

(DRAFT as of August 8, 2018)

**AUTHORIZATION TO DISCHARGE UNDER THE
OKLAHOMA POLLUTANT DISCHARGE ELIMINATION SYSTEM**

PERMIT NUMBER: OK0030333
ID NUMBER: S21402

PART I

In compliance with the Oklahoma Pollutant Discharge Elimination System Act (OPDES Act), Title 27A O.S. § 2-6-201 *et seq.*, and the rules of the State of Oklahoma Department of Environmental Quality (DEQ) adopted thereunder {See OAC 252:606}; the Federal Clean Water Act, Public Law 95-217 (33 U.S.C. 1251 *et seq.*), Section 402; and NPDES Regulations (40 CFR Parts 122, 124, and 403),

City of Bartlesville – Chickasaw Wastewater Treatment Plant
401 S. Johnson Avenue
Bartlesville, OK 74003

is hereby authorized to discharge treated wastewater from a facility located at approximately

NW¼, NE¼, NW¼ of Section 7,
Township 26 North, Range 13 East, Indian Meridian (I.M.)
Washington County, Oklahoma
or at 230 N. Chickasaw Avenue, Bartlesville, OK 74003

to receiving water: the Caney River at the point located at approximately

Latitude: 36° 45' 25.965" N [GPS: NAD 1983 CONUS]
Longitude: 95° 57' 54.406" W [GPS: NAD 1983 CONUS]

Planning Segment No. 121400 (Water Body I.D. No. 121400020010_00)

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

This permit replaces and supersedes the previous permit issued on July 3, 2013.

The issuance date of this permit is _____.

This permit shall become effective _____.

This permit and authorization to discharge shall expire at midnight _____.

For the Oklahoma Department of Environmental Quality:

Karen Steele, P.E., Manager
Municipal Discharge and Stormwater Permit Section
Water Quality Division

Shellie R. Chard, Director
Water Quality Division

A. Effluent Limitations and Monitoring Requirements (Outfall 001)

Beginning the effective date of the permit through the expiration date of the permit, the permittee is authorized to discharge treated wastewater in accordance with the following limitations:

Effluent Characteristic		Discharge Limitations				Monitoring Requirements	
		Mass Loading (lbs/day)	Concentrations (mg/l unless otherwise specified)			Frequency	Sample Type
			Monthly Avg.	Monthly Avg.	Weekly Avg.		
Flow (mgd) [STORET: 50050]	Year round	---	Report	---	Report	Daily	Totalized
Biochemical Oxygen Demand - 5 Day (BOD₅) [STORET: 00310]	Year round	583.8	10.0	15.0	---	5/week	12-hour composite
Total Suspended Solids [STORET: 00530]	Year round	875.7	15.0	22.5	---	5/week	12-hour composite
Ammonia (NH₃-N) [STORET: 00610]	Year round	116.8	2.0	3.0	---	5/week ^a	12-hour composite
E. coli (CFU/100 ml) [STORET: 51040]	May – Sep	---	126 ^b	---	406	2/week	Grab
Total Residual Chlorine (TRC)^c [STORET: 50060]	Year round	---	Instantaneous Maximum: No Measurable ^d			Daily	Grab
pH (standard unit) [STORET: 00400]	Year round	---	6.5 – 9.0			Daily	Grab
Lead, total (µg/l)^e [STORET: 01051]	Year round	0.274	4.7	---	11.3	1/quarter ^f	24-hour composite

- ^a Ammonia analysis shall also be performed concurrently with and on all samples collected for WET testing at Outfall 001 (see WET testing requirements in Permit Part I.B). Results from concurrent ammonia analyses for Outfall TX1 may be used in partial fulfillment of ammonia monitoring requirements at Outfall 001.
- ^b Monthly data for E. coli is reported as geometric mean of all samples in that month.
- ^c If no chlorine is used for an entire reporting period, the permittee shall report a value of “zero” for the daily maximum and enter “No chlorine used this reporting period” in the comments section on the DMR for that reporting period in lieu of the indicated testing. For any week in which chlorine is used, the indicated testing shall be done until the chlorine is no longer in use and at least one subsequent test verifies that the effluent meets the total residual chlorine limit.
- ^d No measurable is defined as less than 0.1 mg/l.
- ^e If any individual test result is less than the minimum quantification level (MQL) specified in Appendix B of OAC 252:690 for total lead, a value of zero may be used for DMR calculations and reporting requirements.
- ^f Results of effluent analyzed for pretreatment program may be used in lieu of a separate test for total lead.

Other Year Round Requirements:

- There shall be no discharge of floating solids or visible foam in other than trace amounts.
- There shall be no discharge of a visible sheen of oil or globules of oil or grease on or in the water. Oil and grease shall not be present in quantities that adhere to stream banks and coat bottoms of water courses or which cause deleterious effects to the biota.
- All monitoring and reporting requirements shall also be in compliance with Part III of this permit.

Sampling Location: Samples taken in compliance with permit limits and monitoring requirements specified above shall be taken at the end of the step aerator located in the NW¼, NE¼, NW¼ of Section 7, Township 26 North, Range 13 East, I.M., Washington County, Oklahoma.

B. Whole Effluent Toxicity Reporting and Monitoring Requirements (Outfall TX1)

During the period beginning the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge from Outfall TX1 (functionally identical to Outfall 001). Such discharges shall be limited and monitored by the permittee as specified below.

The permittee is encouraged to perform required biomonitoring activities as early in the reporting period as is practical to ensure sufficient time remains in the reporting period should retests/repeat tests be necessary.

All laboratory analyses for the biomonitoring parameters specified in this permit must be performed by a laboratory certified by the Oklahoma Department of Environmental Quality for those parameters.

1. *Ceriodaphnia dubia* (*C. dubia*)

Whole Effluent Toxicity Reporting and Monitoring Requirements (Outfall TX1)

Effluent Characteristic			Reporting/Monitoring Requirements ^a		
Test	Critical Dilution ^c	Parameter	7-day Min	Testing Frequency ^b	Sample Type
<i>Ceriodaphnia dubia</i> , 7-day chronic NOEC static renewal, freshwater	100%	Pass/Fail Survival [TLP3B]	Report	1/quarter	24-hr comp
		NOEC _L Survival [TOP3B]	Report		
		% Mortality at Critical Dilution [TJP3B]	Report		
		Pass/Fail Reproduction [TGP3B]	Report		
		NOEC _S Reproduction [TPP3B]	Report		
		% Coeff of Variation [TQP3B]	Report		

^a See Part II, Section E, Whole Effluent Toxicity Limit, for additional monitoring and reporting conditions.

^b Quarterly reporting periods commence with the effective date of the permit. A valid WET test shall be reported for *C. dubia* for each reporting period. Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results.

^c All chronic WET testing shall use the dilution series specified in Part II, Section E, Item 1.

C. dubia whole effluent toxicity reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is _____ to _____.

Whole Effluent Toxicity Limit and Monitoring Requirements (Outfall TX1)

Effluent Characteristic	Reporting/Monitoring Requirements ^a		
	7-day Min	Testing Frequency ^b	Sample Type
Whole Effluent Toxicity Limit (lowest lethal NOEC _L and/or sublethal NOECs for <i>C. dubia</i>) [STORET 22414]	100%	1/quarter	24-hr comp

^{a.} See Part II, Section E, Whole Effluent Toxicity Limit, for additional monitoring and reporting conditions.

^{b.} Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results.

Compliance with the Whole Effluent Toxicity Limit for *C. dubia* is required beginning the effective date of the permit.

The first report is due ____.

