permits with local limitations, if applicable) must be adequate to protect against pass through and interference and must be protective of current water quality standards. For POTWs which have demonstrated local limits are not necessary per 40 CFR 403.8(f)(4), the department will review each annual report to verify that the SIU base has not changed significantly.
- C. The permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR 122 Appendix D (NPDES Application Testing Requirements) Table II at least once/year and the toxic pollutants in Table III at least 4 times/year in each quarter (Jan-Mar, Apr-Jun, Jul-Sep & Oct-Dec).. 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 times/year in each quarter on both the influent and the effluent.

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 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)(viii) [rev. 10/14/05] or criteria established in the approved POTW pretreatment program. This list is to be published annually in the newspaper of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW during the month of February.

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

- (1) An updated list of all significant industrial users and identify which Industrial Users are Non-Significant Categorical Industrial Users (NSCIUs) or Middle Tier CIUs. The list must also identify:
 - (a) Industrial Users subject to categorical Pretreatment Standards that are subject to reduced monitoring and reporting requirements under 40 CFR 403.12(e)(2) & (3),
 - (b) Industrial Users subject to the following categorical Pretreatment Standards [Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) (40 CFR Part 414), Petroleum Refining (40 CFR Part 419), and Pesticide Chemicals (40 CFR Part 455)] and for which the Control Authority has chosen to use the concentration-based standards rather than converting them to flow-based mass standards as allowed at 40 CFR 403.6(c)(6).
 - (c) Categorical Industrial Users subject to concentration-based standards for which the Control Authority has chosen to convert the concentration-based standards to equivalent mass limits, as allowed at 40 CFR 403.6(c)(5).
 - (d) General Control Mechanisms used for similar groups of SIUs along with the substantially similar types of operations and the types of wastes that are the same,

for each separate General Control Mechanism, as allowed at 40 CFR 403.8(f)(1)(iii).

- (e) Best Management Practices or Pollution Prevention alternatives required by a categorical Pretreatment Standard or as a local limit requirement that are implemented and documentation to demonstrate compliance, as required at 40 CFR 403 (b), (e) and (h).
- (2) For each industrial user listed the following information shall be included:
- (a) Standard Industrial Classification (SIC) and 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:
 - * total number of inspections performed;
 - * total number of sampling visits made;
 - (d) Status of compliance with both effluent limitations and reporting requirements. Compliance status shall be defined as follows:
 - * Compliant (C) - no violations during the previous 12 month period;
 - * Non-compliant (NC) - one or more violations during the previous 12 months but does not meet the criteria for significantly noncompliant industrial users;
 - * Significant Noncompliance (SNC) - in accordance with requirements described in d. above; and
 - (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;
- (3) 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;
- (4) 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;

- (5) The results of all influent and effluent analyses performed pursuant to paragraph (c) above;
- (6) A copy of the newspaper publication of the significantly noncompliant industrial users giving the name of the newspaper and the date published;
- (7) The information requested may be submitted in tabular form as per the example tables provided for your convenience (See Attachment A, B and C); and
- (8) 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 of the following:

- (1) Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 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.

PART III STANDARD CONDITIONS

SECTION A – GENERAL CONDITIONS

1. Duty to Comply

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

2. Penalties for Violations of Permit Conditions

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

3. Permit Actions

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

- A. Violation of any terms or conditions of this permit; or
- B. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- C. A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- D. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.
- E. Failure of the permittee to comply with the provisions of APCEC Regulation No. 9 (Permit fees) as required by Part III.A.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 III.A.3., if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under APCEC Regulation No. 2, as amended, or Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitations on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standards or prohibition and the permittee so notified.

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

5. Civil and Criminal Liability

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

6. Oil and Hazardous Substance Liability

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

7. State Laws

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

8. Property Rights

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

9. Severability

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

10. Applicable Federal, State or Local Requirements

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

11. Permit Fees

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

SECTION B – OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce not a Defense

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

treatment is provided. This requirement applies, for example, when the primary source of power for the treatment facility is reduced, is lost, or alternate power supply fails.

3. Duty to Mitigate

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

4. Bypass of Treatment Facilities

A. Bypass not exceeding limitation

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

B. Notice

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

C. Prohibition of bypass

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

5. Upset Conditions

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

6. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the State. Written approval must be obtained from the ADEQ prior to removal of substances. Additionally, the permittee shall give at least 120 days prior notice to the Director of any change planned in the permittee's sludge disposal practice or land use applications, including types of crops grown (if applicable). Produced sludge shall be disposed of by land application only when meeting the following criteria:

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

7. Power Failure

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

SECTION C – MONITORING AND RECORDS

1. Representative Sampling

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

Calculated Flow Measurement

For calculated flow measurements that are performed in accordance with either the permit requirements or a Department approved method (i.e., as allowed under Part II.4), the +/- 10% accuracy requirement described above is waived. This waiver is only applicable when the method used for calculation of the flow has been reviewed and approved by the Department.