WET Testing Summary Reports: Reports of all WET testing initiated, regardless of whether such tests are carried to completion, shall follow the requirements of Part II, Section E, Item 4.

Sampling Location: Samples taken in compliance with the monitoring requirements specified above for Outfall TX1 shall be taken at the following location: at the same location as for Outfall 001.

2. *Pimephales promelas* (Fathead Minnow)

Whole Effluent Toxicity Reporting and Monitoring Requirements (Outfall TX1)

Effluent Characteristic			Reporting/Monitoring Requirements ^a		
Test	Critical Dilution ^d	Parameter	7-day Min	Testing Frequency ^f	Sample Type
Routine Testing	100%	Pass/Fail Survival [TLP6C]	Report	1/quarter ^e	24-hr comp
		NOEC _L Survival [TOP6C]	Report		
		% Mortality at Critical Dilution [TJP6C]	Report		
		Pass/Fail Growth [TGP6C]	Report		
		NOEC _S Growth [TPP6C]	Report		
		% Coeff of Variation [TQP6C]	Report		
Retesting	Retest #1 [22415] ^b		Report	As required ^c	24-hr comp
	Retest #2 [22416] ^b		Report		

^{a.} See Part II, Section F, Whole Effluent Toxicity Testing, for additional monitoring and reporting conditions.

^{b.} Applies according to results of test failure triggering monthly retests.

^{c.} Monthly retesting required only if routine test for reporting period fails. Fill out ONLY these two retest parameters on the retest DMRs, do not change the original results, and put the correct submission date in the lower right hand corner of the DMR.

^{d.} All chronic WET testing shall use the dilution series specified in Part II, Section F, Item 1

^{e.} Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results (see Part II, Section F, Item 2.a).

^{f.} See provision for monitoring frequency reduction after the first year (Part II, Section F, Item 5).

P. promelas (Fathead minnow) whole effluent toxicity reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is _____ to _____.

The first report is due ____.

WET testing summary reports: Reports of all WET testing initiated, regardless of whether such tests are carried to completion, shall follow the requirements of Part II, Section F, Item 4.

WET Concurrent testing provision: Concurrent analyses of ammonia and pH are required for each individual effluent sample collected for chronic WET testing or retesting of the Fathead minnow species. Reporting of concurrent testing results shall be in accordance with the following requirements. Results shall also be submitted in or concurrently with each WET test report.

Concurrent Effluent Testing for Chronic WET Tests - Reporting Requirements (Outfall TX1)

Effluent Characteristic	Concentration			Monitoring Requirements	
	Daily Min	Monthly Avg	Daily Max	Monitoring Frequency ^a	Sample Type
Ammonia, (NH ₃ -N) (mg/l) ^{b,c} [STORET 00610]	Report	Report	Report	1/quarter	24 hr comp ^c
pH (std units) ^{b,c} [STORET 00400]	Report	N/A	Report	1/quarter	Measured in each composite effluent sample, including static renewals, just prior to first use ^c

^a See provision for WET testing monitoring frequency reduction after the first year (Part II, Section F, Item 5).

^b Report only those effluent samples collected for WET testing of the Fathead minnow species.

^c Samples collected for WET testing purposes, including static renewals, shall be of sufficient volume to allow for the required concurrent analyses in addition to the WET testing itself.

Two sets of samples for **concurrent analyses** are required for ammonia and pH:

Samples sent directly to a WET testing laboratory shall NOT undergo any preservation other than refrigeration to maintain a temperature at or below 6°C but not frozen prior to arrival and processing at the WET testing laboratory. These results may be used in the table above.

A second concurrent analysis is required for the sample that is sent to the WET testing laboratory and for the table above. Just prior to the first use of each composite sample for WET testing purposes, the biomonitoring laboratory shall take an adequately-sized portion of each composite sample, acidify it in accordance with preservation requirements in 40 CFR 136, and have it analyzed for ammonia (NH₃-N) at a state certified analytical laboratory. The pH measurement required for the above table must be taken just prior to the acidification step. These pH and ammonia readings should NOT be included in the results for Outfall 001.

Samples sent directly to a state certified analytical laboratory must be composite samples that are properly preserved. These results may be included in the results for Outfall 001.

Sampling location: Samples taken in compliance with the monitoring requirements specified above for Outfall TX1 shall be taken at the following location: at the same location as for Outfall 001.

C. Sanitary Sewer Overflows

Any bypass in the collection system [sanitary sewer overflow (SSO)] shall be reported in accordance with Permit Part III.B.6.

D. Compliance Schedule

See Consent Order Case No. 13-205.

E. Reporting of Monitoring Results

Monitoring results shall be reported in accordance with the provisions of Part III.B.5 of the permit. Monitoring results obtained during the previous month shall be summarized and electronically reported on an electronic Discharge Monitoring Report (eDMR) form due to the Oklahoma Department of Environmental Quality, Water Quality Division, Wastewater Compliance Tracking Section no later than the 15th day of the month following the completed monthly test. If no discharge occurs during the reporting period, an eDMR form stating "No Discharge" shall be electronically submitted according to the above schedule. Instructions on how to register as a Preparer or Signatory for eDMRs, as well as how to prepare and submit eDMRs, can be found on DEQ's website at <http://www.deq.state.ok.us/wqdnew/ereporting/index.html>. Assistance is also available by contacting DEQ at (405) 702-8100 or email deqreporting@deq.ok.gov.

The first report is due on _____.

PART II - OTHER PERMIT REQUIREMENTS**A. CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS**

1. 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 provisions of the subsequently approved industrial pretreatment program submitted by the permittee. A Publicly Owned Treatment Works (POTW) facility is defined in 40 CFR 403.3(o) as any devices and systems used in storage, treatment, recycling and reclamation of municipal sewage and industrial wastes of a liquid nature. It includes sewers, pipes and other conveyances if they convey wastewater to a POTW. The term also means a municipality as defined in the Act, which has jurisdiction over the Indirect Discharges to and from such treatment works. The POTW pretreatment program was January 28, 1984 and modified November 7, 1988; May 13, 1994; April 2, 1999 and May 6, 2013 to incorporate the latest 40 CFR Part 403 regulations adopted by DEQ effective June 15, 2007. Any non-substantial modifications [as defined under 40 CFR 403.18(b)] to the POTW pretreatment program received and implemented in accordance with 40 CFR 403.18(b) shall be considered incorporated as of the date of approval by DEQ. The current POTW pretreatment program is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:
 - a. Industrial user information shall be updated at a frequency adequate to ensure that all IUs are properly characterized at all times;
 - b. 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;
 - c. The permittee shall enforce and obtain remedies for noncompliance by any industrial users with applicable pretreatment standards and requirements;
 - d. 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 and/or Best Management Practices based on applicable general and categorical Pretreatment Standards, local limits, and State and local laws;
 - (4) Self-monitoring, sampling, reporting, notification and record keeping requirements, including an identification of the pollutants to be monitored (including the process for seeking pollutant waivers in accordance with 403.12(e)(2)), sampling location, sampling frequency, and sample type, based on the applicable general and categorical Pretreatment Standards, local limits, and State and local laws; and
 - (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.
- e. 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);
 - f. The permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program; and,
 - g. The approved program shall not be modified by the permittee without the prior approval of the DEQ.
2. The permittee shall establish and continue to develop and enforce technically based local limits (TBLL) to implement the provisions of 40 CFR Part 403.5. 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. All specific prohibitions or limits developed under this requirement are deemed to be conditions of this permit. The general and specific prohibitions set out in 40 CFR Parts 403.5(a)(1) and (b) shall also be enforced by the permittee unless modified under this provision.