3. Monitoring Procedures

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

4. **Penalties for Tampering**

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

5. **Reporting of Monitoring Results**

Monitoring results must be reported on a Discharge Monitoring Report (DMR) form provided by the Department or other form/method approved in writing by the Department (e.g., electronic submittal of DMR once approved). Monitoring results obtained during the previous monitoring period shall be summarized and reported on a DMR form postmarked no later than the 25th day of the month or submitted electronically by 6:00 p.m. of the 25th (after NETDMR is approved), following the completed reporting period beginning on the effective date of the permit. When mailing the DMRs, duplicate copies of the forms signed and certified as required by Part III.D.11 and all other reports required by Part III.D, shall be submitted to the Director at the following address:

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

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

6. **Additional Monitoring by the Permittee**

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

7. **Retention of Records**

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

8. Record Contents

Records and monitoring information shall include:

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

9. Inspection and Entry

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

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

SECTION D – REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give notice within 180 days and provide plans and specification (if applicable) to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility. In no case are any new connections, increased flows, removal of substances, or significant changes in influent quality permitted that cause violation of the effluent limitations specified herein.

2. Anticipated Noncompliance

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

3. Transfers

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

4. Monitoring Reports

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

5. Compliance Schedule

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

6. Twenty-four Hour Report

- A. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain the following information:
1. a description of the noncompliance and its cause;
 2. the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
 3. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- B. The following shall be included as information which must be reported within 24 hours:
1. Any unanticipated bypass which exceeds any effluent limitation in the permit;
 2. Any upset which exceeds any effluent limitation in the permit and
 3. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part I of the permit to be reported within 24 hours to the Enforcement Section of the Water Division of the ADEQ.
- C. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours to the Enforcement Section of the Water Division of the ADEQ.

7. Other Noncompliance

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

8. Changes in Discharge of Toxic Substances for Industrial Dischargers

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

- A. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 CFR Part 122.42(a)(1); or
- B. That any activity has occurred or will occur which would result in any discharge on a non-routine or infrequent basis of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the “notification levels” described in 40 CFR Part 122.42(a)(2).

9. Duty to Provide Information

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

10. Duty to Reapply

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

11. Signatory Requirements

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

- A. All **permit applications** shall be signed as follows:
 1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
 - (b) The manager of one or more manufacturing, production, or operation facilities, provided: the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating

and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship: by a general partner or proprietor, respectively; or
 3. For a municipality, State, Federal, or other public agency, by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - (a) The chief executive officer of the agency, or
 - (b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- B. All **reports** required by the permit and **other information** requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
1. The authorization is made in writing by a person described above.
 2. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 3. The written authorization is submitted to the Director.
- C. Certification. Any person signing a document under this section shall make the following certification:

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

12. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2 and APCEC Regulation No. 6, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

13. Penalties for Falsification of Reports

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

14. Applicable Federal, State or Local Requirements

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

PART IV DEFINITIONS

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

1. **“Act”** means the Clean Water Act, Public Law 95-217 (33.U.S.C. 1251 et seq.) as amended.
2. **“Administrator”** means the Administrator of the U.S. Environmental Protection Agency.
3. **“APCEC”** means the Arkansas Pollution Control and Ecology Commission.
4. **“Applicable effluent standards and limitations”** means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.
5. **“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303(a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under (APCEC) Regulation No. 2, as amended.
6. **“Bypass”** As defined at 122.41(m).
7. **“Composite sample”** is a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of 4 effluent portions collected at equal time intervals (but not closer than one hour apart) during operational hours, within the 24-hour period, and combined proportional to flow or a sample collected at more frequent intervals proportional to flow over the 24-hour period.
8. **“Daily Discharge”** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.
 - A. **Mass Calculations:** For pollutants with limitations expressed in terms of mass, the “daily discharge” is calculated as the total mass of pollutant discharged over the sampling day.
 - B. **Concentration Calculations:** For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
8. **“Daily Maximum”** discharge limitation means the highest allowable “daily discharge” during the calendar month. The 7-day average for Fecal Coliform Bacteria (FCB) or E-Coli is the geometric mean of the values of all effluent samples collected during the calendar week in colonies per 100 ml.
9. **“Department”** means the Arkansas Department of Environmental Quality (ADEQ).
10. **“Director”** means the Director of the Arkansas Department of Environmental Quality.
11. **“Dissolved oxygen limit”**, shall be defined as follows:
 - A. When limited in the permit as a minimum monthly average, shall mean the lowest acceptable monthly average value, determined by averaging all samples taken during the calendar month;
 - B. When limited in the permit as an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.

12. **“E-Coli”** a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For E-Coli, report the monthly average as a 30-day geometric mean in colonies per 100 ml.
13. **“Fecal Coliform Bacteria (FCB)”**a sample consists of one effluent grab portion collected during a 24-hour period at peak loads. For Fecal Coliform Bacteria (FCB) report the monthly average as a 30-day geometric mean in colonies per 100 ml.
14. **“Grab sample”** means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.
15. **“Industrial User”** means a nondomestic discharger, as identified in 40 CFR Part 403, introducing pollutants to a POTW.
16. **“Instantaneous Maximum”** when limited in the permit as an instantaneous maximum value, shall mean that no value measured during the reporting period may fall above the stated value.
17. **“Instantaneous Minimum”** an instantaneous minimum value, shall mean that no value measured during the reporting period may fall below the stated value.
18. **“Monthly average”** means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. For Fecal Coliform Bacteria (FCB) or E-Coli, report the monthly average, (see 30-day average below).
19. **“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.
20. **“POTW”** means a Publicly Owned Treatment Works.
21. **“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.
22. **“Sewage sludge”** means the solids, residues, and precipitate separated from or created in sewage by the unit processes at a POTW. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and stormwater runoff that are discharged to or otherwise enter a POTW.
23. **“7-day average”** Also known as Average weekly. means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week.
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 of preventive maintenance, or careless of improper operations.

26. **“Visible sheen”** means the presence of a film or sheen upon or a discoloration of the surface of the discharge. A sheen can also be from a thin glistening layer of oil on the surface of the discharge.
27. **“MGD”** shall mean million gallons per day.
28. **“mg/l”** shall mean milligrams per liter or parts per million (ppm).
29. **“µg/l”** shall mean micrograms per liter or parts per billion (ppb).
30. **“cfs”** shall mean cubic feet per second.
31. **“ppm”** shall mean parts per million.
32. **“s.u.”** shall mean standard units.
33. **“Weekday”** means Monday – Friday.
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 (DMR) shall be submitted by the 25th of the month following the sampling. Where the monitoring requirement for an effluent characteristic is Quarterly, Semi-Annual, Annual, or Yearly, the DMR shall be submitted by the 25th of the month following the monitoring period end date.

A. MONTHLY:

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

B. BI-MONTHLY:

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

C. QUARTERLY:

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

D. SEMI-ANNUAL:

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

E. **ANNUAL or YEARLY:**

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

Final Fact Sheet

This Fact Sheet is for information and justification of the permit limits only. Please note that it is not enforceable. This final permitting decision is for renewal of the discharge Permit Number AR0021768 with Arkansas Department of Environmental Quality (ADEQ) Facility Identification Number (AFIN) 58-00105 to discharge to Waters of the State.

1. PERMITTING AUTHORITY.

The issuing office is:

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

2. APPLICANT.

The applicant's mailing address is:

City Corporation - Russellville Water and Sewer System
P.O. Box 3186
Russellville, AR 72811

The facility address is:

City Corporation - Russellville Water and Sewer System
404 Jimmy Lile Road
Russellville, AR 72802

3. PREPARED BY.

The permit was prepared by:

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

4. PERMIT ACTIVITY.

Previous Permit Effective Date: 4/1/2005
Previous Permit Expiration Date: 3/31/2010

The permittee submitted a permit renewal application on 9/28/2009. The discharge permit is being reissued for a 5-year term in accordance with regulations promulgated at 40 CFR Part 122.46(a).

DOCUMENT ABBREVIATIONS

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

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

RP - reasonable potential
 SIC - standard industrial classification
 TDS - total dissolved solids
 TMDL - total maximum daily load
 TP - total phosphorus
 TRC - total residual chlorine
 TSS - total suspended solids
 UAA - use attainability analysis
 USFWS - United States Fish and Wildlife Service
 WET - Whole effluent toxicity
 WQMP - water quality management plan
 WQS - Water Quality standards
 WWTP - wastewater treatment plant

DMR Review:

The Discharge Monitoring Reports (DMR's) for the last three years (December 2006 – December 2009) were reviewed during the permit renewal process. The violations listed in the following table were noted. A consent administrative order (CAO) was issued in response to these violations. The CAO is discussed in more detail in the next section.

CBOD5	TSS	DO	TRC	FCB	Zinc	Copper	Nitrates
	DEC06						
	JAN07				JAN07		
	FEB07						
	DEC07						
	FEB08						
MAR08	MAR08	MAR08		MAR08			
	APR08	APR08	APR08				
			MAY08			MAY08	
			JUN08			JUN08	
			JUL08			JUL08	JUL08
			AUG08				AUG08
			SEP08				
			OCT08				OCT08
			NOV08				NOV08
	DEC08		DEC08				DEC08
	JAN09		JAN09				JAN09
	FEB09		FEB09				FEB09
	MAR09		MAR09				
	APR09		APR09	APR09	APR09	APR09	
			MAY09				
			JUN09				JUN09
			JUL09			JUL09	JUL09
			AUG09				AUG09

CBOD5	TSS	DO	TRC	FCB	Zinc	Copper	Nitrates
			SEP09				SEP09
		OCT09	OCT09				
			NOV09				
	DEC09		DEC09				DEC09

Legal Order Review:

The facility is currently under a Consent Administrative Order (CAO) (LIS No. 09-146) which was signed by the Director on 11/06/2009. This order required the facility to submit a Corrective Action Plan (CAP) to address the permit limit violations. The CAP was submitted and approved on 06/01/2010.

Inspection

A routine compliance inspection was performed by ADEQ on 4/22/2009 which revealed the following violations:

1. For soil and sludge analysis, pH is not being reported.
2. Influent samples are not flow composited.
3. Flow meter error is greater than 10% of actual calculated flow.
4. Weir plates on effluent weir are not beveled as required for plates thicker than ¼ inch.

A response to these violations was received from the permittee in a letter dated 5/21/2009. The Department responded by letter dated 6/16/2009 which states that the permittee's response letter adequately addressed the violations identified during the inspection.