The permittee shall, within sixty days of the effective date of this permit, (1) submit a WRITTEN CERTIFICATION that a technical evaluation has been performed demonstrating that the existing technically based local limits (TBLL) are based on the current state water quality standards and are adequate to prevent pass through of pollutants, inhibition of or interference with the treatment facility, worker health and safety problems, and sludge contamination, OR (2) submit a WRITTEN NOTIFICATION that a technical evaluation revising the current TBLL and a draft sewer use ordinance which incorporates such revisions will be submitted within 12 months of the effective date of this permit.

3. The permittee shall analyze, at a minimum 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 annually (once per year) and the toxic pollutants in Table III plus molybdenum at least quarterly (once per three months). 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 quarterly (once per three months) on both the influent and the effluent.

The influent and effluent samples collected shall be flow-composite samples consisting of at least 12 aliquots collected at approximately equal intervals over a representative 24 hour period. Sampling and analytical procedures shall be in accordance with guidelines established in 40 CFR 136. The effluent samples shall be analyzed to a level as required in item 6 below. Where composite samples are inappropriate, due to sampling, holding time, or analytical constraints, grab samples shall be taken.

4. The permittee shall prepare annually a list of Industrial Users which during the preceding pretreatment year were significantly noncompliant 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) or criteria established in the approved POTW pretreatment program. This list is to be published annually in a newspaper of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW during the **month of January**.

In addition, during the **month of January** the permittee shall submit an updated status report to DEQ containing the following information:

- a. An updated list of all Non-significant Categorical Industrial Users defined under 40 CFR 403.3(v)(2) if applicable, Categorical Industrial Users subject to reduced reporting under 40 CFR 403.12(e)(3) if applicable and Significant Industrial Users. For each industrial user listed the following information shall be included:

- (1) Standard Industrial Classification (SIC) or NAISC code and categorical determination;
 - (2) 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 year);
 - (3) A summary of all monitoring activities performed within the previous year. The following information shall be reported:
 - total number of inspections performed;
 - total number of sampling visits made;
 - (4) Status of compliance with both effluent limitations and reporting requirements. Compliance status shall be defined as follows:
 - Compliant (C) - no violations during the previous pretreatment year;
 - Non-compliant (NC) - one or more violations during the previous pretreatment year but does not meet the criteria for significant non-compliance;
 - Significantly Noncompliant (SNC) - in accordance with requirements described above; and
 - (5) 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;
- b. A list of all significant industrial users whose authorization to discharge was terminated or revoked during the preceding pretreatment year and the reason for termination;
 - c. 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;
 - d. A copy of the newspaper publication of the significantly non-compliant industrial users giving the name of the newspaper and the date published;
 - e. The results of all influent and effluent analyses performed pursuant to above requirements;
 - f. A comparison of the influent and effluent analyses performed pursuant to above with maximum allowable headworks loadings developed in the approved technically based local limits and water quality based effluent concentrations necessary to meet state water quality standards.
5. The permittee shall provide adequate notice of the following:
- a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 and 306 of the CWA and/or Sections 40 CFR 405-499 if it were directly discharging those pollutants; and
 - b. 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.

6. All effluent monitoring conducted pursuant to above requirements shall meet the Minimum Quantification Levels (MQLs) shown in the tables on pages 19 through 22.

B. REOPENER CLAUSE

This permit may be reopened for modification or revocation and reissuance to require additional monitoring and/or effluent limitations where actual or potential exceedances of State water quality criteria are determined to be the result of the permittee's discharge to the receiving water(s), or a revised Total Maximum Daily Load is established for the receiving water(s), or when required as technology advances. Modification or revocation and reissuance of the permit shall follow regulations listed at 40 CFR 124.5.

C. BIOSOLIDS/SEWAGE SLUDGE REQUIREMENTS

Biosolids/sewage sludge disposal practices shall comply with the Federal regulations for land application of biosolids/sewage sludge, established at 40 CFR Part 503, and the DEQ rules governing Sludge Management (OAC 252:606) as applicable.

The sludge removal shall also comply with the requirements of Sludge Management Plan (SMP) No. 3574005, approved by Department of Environmental Quality on December 2, 1994, that allows the permittee to land apply biosolids/sewage sludge at sites permitted in the SMP and subsequent amendments.

The permittee is required to maintain all records relevant to sewage biosolids/sewage sludge disposal for the life of the permit. These records shall be made available to the ODEQ upon request.

The permittee shall give 120 days prior notice to DEQ of any change planned in the biosolids/sewage sludge disposal practice.

D. POLLUTION PREVENTION REQUIREMENTS

1. The permittee shall institute a program within 12 months of the effective date of the permit (or continue an existing program) directed towards optimizing the efficiency and extending the useful life of the facility. The permittee shall consider the following items in the program:
 - a. The influent loadings, flow and design capacity;
 - b. The effluent quality and plant performance;
 - c. The age and expected life of the wastewater treatment facility's equipment;
 - d. Bypasses and overflows of the tributary sewerage system and treatment works;
 - e. New developments at the facility;
 - f. Operator certification and training plans and status;
 - g. The financial status of the facility;
 - h. Preventative maintenance programs and equipment conditions; and
 - i. An overall evaluation of conditions at the facility.
2. The permittee shall prepare the following information on the biosolids/sewage sludge generated by the facility:
 - a. An annual quantitative tabulation of the ultimate disposition of all biosolids/sewage sludge (including, but not limited to, the amount beneficially reused, landfilled, and incinerated).
 - b. An assessment of technological processes and an economic analysis evaluating the potential for beneficial reuse of all biosolids/sewage sludge not currently beneficially reused including a listing of any steps which would be required to achieve the biosolids/sewage sludge quality necessary to beneficially reuse the biosolids/sewage sludge.

- c. A description of, including the expected results and the anticipated timing for, all projects in process, in planning and/or being considered which are directed towards additional beneficial reuse of biosolids/sewage sludge.
- d. An analysis of one composite sample of the biosolids/sewage sludge collected prior to ultimate re-use or disposal shall be performed for the pollutants listed in Part IV, Element 1, Section III, Table 3 of the permit.
- e. - A listing of the specific steps (controls/changes) which would be necessary to achieve and sustain the quality of the biosolids/sewage sludge so that the pollutant concentrations in the biosolids/sewage sludge fall below the pollutant concentration criteria listed in Part IV, Element 1, Section III, Table 3 of the permit.
- f. A listing of, and the anticipated timing for, all projects in process, in planning, and/or being considered which are directed towards meeting the biosolids/sewage sludge quality referenced in (e) above.

The permittee shall certify in writing, within three years of the effective date of the permit, that all pertinent information is available. This certification shall be submitted to:

Oklahoma Department of Environmental Quality
 Water Quality Division
 Municipal Permits Section
 P. O. Box 1677
 707 North Robinson Street
 Oklahoma City, Oklahoma 73101-1677

E. WHOLE EFFLUENT TOXICITY TESTING - *Ceriodaphnia dubia*

1. Scope and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section, which apply individually and separately to the outfalls listed below. No samples or portions of samples from one outfall may be composited with samples or portions of samples from another outfall. The permittee shall biomonitor for *Ceriodaphnia dubia* in accordance with the WET testing frequencies prescribed in Part I. Intervals between test initiation dates shall be a function of the required testing frequency, as follows:

The permittee is encouraged to perform required biomonitoring activities as early in the reporting period as is practical to ensure sufficient time remains in the reporting period should retests/repeat tests be necessary.