Site Visit

A routine site visit was conducted on 3/23/2010. Several photos of the treatment process were taken. Coordinates were collected by a handheld GPS for the outfall and sampling location at the effluent weir. The major proposed changes to the permit were discussed including the revised NH3-N limits and new proposed Mercury limits. The facility was given the opportunity to collect additional mercury data for re-evaluation of the reasonable potential calculations.

5. SIGNIFICANT CHANGES FROM THE PREVIOUSLY ISSUED PERMIT.

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

1. Limits for CBOD5, TSS, NH3-N, and NO3-N are now expressed to the nearest tenth for accuracy reporting purposes.
2. Ammonia-Nitrogen limits have changed for April - October based on toxicity standards in Reg. 2.512.

3. Final Mercury limits have been added which become effective three years after the effective date.
4. Interim Mercury monitor and report requirement was added for first three years of the permit.
5. A three year compliance schedule is included for Mercury.
6. Monitor and report requirement for Total Phosphorus was added to the permit in accordance with the CPP.

6. RECEIVING STREAM SEGMENT AND DISCHARGE LOCATION.

The outfall is located at the following coordinates based on a Garmin GPS unit.

Latitude: 35° 14' 50" Longitude: 93° 06' 45"

The receiving waters named:

Whig Creek thence to the Arkansas River in Segment 3F of the Arkansas River Basin. The receiving stream with USGS Hydrologic Unit Code (H.U.C) of 11110203 and reach # 931 is a Water of the State classified for secondary contact recreation, raw water source for domestic (public and private), industrial, and agricultural water supplies, propagation of desirable species of fish and other aquatic life, and other compatible uses.

7. 303(d) LIST, ENDANGERED SPECIES, AND ANTI-DEGRADATION CONSIDERATIONS.

A. 303(d) List:

The receiving stream (Whig Creek) is listed on the 2008 303d list for Nitrates. A TMDL for Nitrates dated December 2000 specifies a wasteload allocation of 542 lb/day of nitrates from this point source.

The receiving stream (Whig Creek) is listed on the 2008 303d list for Copper. A TMDL for Copper dated November 2003 specifies a wasteload allocation of 0.188 lb/day of dissolved copper from this point source. Since metal limits in NPDES permits must be expressed in terms of total metal, the dissolved copper mass was converted to a total copper mass permit limit using the translator procedure given in the CPP.

B. Endangered Species:

No comments on the application were received from the U.S. Fish and Wildlife Service (USF&WS). The draft permit and Fact Sheet were sent to the USF&WS for their review and no comments were received.

C. Anti-Degradation:

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

8. OUTFALL AND TREATMENT PROCESS DESCRIPTION.

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

A. Design Flow: 7.3 MGD

B. Type of Treatment: three (3) aerated flow equalization basins, bar screens, grit removal, three (3) primary clarifiers, two (2) biotowers, one (1) intermediate clarifier, two (2) trickling rock filters, two (2) extended aeration activated sludge basins, two (2) final clarifiers, and two (2) chlorine contact basins.

C. Discharge Description: treated municipal wastewater

D. Facility Status: This facility is classified as a major municipal since the design flow of the facility of 7.3 MGD is greater than 1.0 MGD.

9. ACTIVITY.

Under the Standard Industrial Classification (SIC) code of 4952 or North American Industry Classification System (NAICS) code of 221320, the applicant's activities are the operation of a sewage treatment plant.

10. INDUSTRIAL WASTEWATER CONTRIBUTIONS.

City Corporation receives industrial process wastewater. The pretreatment program was approved on January 13, 1984 and modified on March 10, 1992. The Sewer Use Ordinance and the Pretreatment Program have not been modified to come into compliance with the current 40 CFR 403 regulations. City Corporation has submitted both a draft ordinance and draft local limit development. The Department is currently reviewing both submittals.

11. SEWAGE SLUDGE PRACTICES.

The sludge produced at the treatment plant is aerobically digested on site and land applied at agronomic rates at the following locations:

Name	Field ID	Section	Township	Range	Acreage	Latitude	Longitude
City Corp	1	22	7 North	20 West	49	35° 14' 36" N	93° 6' 39" W
Baker	2	21	7 North	20 West	67.5	35° 14' 35" N	93° 7' 25" W
Old Pope County Landfill	3	21	7 North	20 West	76	35° 14' 44" N	93° 7' 40" W

Approval to land apply biosolids pursuant to this permit is limited to a maximum of one (1) year after the effective date of this permit. A separate permit must be obtained within this time period or land application of biosolids must cease. The permittee was notified of this requirement at the site visit conducted on 3/23/2010 and again at a meeting at ADEQ on 5/13/2010. Reporting requirements of this permit continue for the term of this permit until they are superseded by similar conditions in a separate land application permit.