All laboratory analyses for the biomonitoring parameters specified in this permit must be performed by a laboratory certified by the Oklahoma Department of Environmental Quality for those parameters.

Intervals between test initiation dates shall be a function of the required testing frequency, as follows:

- Monthly: No less than 20 days and no more than 40 days.
- Quarterly: No less than 2 months and no more than 4 months.
- Semi-annually: No less than 4 months and no more than 8 months.

APPLICABLE TO OUTFALL(S): 001

REPORTED ON DMR AS OUTFALL(S): TX1

CRITICAL DILUTION:	100%
EFFLUENT DILUTION SERIES (ALL TESTS):	32%, 42%, 56%, 75%, 100%
SAMPLE TYPE:	Defined at Part I
TEST SPECIES/METHODS:	40 CFR 136, except for changes required by EPA, Region 6.

Ceriodaphnia dubia chronic static renewal 7-day survival and reproduction test, Method 1002.0, EPA-821-R-02-013 (October 2002), or most recent update thereof. A minimum of ten (10) replicates of a single (1) organism per test chamber, must be used in the control and in each effluent dilution of this test. 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. If this criterion is not met at the end of 8 days, the test must be repeated.

- b. Chronic lethal effect test failure – The NOEC_L (No Observed Lethal Effect Concentration) is defined as the greatest effluent dilution at and below which lethality (toxicity) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure (chronic NOEC_L test) is defined as a demonstration of a statistically significant lethal (toxic) effect at test completion to a test species at or below the critical dilution.
- c. Chronic sublethal effect test failure – The NOEC_S (No Observed Sublethal Effect Concentration) is defined as the greatest effluent dilution at and below which sublethality (toxicity: inhibited reproduction in the *Ceriodaphnia dubia* test or inhibited growth in the Fathead minnow test) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic sublethal test failure (chronic NOEC_S test) is defined as a demonstration of a statistically significant sublethal effect at test completion to a test species at or below the critical dilution.
- d. The conditions of this item are effective beginning with the effective date of the WET limit as established in Part I of this permit. When the testing frequency stated above is less than monthly and the effluent fails the lethal and/or sublethal endpoint at or below the critical dilution, the permittee shall be considered in violation of this permit limit and the frequency for the affected species will increase to monthly until such time as compliance with the No Observed Effect Concentration (NOEC: lethal and sublethal) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in Part I of this permit.
- e. Reopener clause – This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity. Accelerated or intensified testing may be required in accordance with Section 308 of the Clean Water Act.
- f. Upon becoming aware of the failure of any test, the permittee shall notify a DEQ Water Quality Division biomonitoring coordinator immediately, and in writing within 5 working days of the test failure with a summary of the results of and any other pertinent circumstances associated with the failed test.

2. Testing Requirements due to Chronic Lethal and/or Sublethal Test Failure

Upon becoming aware of the failure of any test, the permittee shall notify DEQ Water Quality Division biomonitoring coordinator immediately, and in writing within 5 working days of the test failure with a summary of the results of and any other pertinent circumstances associated with the failed test.

Beginning with the effective date of the WET limit, as established in Part I of this permit, the following testing requirements due to chronic test failure apply:

- a. When there is a lethal and/or sublethal effect test failure for either species during routine testing, at least three additional monthly tests for the affected species are required (Part II.E.1.d above). The additional tests shall be conducted monthly during subsequent consecutive months until there are three consecutive months of passing tests at which time the frequency of testing shall return to that stated in Part 1 of the permit. The permittee shall not substitute any of the retests for routine toxicity testing.
- b. A full laboratory report for the failed routine test and all additional tests shall be provided and submitted to DEQ in accordance with procedure outlined in Item 3.
- c. If the permittee cannot pass three tests in a row within the next six months, DEQ will review the test results and may require a Toxicity Identification Evaluation (TIE) be done to determine the cause of the toxicity. If the TIE cannot detect the problem, another Toxicity Reduction Evaluation (TRE) may be required.

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:
 - (1) The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
 - (2) The mean number of *Ceriodaphnia dubia* neonates produced per surviving female in the control (0% effluent) must be 15 or more.
 - (3) Sixty (60) percent of the surviving *Ceriodaphnia dubia* females in the control must produce three broods.
 - (4) 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.
 - (5) The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sublethal effects are exhibited for the young of surviving females in the *Ceriodaphnia dubia* reproduction test.
 - (6) As documented at test termination, no more than forty (40) percent of the daphnid test organisms in any replicate of any effluent dilution or in any replicate of the control (0% effluent) shall be male.
 - (7) The Percent Minimum Significant Difference (PMSD) shall be in the range of 13-47 for *Ceriodaphnia dubia* reproduction. If the test PMSD is less than 13, 13 may be substituted for the PMSD.

If the above criteria or criteria listed in Item 1.a is not met the test will be considered invalid. Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40% for replicates tested at the critical dilution. A repeat test shall be conducted and the biomonitoring enforcement coordinator notified, within the reporting period of any test determined to be invalid.

- b. The permittee shall follow the requirements listed below in determining success or failure of a WET test:
 - (1) The statistical analyses in the *Ceriodaphnia dubia* survival test, 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.

- (2) The statistical analyses in the *Ceriodaphnia dubia* reproduction test, 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-03-013, or the most recent update thereof.
 - (3) If the conditions of test acceptability are met in Item 3.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an NOEC_L of not less than the critical dilution for the DMR reporting requirements found in Item 4 below.
- c. The permittee shall use dilution water that meets the following standards:
- (1) Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness and alkalinity to the closest downstream perennial water where the toxicity test is conducted on an effluent discharge to a receiving stream classified as intermittent or to a receiving stream with no flow due to zero flow conditions.
 - (2) If the receiving water is unsatisfactory as a result of instream toxicity (fails to meet the test acceptance criteria in Item 3.a), the permittee must submit the test results exhibiting receiving water toxicity with the full test report required in Item 4 below and may thereafter 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 was carried out to completion (i.e., 48 hours); and
 - (c) the synthetic dilution water had 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. The permittee shall collect samples that are representative of their effluent by following the criteria listed below:
- (1) Unless grab sampling is specifically authorized in Part I of the permit, the permittee shall collect two flow-weighted 24-hour composite samples representative of the flows during normal operation from the outfall(s) listed at Item 1.a above. If grab sampling is authorized, all the requirements listed below for composite sampling also pertain to grab sampling. In such cases, collection of the grab sample is considered equivalent to collection of the last portion of a composite sample. Unless otherwise specified in Part I of the permit, a 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportional to flow or a sample continuously collected proportional to flow over a 24-hour operating day.
 - (2) The first composite effluent sample shall be used to initiate each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to maintain a temperature at or below 6°C but not frozen during collection, shipping, and/or storage.
 - (3) The permittee must collect the composite samples such that the effluent samples are representative

of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

- (4) If it is anticipated that flow from the outfall being tested may cease prior to collection of the second effluent sample, the permittee must ensure that the first composite effluent sample is of sufficient volume to complete the required testing with daily renewal of effluent. The abbreviated effluent composite sample collection duration, the static renewal protocol associated with an abbreviated sample collection, and a summary of the circumstances justifying collection of an abbreviated sample must be adequately documented in the full test report required in Item 4 of this section. DEQ reserves the right to require a retest and/or consider the permittee in violation of this permit if the basis offered for justification of an abbreviated sample is insufficient, flawed, or in any way reflects an effort on the part of the permittee to avoid test failure by use of an abbreviated sample.