12. PERMIT CONDITIONS.

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

A. Interim Effluent Limitations

Outfall 001- treated municipal wastewater

1. Conventional and/or Toxic Pollutants

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
Flow	N/A	Report, MGD	Report, MGD (Daily Max.)	once/day	totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(May-Oct)	608.8	10.0	15.0	once/weekday	composite
(Nov-Apr)	913.2	15.0	22.5	once/weekday	composite
Total Suspended Solids (TSS)					
(May-Oct)	913.2	15.0	22.5	once/weekday	composite
(Nov-Apr)	1217.6	20.0	30.0	once/weekday	composite
Ammonia Nitrogen (NH3-N)					
(April -October)	133.9	2.2	5.6	once/weekday	composite
(November - March)	243.5	4.0	6.0	once/weekday	composite
Dissolved Oxygen (DO)	N/A	6.0 (Inst. Min.)		once/weekday	grab
Fecal Coliform Bacteria (FCB)		(colonies/100 ml)			
	N/A	1000	2000	once/weekday	grab
Total Residual Chlorine (TRC)	N/A	<0.1 mg/l (Inst. Max.)		once/weekday	grab
Total Phosphorus (TP)	Report	Report	Report	once/month	grab
Nitrates (NO3-N)	542.0	10.0	15.0	once/weekday	grab
Zinc, Total Recoverable	5.2	85.5 µg/l	171.6 µg/l	once/month	composite
Copper, Total Recoverable	0.45	9.2 µg/l	18.5 µg/l	once/month	composite
Mercury, Total Recoverable	Report	Report µg/l	Report µg/l	once/month	composite
pH	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/weekday	grab
Chronic WET Testing	N/A	Report		once/quarter	composite
<u>Pimephales promelas (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
<u>Ceriodaphnia dubia (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

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

B. Final Effluent Limitations

Outfall 001- treated municipal wastewater

1. Conventional and/or Toxic Pollutants

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
Flow	N/A	Report, MGD	Report, MGD (Daily Max.)	once/day	totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)					
(May-Oct)	608.8	10.0	15.0	once/weekday	composite
(Nov-Apr)	913.2	15.0	22.5	once/weekday	composite
Total Suspended Solids (TSS)					
(May-Oct)	913.2	15.0	22.5	once/weekday	composite
(Nov-Apr)	1217.6	20.0	30.0	once/weekday	composite
Ammonia Nitrogen (NH3-N)					
(April -October)	133.9	2.2	5.6	once/weekday	composite
(November - March)	243.5	4.0	6.0	once/weekday	composite
Dissolved Oxygen (DO)	N/A	6.0 (Inst. Min.)		once/weekday	grab
Fecal Coliform Bacteria (FCB)		(colonies/100 ml)			
	N/A	1000	2000	once/weekday	grab
Total Residual Chlorine (TRC)	N/A	<0.1 mg/l (Inst. Max.)		once/weekday	grab
Total Phosphorus (TP)	Report	Report	Report	once/month	grab
Nitrates (NO3-N)	542.0	10.0	15.0	once/weekday	grab
Zinc, Total Recoverable	5.2	85.5 µg/l	171.6 µg/l	once/month	composite
Copper, Total Recoverable	0.45	9.2 µg/l	18.5 µg/l	once/month	composite
Mercury, Total Recoverable	0.00082	0.0134 µg/l	0.0269 µg/l	once/month	composite
pH	N/A	<u>Minimum</u> 6.0 s.u.	<u>Maximum</u> 9.0 s.u.	once/weekday	grab
Chronic WET Testing	N/A	Report		once/quarter	composite
<u>Pimephales promelas (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP6C Pass/Fail Growth (7-day NOEC) TGP6C Survival (7-day NOEC) TOP6C Coefficient of Variation (Growth) TQP6C Growth (7-day NOEC) TPP6C		<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %		once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	Mass (lbs/day, unless otherwise specified)	Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
		Monthly Avg.	Monthly Avg.		
<u>Ceriodaphnia dubia (Chronic)</u> Pass/Fail Lethality (7-day NOEC) TLP3B Pass/Fail production (7-day NOEC) TGP3B Survival (7-day NOEC) TOP3B Coefficient of Variation (Reproduction) TQP3B Reproduction (7-day NOEC) TPP3B			<u>7-Day Average</u> Report (Pass=0/Fail=1) Report (Pass=0/Fail=1) Report % Report % Report %	once/quarter once/quarter once/quarter once/quarter once/quarter	composite composite composite composite composite

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

13. BASIS FOR PERMIT CONDITIONS.

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

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

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

Parameter	Water Quality-Based		Technology-Based/BPJ		Previous Permit		Permit Limit	
	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								
(May-Oct)	10.0	15.0	25	40	10	15	10.0	15.0
(Nov-Apr)	15.0	22.5	25	40	15	23	15.0	22.5
TSS								
(May-Oct)	N/A	N/A	30	45	15	23	15.0	22.5
(Nov-Apr)	N/A	N/A	30	45	20	30	20.0	30.0
NH3-N								
(Apr-Oct)*	2.2	5.6	N/A	N/A	4	6	2.2	5.6
(Nov-March)	4.0	6.0	N/A	N/A	4	6	4.0	6.0
DO	6.0 (Inst. Min.)		N/A		6.0 (Inst. Min.)		6.0 (Inst. Min.)	
FCB (col/100 ml)	1000	2000	N/A	N/A	1000	2000	1000	2000
TRC (Inst. Max)	N/A		< 0.1 mg/l		<0.1 mg/l		<0.1 mg/l	
Total Phosphorus	N/A	N/A	Report	Report	N/A	N/A	Report	Report
Nitrates	10.0	15.0	N/A	N/A	10	15	10.0	15.0
Total Zinc	85.5 µg/l	171.6 µg/l	N/A	N/A	86 µg/l	172 µg/l	85.5 µg/l	171.6 µg/l
Total Copper	9.2 µg/l	18.5 µg/l	N/A	N/A	9.2 µg/l	18.5 µg/l	9.2 µg/l	18.5 µg/l

Parameter	Water Quality-Based		Technology-Based/BPJ		Previous Permit		Permit Limit	
	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
Total Mercury	0.0134 µg/l	0.0269 µg/l	N/A	N/A	N/A	N/A	0.0134 µg/l	0.0269 µg/l
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.	

*Compliance schedule was not deemed necessary by the permit writer because a review of the DMR data from December 2006 to December 2009 indicate that the facility is currently capable of meeting the more stringent revised NH3-N limits.

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

Parameter	Water Quality or Technology	Justification
CBOD5	Water Quality	MultiSMP Model dated 9/27/2004
TSS ¹	Technology	CPP
NH3-N	Water Quality	Reg. 2.512 / MultiSMP Model dated 9/27/2004
DO	Water Quality	Reg. 2.505 / MultiSMP Model dated 9/27/2004
Fecal Coliform Bacteria	Water Quality	Reg. 2.507
TRC ²	Water Quality	Reg. 2.409 and CPP
Total Phosphorus ³	Technology	CPP
Nitrates	Water Quality	December 2000 TMDL report
Total Copper	Water Quality	November 2003 TMDL report and Reg. 2.508
Total Zinc	Water Quality	Reg. 2.508 and CPP
Total Mercury	Water Quality	Reg. 2.508 and CPP
pH	Water Quality	Reg. 2.504
WET Testing	Water Quality	CPP

- 1 The CPP states that TSS limits for domestic wastewater discharges are typically between 1-3 times the BOD5/CBOD5 limit.
- 2 Average TRC measured in the effluent from August 2007 to August 2009 was 0.5 mg/l. This is higher than EPA's toxicity criteria of 0.011 mg/l. Therefore, the TRC limit is being continued from the previous permit since the data shows reasonable potential to exceed the toxicity criteria at the edge of the mixing zone.
- 3 In order to establish a database of point source loadings of nutrients to waters of the state, Total Phosphorus monitoring and reporting is included in the permit.

B. Anti-backsliding

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

The final permit maintains the requirements of the previous permit.

C. Limits Calculations

1. Mass limits:

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

The calculation of the loadings (lbs per day) for CBOD5, TSS, NH3-N, Zinc, and Mercury uses a design flow of 7.3 MGD and the following equation:

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

The mass load limits for Nitrates and Total Copper were taken from the wasteload allocation assigned to this point source specified in the TMDL reports for Nitrates and Copper. The previous permit contained mass limits for Nitrates and Copper based on the design flow of 7.3 MGD. In accordance with 40 CFR 122.44(d)(1)(vii)(B), the limits in the permit must be consistent with the wasteload allocations specified in the TMDL report. Therefore, the mass limits for Nitrates and Total Copper were revised to be consistent with the wasteload allocation (WLA) set forth in the TMDL reports.

2. 7-day Average Limits:

The 7-day average limits for NH3-N (May through October) as well as CBOD5 and TSS are based on Section 5.4.2 of the Technical Support Document for Water Quality-Based Toxics Control.

$$\text{7-day average limits} = \text{Monthly average limits} \times 1.5 - 2$$

The 7-day average NH3-N limits for the months of November through April are based on the requirements of Reg. 2.512.

The 7-day average limits for FCB are based on Reg. 2.507.

The 7-day average concentration limits for Copper, Zinc, and Mercury are based on the CPP.

3. Ammonia-Nitrogen (NH₃-N):

The water quality effluent limitations for Ammonia are based either on DO-based effluent limits or on toxicity-based standards, whichever are more stringent. The toxicity-based effluent limitations are based on Reg. 2.512 and the CPP.

D. 208 Plan (Water Quality Management Plan)

The 208 Plan, developed by the ADEQ under provisions of Section 208 of the federal Clean Water Act, is a comprehensive program to work toward achieving federal water goals in Arkansas. The initial 208 Plan, adopted in 1979, provides for annual updates, but can be revised more often if necessary. The 208 Plan has been revised to include a wasteload allocation of 0.45 lb/day for Total Copper which is derived from the Dissolved Copper wasteload allocation as specified in the TMDL report dated November 2003. The 208 Plan has also been updated to revise the NH₃-N limit from 4.0 mg/l to 2.2 mg/l for April–October based on toxicity standards in Reg. 2.512.