4. Reporting

- a. The permittee shall provide a full laboratory 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 for every valid or invalid toxicity test initiated, whether carried to completion or not, including any test which is considered invalid, is terminated early for any reason, or which indicates receiving water toxicity. The permittee shall retain each full report pursuant to the records retention provisions of Part III of this permit. The permittee shall submit to DEQ full laboratory test reports for all tests initiated, regardless of whether the tests are carried to completion. The reports shall be postmarked or received no later than the 15th day of the month following completion of the test.
- b. A valid test for each species (excluding retests) must be reported on the DMR for each reporting period specified in Part I of this permit. DMRs must be postmarked or received by the 15th day of the month following completion of any test to DEQ. The full report for the test (see Item 4.a above) shall be submitted along with the DMR. If monthly retesting is required as a result of a WET limit permit violation, several copies of the blank DMR for the applicable reporting period shall be made in advance of completing and submitting the DMR so that the DMR copies may be used to report results of the required retests for that reporting period. If more than one valid test (excluding retests) is performed on a species during a reporting period, the permittee shall report the lowest lethal and/or sublethal test result as the 7-day minimum and the 22414 result.
- c. If any test results in anomalous NOEC_L or NOEC_S findings (i.e., it indicates an interrupted dose response across the dilution series), DEQ recommends that the permittee contact a DEQ biomonitoring coordinator for a technical review of the test results prior to submitting the full laboratory test report and DMR. A summary of all tests initiated during the reporting period, including invalid tests, repeat tests and retests, shall be attached to the reporting period DMR for DEQ review.

A test is a REPEAT test if it is performed as the result of a previously invalid test. A test is a RETEST if it is performed as the result of a previously failed test, the exception being where the test is the first (valid) test of a reporting period, in which case it is reported as such on the DMR for that period.

- (1) The reporting period test summary attached to the DMR shall be organized as follows:
- (a) Invalid tests (basis for test invalidity must be described)
 - (b) Valid tests (other than retests) initiated during current reporting period
 - (c) Valid retests for tests failed during previous reporting period (if not submitted in the previous reporting period test summary)
 - (d) Valid retests for tests failed during current reporting period.

(2) The following information shall be listed in the reporting period test summary for each valid test in categories (b) through (d) in Item 4.b(1) above:

- (a) Test species
- (b) Date of test initiation at laboratory
- (c) Results of all concurrent effluent analyses specified in Part I of this permit
- (d) All test result parameters for the test species specified in Item 4.c below.

d. The permittee shall report the following results for all VALID toxicity tests (excluding retests) on the DMR(s) for that reporting period in accordance with Item 4.b above and Part III of this permit.

Ceriodaphnia dubia:

- (1) Parameter TLP3B: If the *Ceriodaphnia dubia* NOEC_L for survival is less than the critical dilution, report a "1"; otherwise, report a "0".
 - (2) Parameter TOP3B: Report the *Ceriodaphnia dubia* NOEC_L value for survival.
 - (3) Parameter TJP3B: Report the *Ceriodaphnia dubia* percent mortality in the critical dilution at test completion.
 - (4) Parameter TGP3B: If the *Ceriodaphnia dubia* NOEC_S for reproduction is less than the critical dilution, report a "1"; otherwise, report a "0".
 - (5) Parameter TPP3B: Report the *Ceriodaphnia dubia* NOEC_S value for reproduction.
 - (6) Parameter TQP3B: Report the highest coefficient of variation (critical dilution or control) for *Ceriodaphnia dubia* reproduction.
- e. The permittee shall report the results for all toxicity retests on the DMR(s) for the reporting period in which retesting is required postmarked or received no later than the 15th day of the month following completion of the retest. Results of all required retests shall be reported on a copy of the DMR for the reporting period (see Item 4.b above). The full laboratory report for the retest (see Item 4.a above) shall be submitted along with the retest DMR. Even if a retest cannot be conducted before the end of the reporting period for which it is required (due to test initiation interval requirements), the retest results shall still be reported for the reporting period in which retesting is required. Should retest failures necessitate the continuation of retesting into subsequent reporting periods, the results of the first test in any reporting period will be reported using the parameter STORET codes listed in Items 4.c above. If retesting is not required during a given reporting period, the permittee shall leave these DMR fields blank.
- f. Whole effluent toxicity limit – The permittee shall report the lowest of either the NOEC_L or NOEC_S value across these species for the 7-day minimum under STORET No. 22414 on the DMR for the reporting period in accordance with Part III of this permit.

F. WHOLE EFFLUENT TOXICITY TESTING – *Pimephales promelas* (Fathead Minnow)

1. Scope and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section, which apply individually and separately to the outfalls listed below. No samples or portions of samples from one outfall may be composited with samples or portions of samples from another outfall. The permittee

shall biomonitor for *Pimephales promelas* in accordance with the WET testing frequencies prescribed in Part I. Intervals between test initiation dates shall be a function of the required testing frequency, as follows:

The permittee is encouraged to perform required biomonitoring activities as early in the reporting period as is practical to ensure sufficient time remains in the reporting period should retests/repeat tests be necessary.

All laboratory analyses for the biomonitoring parameters specified in this permit must be performed by a laboratory certified by the Oklahoma Department of Environmental Quality for those parameters.

Provisions for performance-based monitoring frequency reductions are contained in Item 5 of this section.

Intervals between test initiation dates shall be a function of the required testing frequency, as follows:

- Monthly: No less than 20 days and no more than 40 days.
- Quarterly: No less than 2 months and no more than 4 months.
- Semi-annually: No less than 4 months and no more than 8 months.

APPLICABLE TO OUTFALL(S):	001
REPORTED ON DMR AS OUTFALL(S):	TX1
CRITICAL DILUTION:	100%
EFFLUENT DILUTION SERIES (ALL TESTS):	32%, 42%, 56%, 75%, 100%
SAMPLE TYPE:	Defined at Part I
TEST SPECIES/METHODS:	40 CFR 136, except for changes required by EPA, Region 6.

Pimephales promelas (Fathead minnow) chronic static renewal 7-day larval survival and growth test, Method 1000.0, EPA-821-R-02-013 (October 2002), or 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. Chronic lethal effect test failure – The $NOEC_L$ (No Observed Lethal Effect Concentration) is defined as the greatest effluent dilution at and below which lethality (toxicity) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure (chronic $NOEC_L$ test) is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution.
- c. Chronic sublethal effect test failure – The $NOEC_S$ (No Observed Sublethal Effect Concentration) is defined as the greatest effluent dilution at and below which sublethality (toxicity: inhibited reproduction in the *Ceriodaphnia dubia* test or inhibited growth in the Fathead minnow test) that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic sublethal test failure (chronic $NOEC_S$ test) is defined as a demonstration of a statistically significant sublethal effect at test completion to a test species at or below the critical dilution.
- d. Reopener clause – 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. Testing Requirements due to Test Failure

Upon becoming aware of the failure of any test, the permittee shall notify DEQ Water Quality Division biomonitoring coordinator immediately, and in writing within 5 working days, of the test failure with a summary of the results of, and any other pertinent circumstances associated with, the failed test.