E. Priority Pollutant Scan (PPS)

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

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

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

The following items were used in calculations:

Flow = Q	7.3 MGD = 11.28 cfs	Application
7Q10	0 cfs	U.S.G.S.
TSS	3.0 mg/l	CPP
Hardness as CaCO ₃	25.0 mg/l	CPP
pH	7.68 s.u.	ARK0067

The following pollutants were reported above the required MQL:

Pollutant	Concentration Reported, µg/l	MQL, µg/l
Total Copper	39 (highest value of 24 values)	0.5
Total Lead	0.858 (geometric mean of 4 values)	0.5
Total Mercury	0.0115 (geometric mean of 8 values)	0.005
Total Nickel	6.553 (geometric mean of 4 values)	0.5
Total Silver	0.4827 (geometric mean of 4 values)	0.5
Total Zinc	118 (highest value of 60 values)	20
Total Phenols	5.57 (single value reported)	5

ADEQ has determined from the submitted information that the discharge poses the reasonable potential to cause or contribute to an exceedance above a water quality standard as follows:

(a) Aquatic Toxicity

Substance	Concentration (C _e) µg/l	C _e X 2.13 (for less than 20 values)	IWC µg/l	Water Quality Standards (WQS)	
				Acute, µg/l	Chronic, µg/l
Total Copper	39	39	39	10.99	8.28
Total Zinc	118	118	118	96.81	88.40
Total Mercury	0.0115	0.0245	0.0245	7.11	0.012

Instream Waste Concentrations (IWC's) have been calculated in the manner described in the CPP.

As can be seen in the table above, the calculated level for the following pollutants are sufficiently higher than the water quality standards. Therefore, the limits for those pollutants are calculated in the manner described in the CPP and are included in the permit as follows:

Final Limits		
Substance	AML, µg/l	DML, µg/l
Total Copper	9.2	18.5
Total Zinc	85.5	171.6
Total Mercury	0.0134	0.0269

14. TOTAL RESIDUAL CHLORINE (TRC) REQUIREMENTS.

Prior to final disposal, the effluent shall contain NO MEASURABLE TRC at any time. NO MEASURABLE will be defined as no detectable concentration of TRC as determined by any approved method established in 40 CFR Part 136 as less than 0.1 mg/l. Thus, the “no measurable TRC concentration” for chlorine becomes the permit limit. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting purposes. TRC shall be measured within fifteen (15) minutes of sampling.

15. WHOLE EFFLUENT TOXICITY.

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

Whole effluent toxicity (WET) testing is the most direct measure of potential toxicity which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. It is the national policy of EPA to use bioassays as a measure of toxicity to allow evaluation of the effects of a discharge upon a receiving water (49 Federal Register 9016-9019, March 9, 1984). EPA Region 6 and the State of Arkansas are now implementing the Post Third Round Policy and Strategy established on September 9, 1992, and EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies, revised March 13, 2000. Whole effluent toxicity testing of the effluent is thereby required as a condition of this permit to assess potential toxicity. The whole effluent toxicity testing procedures stipulated as a condition of this permit are as follows:

TOXICITY TESTS

FREQUENCY

Chronic WET

Once/quarter

Requirements for measurement frequency are based on the CPP.

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

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

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

$$Q_d = \text{Design flow} = 7.3 \text{ MGD} = 11.3 \text{ cfs}$$

$$7Q_{10} = 0 \text{ Cfs}$$

$$Q_b = \text{Background flow} = (0.67) \times 7Q_{10} = 0 \text{ cfs}$$

$$CD = (11.3) / (11.3 + 0) \times 100 = 100\%$$

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%, 75%, and 100% (See the CPP). The low-flow effluent concentration (critical dilution) is defined as 100% effluent. The requirement for chronic WET tests is based on the magnitude of the facility's discharge with respect to receiving stream flow. The stipulated test species, *Ceriodaphnia dubia* and the Fathead minnow (*Pimephales promelas*) are indigenous to the geographic area of the facility; the use of these is consistent with the requirements of the State water quality standards. The WET testing frequency has been established to provide data representative of the toxic potential of the facility's discharge, in accordance with the regulations promulgated at 40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen conductivity, and alkalinity shall be reported according to EPA/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 WET testing studies, Toxicity Reduction Evaluation (TRE) and/or effluent limits if WET testing data submitted to the Department shows toxicity in the permittee's discharge. Modification or revocation of this permit is subject to the provisions of 40 CFR 122.62, as adopted by reference in ADEQ Regulation No. 6. Increased or intensified toxicity testing may also be required in accordance with Section 308 of the Clean Water Act and Section 8-4-201 of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended).

Administrative Records

The following information summarized toxicity test submitted by the permittee during the term of the current permit at outfall 001:

Permit Number: AR0021768 AFIN: 58-00105 Outfall Number: 001
 Date of Review: 3/9/2010 Reviewer: M. Barnett
 Facility Name: City Corporation - Russellville Water and Sewer System
 Previous Dilution series: 32,42,56,75,100 Proposed Dilution Series: 32,42,56,75,100
 Previous Critical Dilution 100 Proposed Critical Dilution: 100
 Previous TRE activities: None

Frequency recommendation by species

Pimephales promelas (Fathead minnow): once/quarter
Ceriodaphnia dubia (water flea): once/quarter

TEST DATA SUMMARY

TEST DATE	Vertebrate		Invertebrate	
	Lethal NOEC	Sub-Lethal NOEC	Lethal NOEC	Sub-Lethal NOEC
Jun-05	100	100	100	100
Sep-05	100	100	100	100
Dec-05	100	31*	100	100
Mar-06	100	100	100	100
Jun-06	100	100	100	100
Sep-06	100	100	100	100
Dec-06	100	100	100	100
Mar-07	100	42	100	100
Mar-07	100	100		
Jun-07	100	75*	100	100
Sep-07	100	100	100	100
Dec-07	100	100	100	100
Mar-08	100	100	100	100
Jun-08	100	100	100	100
Sep-08	100	100	100	100
Dec-08	100	100	100	100
Mar-09	100	100	100	100
Jun-09	100	100	100	100
Sep-09	100	100	100	100
Dec-09	100	100	100	100
Mar-10	100	100	100	100