- a. Whenever there is a test failure for *Pimephales promelas* during routine testing, the frequency of testing for *Pimephales promelas* shall automatically increase to, or continue at, as appropriate, the WET testing frequency prescribed in Part I for the remaining life of the permit. In addition, two (2) additional monthly tests (retests) of *Pimephales promelas* are required. The two additional tests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two additional tests for routine toxicity testing. A full laboratory report for the failed routine test and both additional tests, if required, shall be prepared and submitted to DEQ in accordance with procedures outlined in Item 4 of this section.
- b. Persistent toxicity – If either of the two additional tests result in an $NOEC_L$ and/or $NOECs$ value less than the critical dilution, persistent lethality and/or sublethality is exhibited. Then the permittee shall initiate a Toxicity Reduction Evaluation (TRE) as specified in Item 6 below. The TRE initiation date will be the test completion date of the first failed retest. The permittee may request a temporary exemption to this TRE-triggering criterion only if the permittee is under a compliance schedule defined in an OPDES permit or an enforcement order to effect aquatic toxicity reduction measures.
- c. Intermittent toxicity – If both additional tests result in an $NOEC_L$ and/or $NOECs$ value greater than or equal to the critical dilution, persistent lethality and/or sublethality is not exhibited. However, if any routine lethal and/or sublethal effect test failure occurs within 18 months of a prior lethal and/or sublethal effect test failure, intermittent lethality and/or sublethality is exhibited, and the permittee may be required by DEQ to initiate a TRE, as described in Item 6 below, based on the severity and pattern of such lethal and/or sublethal effect over time.
- d. Suspension of retesting requirements during a TRE - Retesting requirements in Item 2.a are temporarily suspended upon submittal of a TRE Action Plan. Such suspension of retesting requirements applies only to the species under evaluation by a TRE and only to the period during which a TRE is being performed.

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:
 - (1) The toxicity test control (0% effluent) must have survival equal to or greater than 80%.
 - (2) 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.
 - (3) The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for the growth and survival endpoints of the Fathead minnow test.
 - (4) The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or sublethal effects are exhibited for the growth and survival endpoints of the Fathead minnow test.
 - (5) The PMSD shall be in the range of 12-30 for Fathead minnow growth. If the test PMSD is less than 12, 12 may be substituted for the the PMSD.

If the above criteria or criteria listed in Item 1.a is not met the test will be considered invalid. Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40% for replicates tested at the critical dilution. A repeat test shall be conducted and the biomonitoring enforcement coordinator notified, within the reporting period of any test determined to be invalid.

- b. The permittee shall follow the requirements listed below in determining success or failure of a WET test:
- (1) The statistical analyses in the Fathead minnow larval survival and growth test, 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 most recent update thereof.
 - (2) If the conditions of test acceptability are met in Item 3.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an $NOEC_L$ of not less than the critical dilution for the DMR reporting requirements found in Item 4 below.
- c. The permittee shall use dilution water that meets the following standards:
- (1) Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness and alkalinity to the closest downstream perennial water where the toxicity test is conducted on an effluent discharge to a receiving stream classified as intermittent or to a receiving stream with no flow due to zero flow conditions.
 - (2) If the receiving water is unsatisfactory as a result of instream toxicity (fails to meet the test acceptance criteria in Item 3.a), the permittee must submit the test results exhibiting receiving water toxicity with the full test report required in Item 4 below and may thereafter 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 was carried out to completion (i.e., 48 hours); and
 - (c) the synthetic dilution water had 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. The permittee shall collect samples that are representative of their effluent by following the criteria listed below:
- (1) Unless grab sampling is specifically authorized in Part I of the permit, the permittee shall collect two flow-weighted 24-hour composite samples representative of the flows during normal operation from the outfall(s) listed at Item 1.a above. If grab sampling is authorized, all the requirements listed below for composite sampling also pertain to grab sampling. In such cases, collection of the grab sample is considered equivalent to collection of the last portion of a composite sample. Unless otherwise specified in Part I of the permit, a 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportional to flow or a sample continuously collected proportional to flow over a 24-hour operating day.

- (2) The first composite effluent sample shall be used to initiate each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to maintain a temperature at or below 6° C but not frozen during collection, shipping, and/or storage.
- (3) The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.
- (4) If it is anticipated that flow from the outfall being tested may cease prior to collection of the second effluent sample, the permittee must ensure that the first composite effluent sample is of sufficient volume to complete the required testing with daily renewal of effluent. The abbreviated effluent composite sample collection duration, the static renewal protocol associated with an abbreviated sample collection, and a summary of the circumstances justifying collection of an abbreviated sample must be adequately documented in the full test report required in Item 4 of this section. DEQ reserves the right to require a retest and/or consider the permittee in violation of this permit if the basis offered for justification of an abbreviated sample is insufficient, flawed, or in any way reflects an effort on the part of the permittee to avoid test failure by use of an abbreviated sample.

4. Reporting

- a. The permittee shall provide a full laboratory 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 for every valid or invalid toxicity test initiated, whether carried to completion or not, including any test which is considered invalid, is terminated early for any reason, or which indicates receiving water toxicity. The permittee shall retain each full report pursuant to the records retention provisions of Part III of this permit. The permittee shall submit to DEQ full laboratory test reports for all tests initiated, regardless of whether the tests are carried to completion. The reports shall be postmarked or received no later than the 15th day of the month following completion of the test.
- b. A valid test for each species (excluding retests) must be reported on the DMR for 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. A DMR must be postmarked or received by the 15th day of the month following completion of any valid test to DEQ. The full report for the test (see Item 4.a above) shall be submitted along with the DMR. If a lethal and/or sublethal test failure is experienced for either test species, two copies of the blank retest section of the DMR for the applicable reporting period shall be made in advance of completing and submitting the DMR so that the retest DMR copies may be used to report results of the required retests.

If more than one valid test (excluding retests) is performed on a species during a reporting period, the permittee shall report the lowest lethality and sublethality NOEC effluent concentrations for all such tests as the 7-day minimum on the DMR for the reporting period in question, specifying the dates of each test in the comments section of the DMR. Under no circumstance shall the monitoring/reporting period dates at the top of the DMR form be altered.

- c. If any test results in anomalous NOEC_L or NOEC_S findings (i.e., it indicates an interrupted dose response across the dilution series), DEQ recommends that the permittee contact a DEQ biomonitoring coordinator for a technical review of the test results prior to submitting the full test report and DMR. A summary of all tests initiated during the reporting period, including invalid tests, repeat tests and retests, shall be attached to the reporting period DMR for DEQ review.

A test is a REPEAT test if it is performed as the result of a previously invalid test. A test is a RETEST

if it is performed as the result of a previously failed test, the exception being where the test is the first (valid) test of a reporting period, in which case it is reported as such on the DMR for that period.

- (1) The reporting period test summary attached to the DMR shall be organized as follows:
 - (a) Invalid tests (basis for test invalidity must be described)
 - (b) Valid tests (other than retests) initiated during current reporting period
 - (c) Valid retests for tests failed during previous reporting period (if not submitted in the previous reporting period test summary)
 - (d) Valid retests for tests failed during current reporting period.
- (2) The following information shall be listed in the reporting period test summary for each valid test in categories (b) through (d) in Item 4.b(1) above:
 - (a) Test species
 - (b) Date of test initiation at laboratory
 - (c) Results of all concurrent effluent analyses specified in Part I of this permit
 - (d) All test result parameters for the test species specified in Item 4.c below.

- d. The permittee shall report the following results for all VALID toxicity tests (excluding retests) on the DMR(s) for that reporting period in accordance with Item 4.b above and Part III of this permit.

Pimephales promelas (Fathead minnow)

- (1) Parameter TLP6C: If the Fathead minnow $NOEC_L$ for survival is less than the critical dilution, report a "1"; otherwise, report a "0".
- (2) Parameter TOP6C: Report the Fathead minnow $NOEC_L$ value for survival.
- (3) Parameter TJP6C: Report the Fathead minnow percent mortality in the critical dilution at test completion.
- (4) Parameter TGP6C: If the Fathead minnow $NOEC_S$ for growth is less than the critical dilution, report a "1"; otherwise, report a "0".
- (5) Parameter TPP6C: Report the Fathead minnow $NOEC_S$ value for growth.
- (6) Parameter TQP6C: Report the highest coefficient of variation (critical dilution or control) for Fathead minnow survival and growth.

- e. The permittee shall report the following results for all VALID toxicity retests on the DMR(s) for that reporting period.

- (1) Retest #1 (STORET 22415): If the first monthly retest following failure of a routine test results in an $NOEC_L$ and/or $NOECs$ less than the critical dilution, report a "1"; otherwise, report a "0".
- (2) Retest #2 (STORET 22416): If the second monthly retest following failure of a routine test results in an $NOEC_L$ and/or $NOECs$ less than the critical dilution, report a "1"; otherwise, report a "0".

Results of all retests shall be reported on a copy of the DMR for the reporting period (see Item 4.b above) in which the triggering routine test failure is experienced. Such retest results (using STORET codes 22415 and 22416 only) shall be postmarked or received no later than the 15th day of the month

following completion of the retest. The full report for the retest (see Item 4.a above) shall be submitted along with the retest DMR. Even if a retest cannot be conducted before the end of the reporting period for which it is required (due to test initiation interval requirements), the retest results shall still be reported for the reporting period in which the triggering test failure is experienced. Under no circumstance shall the monitoring/reporting period dates for a supplemental retest DMR ever be modified. The permittee shall indicate the retest date in the comments section of the supplemental DMR and insert the date the DMR is submitted in the lower right hand corner. In this manner, both retests are reported for the same reporting period as the failed routine test triggering the retests. If retesting is not required during a given reporting period, the permittee shall leave the DMR retest fields blank.

5. Monitoring Frequency Reduction

- a. The permittee may apply for a testing frequency reduction upon the successful completion of the first year of testing for *Pimephales promelas* with no lethal or sublethal effects demonstrated at or below the critical dilution. Certification in accordance with Item 5.b of this section shall be submitted with the application for monitoring frequency reduction. If granted, the monitoring frequency may be reduced to a minimum of 6 months (once each during the periods June 1 through September 30 and December 1 through March 31) for either test species.
- b. Certification – The permittee must certify in writing that no lethal or sublethal test failures have occurred for the species for which the monitoring frequency reduction is being requested and that all tests meet all test acceptability criteria in Item 3.a above. In addition, the permittee must provide a summary of all tests initiated during the period of certification including test initiation dates, species, test acceptability parameters, NOEC_L values, percent mortality at the critical dilution, NOEC_S values, and coefficients of variation for the controls and critical dilutions. If the certification is approvable, DEQ will issue a letter of confirmation of the monitoring frequency reduction. A copy of the confirmation letter will be forwarded to DEQ's Permit Compliance System unit to update the permit reporting requirements. DEQ may refuse to approve the certification if it determines that, during the period for which the certification is submitted, there were errors in meeting test acceptability requirements, errors in statistical interpretation affecting test results reported on DMRs, late submissions of test reports or submissions of substantively incomplete test reports. If the certification is not approved, the permittee shall continue biomonitoring of the affected test species at a frequency of once per quarter until the permit is reissued.
- c. Lethal and/or sublethal failures after a monitoring frequency reduction – If any lethal or sublethal endpoint test is failed at any time after the granting of a monitoring frequency reduction, two monthly retests are required for that species in accordance with Item 2 above and the monitoring frequency for the affected test species shall be increased to the WET testing frequency prescribed in Part I until the permit is reissued. If the permittee is performing a TRE this section does not apply.

6. Toxicity Reduction Evaluation (TRE)

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

- (1) Specific Activities. DEQ requires that a thorough audit of the design, operation and maintenance of the entire plant be done at the outset of the Toxicity Identification Evaluation (TIE) and/or TRE, rather than later in the process.

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 available through the

National Technical Information Service (NTIS)

U.S. Department of Commerce
National Technical Information Service
5301 Shawnee Rd., Alexandria, VA 22312
orders@ntis.gov
(800) 553-NTIS (6847), or at the

National Service Center for Environmental Publications (NSCEP)

U.S. EPA/NSCEP
P.O. Box 42419
Cincinnati, Ohio 45242-0419
1 (800) 490-9198

E-mail: nscep@bps-lmit.com

- (2) 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 toxicity 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.
 - (3) Quality Assurance Plan (e.g., QA/QC implementation, corrective actions, etc.).
 - (4) 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 submitting the plan and

schedule. The permittee shall assume all risks for failure to achieve the required toxicity reduction.

- c. The permittee shall submit to DEQ a quarterly TRE Activities Report with the Discharge Monitoring Report in months to be specified in their TRE plan, containing the following information:
 - (1) all data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
 - (2) all studies/evaluations and results on the treatability of the facility's effluent toxicity; and
 - (3) all data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at any dilution.
- d. The permittee shall submit to DEQ a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months after confirming toxicity in the retests. The final report shall provide information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to a 48-hour LC₅₀ effluent value of greater than 100%. The final report will also provide a schedule for implementing the selected control mechanism.
- e. Quarterly testing during the TRE is the minimum monitoring requirement. DEQ recommends that permittees performing a TRE not rely on quarterly testing alone. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity per federal regulations at 40 CFR 122.44(d)(1)(v).

MINIMUM QUANTIFICATION LEVELS (MQLs)

	<u>MQL (µg/l)</u>	<u>EPA METHOD</u>
<u>METALS AND CYANIDE</u>		
Antimony (Total) ¹	60	200.7
Arsenic (Total) ¹	0.5	206.5
		200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Beryllium (Total) ¹	5	200.7
Cadmium (Total)	1	200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Chromium (Total) ¹	10	200.7
Chromium (3+) ¹	10	200.7
Chromium (6+) ¹	10	200.7
Copper (Total)	1	200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Lead (Total)	0.5	200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Mercury (Total) ¹	0.05	245.1 revision 3.0 (1994)
Molybdenum (Total)	30	200.7
Nickel (Total) ¹ [Freshwater]	10	200.7
Nickel (Total) [Marine]	5	200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Selenium (Total) ¹	5	200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Silver (Total)	0.5	200.7 revision 4.4 (1994)
		200.8 revision 5.4 (1994)
		200.9 revision 2.2 (1994)
Thallium (Total) ¹	0.5	279.2 revision
Zinc (Total) ¹	20	200.7
Cyanide (Total) ¹	10	335.4
<u>DIOXIN</u>		
2,3,7,8-Tetrachlorodibenzo- P-Dioxin (TCDD) ^{2,4}	0.00001	1613
<u>VOLATILE COMPOUNDS</u>		
Acrolein ³	50	624
Acrylonitrile ³	50	624
Benzene ³	10	624

MINIMUM QUANTIFICATION LEVELS (MQLs)