*Pp test passes due to low PMSD

Failures are noted in **BOLD**

REASONABLE POTENTIAL CALCULATIONS

	Vertebrate Lethal	Vertebrate Sub-Lethal	Invertebrate Lethal	Invertebrate Sub-Lethal
Min NOEC Observed	100	42	100	100
TU at Min Observed	1.00	2.38	1.00	1.00
Count	21	21	20	20
Failure Count	0	1	0	0
Mean	1.000	1.066	1.000	1.000
Std. Dev.	0.000	0.301	0.000	0.000
CV	0	0.3	0	0
RPMF	#N/A	1.2	#N/A	#N/A
Reasonable Potential	#N/A	2.857	#N/A	#N/A

PERMIT ACTION

There have been no lethal or sub-lethal failures for <i>C. dubia</i> during the past five five years, therefore WET limits are not required.
There have been no lethal failures for <i>P. promelas</i> during the past five five years, therefore WET limits are not required.
Although there has been one <i>P. promelas</i> sub-lethal WET test below the critical dilution, there is insufficient evidence to support the inclusion of a sub-lethal limit. Additional data is needed to confirm the necessity for a sub-lethal limit, therefore it is not required at this time.
The inclusion of requirements for retests for sub-lethal failures will provide sufficient documentation concerning the necessity for a TRE, and the potential for inclusion of sub-lethal WET limits if appropriate.
<i>P. promelas</i> lethal - WET Monitoring <i>P. promelas</i> sub-lethal - WET Monitoring <i>C. dubia</i> lethal - WET Monitoring <i>C. dubia</i> sub-lethal - WET Monitoring

16. SAMPLE TYPE AND FREQUENCY.

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

Requirements for sample type and sampling frequency have been based on the current discharge permit. Sample frequency for the new phosphorus and mercury reporting requirements was set at the same frequency as the existing copper and zinc frequency. The 24-hr composite sample types for CBOD5, TSS, NH3-N, Nitrates, Zinc, and Copper in the previous permit are being changed to composite sample type in this permit to provide the facility more flexibility in gathering a representative composite sample.

Parameter	Previous Permit		Final Permit	
	Frequency of Sample	Sample Type	Frequency of Sample	Sample Type
Flow	once/day	totalizing meter	once/day	totalizing meter
CBOD5	once/weekday	24-hr composite	once/weekday	composite
TSS	once/weekday	24-hr composite	once/weekday	composite
NH3-N	once/weekday	24-hr composite	once/weekday	composite
DO	once/weekday	grab	once/weekday	grab
FCB	once/weekday	grab	once/weekday	grab
TRC	once/weekday	grab	once/weekday	grab
TP	n/a	n/a	once/month	grab
NO ₃ - N	once/weekday	24-hr composite	once/weekday	composite
Zinc	once/month	24-hr composite	once/month	composite
Copper	once/month	24-hr composite	once/month	composite
Mercury	n/a	n/a	once/month	composite
pH	once/weekday	grab	once/weekday	grab

17. STORMWATER REQUIREMENTS

The facility currently has an active industrial stormwater permit (ARR000104) which covers all stormwater runoff at this facility.

18. PERMIT COMPLIANCE.

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

Compliance is required on the effective date of the permit for all parameters except for Mercury. Final limits for Mercury become effective three (3) years after the effective date of the permit.

The permittee shall submit progress reports addressing the progress towards attaining the final effluent limits for Mercury according to the following schedule:

<u>ACTIVITY</u>	<u>DUE DATE</u>
Progress Report	One (1) year from effective date
Progress Report	Two (2) years from effective date

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

19. 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.

20. SOURCES.

The following sources were used to prepare the permit:

- A. Application No. AR0021768 received 9/28/2009.
- B. Arkansas Water Quality Management Plan (WQMP).
- C. APCEC Regulation No. 2.
- D. APCEC Regulation No. 3.
- E. APCEC Regulation No. 6.
- F. 40 CFR Parts 122, 125, 133 and 403.
- G. Discharge permit file AR0021768.
- H. Discharge Monitoring Reports (DMRs).
- I. "Arkansas Water Quality Inventory Report 2008 (305B)", ADEQ.
- J. "Low-Flow Characteristics and Regionalization of Low-Flow Characteristics for Selected Streams in Arkansas", 2008, USGS.

- K. Continuing Planning Process (CPP).
- L. Technical Support Document For Water Quality-based Toxic Control.
- M. Region 6 Implementation Guidance for Arkansas Water Quality Standards promulgated at 40 CFR Part 131.36.
- N. Inspection Report dated 4/22/2009.
- O. Consent Administrative Order LIS No. 09-146, effective 12/25/2009.
- P. "Whig Creek Basin TMDL for Copper", November 2003, Parsons.
- Q. "Whig Creek TMDL for Nitrate", December 2000, USEPA.
- R. Site visit conducted on 3/23/2010.

21. POINT OF CONTACT.

For additional information, contact:

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