	<u>MQL (µg/l)</u>	<u>EPA METHOD</u>
Bromoform ⁴	10	624
Carbon Tetrachloride ⁴	10	624
Chlorobenzene ⁴	10	624
Chlorodibromomethane ⁴	10	624
Chloroethane	50	624
2-Chloroethylvinyl Ether ³	10	624
Chloroform ⁴	10	624
Dichlorobromomethane ⁴	10	624
1,1-Dichloroethane ⁴	10	624
1,2-Dichloroethane ⁴	10	624
1,1-Dichloroethylene ⁴	10	624
1,2-Dichloropropane ⁴	10	624
1,3-Dichloropropylene ⁴	10	624
Ethylbenzene ⁴	10	624
Methyl Bromide [Bromomethane]	50	624
Methyl Chloride [Chloromethane]	50	624
Methylene Chloride ⁴	20	624
1,1,2,2-Tetrachloroethane ⁴	10	624
Tetrachloroethylene ⁴	10	624
Toluene ⁴	10	624
1,2-Trans-Dichloroethylene ⁴	10	624
1,1,1-Trichloroethane ⁴	10	624
1,1,2-Trichloroethane ⁴	10	624
Trichloroethylene ⁴	10	624
Vinyl Chloride ⁴	10	624
<u>ACID COMPOUNDS</u>		
2-Chlorophenol ⁴	20	625
2,4-Dichlorophenol ⁴	20	625
2,4-Dimethylphenol ¹	20	625
4,6-Dinitro-o-Cresol [12 methyl 4,6-dinitrophenol] ⁴	50	625
2,4-Dinitrophenol ⁴	50	625
2-Nitrophenol ⁴	20	625
4-Nitrophenol ⁴	50	625
p-Chloro-m-cresol [4 chloro-3-methylphenol] ¹	20	625
Pentachlorophenol ⁴	50	625
Phenol ⁴	20	625
2,4,6-Trichlorophenol ⁴	20	625

MINIMUM QUANTIFICATION LEVELS (MQLs)

	<u>MQL (µg/l)</u>	<u>EPA METHOD</u>
<u>BASE/NEUTRAL COMPOUNDS</u>		
Acenaphthene ⁴	20	625
Acenaphthylene ⁴	20	625
Anthracene ⁴	20	625
Benzidine ³	50	625
Benzo(a)Anthracene ⁴	20	625
Benzo(a)Pyrene ⁴	20	625
3,4-Benzofluoranthene ⁴	20	625
Benzo(ghi)Perylene	20	625
Benzo(k)Fluoranthene ⁴	20	625
Bis(2-Chloroethoxy) Methane ⁴	20	625
Bis(2-Chloroethyl) Ether ⁴	20	625
Bis(2-Chloroisopropyl) Ether ⁴	20	625
Bis(2-Ethylhexyl) Phthalate ⁴	20	625
4-Bromophenyl Phenyl Ether ⁴	20	625
Butylbenzyl Phthalate ⁴	20	625
2-Chloronaphthalene ⁴	20	625
4-Chlorophenyl Phenyl Ether ⁴	20	625
Chrysene ⁴	20	625
Dibenzo (a,h) Anthracene	20	625
1,2-Dichlorobenzene ⁴	20	625
1,3-Dichlorobenzene ⁴	20	625
1,4-Dichlorobenzene ⁴	20	625
3,3'-Dichlorobenzidine	20	625
Diethyl Phthalate ⁴	20	625
Dimethyl Phthalate ⁴	20	625
Di-n-butyl Phthalate ⁴	20	625
2,4-Dinitrotoluene ⁴	20	625
2,6-Dinitrotoluene ⁴	20	625
Di-n-octyl Phthalate ⁴	20	625
1,2-Diphenylhydrazine ³	20	625
Fluoranthene ⁴	20	625
Fluorene ⁴	20	625
Hexachlorobenzene ⁴	10	625
Hexachlorobutadiene ⁴	20	625
Hexachlorocyclopentadiene ⁴	20	625
Hexachloroethane	20	625
Indeno (1,2,3-cd) Pyrene	20	625
(2,3-o-phenylene pyrene)		
Isophorone ⁴	20	625
Naphthalene ⁴	10	625

MINIMUM QUANTIFICATION LEVELS (MQLs)

	<u>MQL (µg/l)</u>	<u>EPA METHOD</u>
Nitrobenzene ⁴	20	625
N-nitrosodimethylamine	50	625
N-nitrosodi-n-propylamine	20	625
N-nitrosodiphenylamine	20	625
Phenanthrene ⁴	20	625
Pyrene ⁴	20	625
1,2,4-Trichlorobenzene ⁴	20	625
<u>PESTICIDES</u>		
Aldrin ¹	0.05	608
Alpha-BHC ¹	0.05	608
Beta-BHC ¹	0.05	609
Gamma-BHC (Lindane) ¹	0.05	608
Delta-BHC ¹	0.05	608
Chlordane ¹	0.2	608
4,4'-DDT ¹	0.05	608
4,4'-DDE (p,p-DDX) ¹	0.05	608
4,4'-DDD (p,p-TDE) ¹	0.05	608
Dieldrin ¹	0.05	608
Alpha-endosulfan ¹	0.05	608
Beta-endosulfan ¹	0.05	608
Endosulfan sulfate ¹	0.05	608
Endrin ¹	0.05	608
Endrin aldehyde ¹	0.05	608
Heptachlor ¹	0.05	608
Heptachlor epoxide ¹ (BHC-hexachlorocyclohexane)	0.05	608
PCB-1242 ¹	0.25	608
PCB-1254	0.25	608
PCB-1221	0.25	608
PCB-1232	0.25	608
PCB-1248	0.25	608
PCB-1260	0.25	609
PCB-1016	0.25	608
PCB, total	0.25	608
Toxaphene ¹	0.3	608

¹ Based on Contract Required Quantitation Level (CRQL) developed pursuant to 40 CFR Part 122² Dioxin National Strategy³ No CRQL developed pursuant to 40 CFR Part 122 established⁴ CRQL basis, equivalent to MQL

MQL based on 3.3 times LOD published in 40 CFR 136, Appendix B

FACT SHEET
(Draft of May 30, 2018)

FOR THE DRAFT AUTHORIZATION TO DISCHARGE TO WATERS OF THE UNITED STATES UNDER
THE OKLAHOMA POLLUTANT DISCHARGE ELIMINATION SYSTEM (OPDES).

Permit Number: OK0030333

Facility I.D. Number: S21402

Applicant: City of Bartlesville - Chickasaw Wastewater Treatment Plant
401 S. Johnstone Avenue
Bartlesville, OK, OK 74003

Issuing Office: Oklahoma Department of Environmental Quality (DEQ)
Water Quality Division
707 North Robinson
P.O. Box 1677
Oklahoma City, Oklahoma 73101-1677

Prepared By: Kelly Pham, P.E., Permit Writer
Municipal Permits Section
Water Quality Division

Date Prepared: May 30, 2018

Reviewed By: Michael B. Moe, P.E., Engineering Manager
Wastewater Group
Water Quality Division

In accordance with 40 CFR 124.8 and 124.56, this fact sheet describes the applicant's facility operation and sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other necessary explanations of the derivation of specific effluent limitations and conditions or standards for sewage sludge use or disposal, including a citation to the applicable performance standard, or standard for sewage sludge use or disposal as required by 40 CFR 122.44. In accordance with 40 CFR 122.44(l), proposed permit limits for reissued permits are based on the more stringent of applicable technology-based limitations, applicable water quality-based limitations, or limitations in the previous permit.

Citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations. Citations to OAC 252 and OAC 785 refer to promulgated regulations listed at Titles 252 and 785, Oklahoma Administrative Code.

I. PERMITTING BACKGROUND

A. CHRONOLOGY OF PERMITTING ACTIVITIES

The following is a chronology of permitting activities since issuance of the previous OPDES permit:

	Facility public notice.
	DEQ public notice.
	Response to facility's comments and draft permit package sent to applicant for public notice.
August 7, 2018:	EPA No Objection letter received.
July 25, 2018:	Comments on draft permit received from facility.
July 5, 2018:	Draft permit package sent to applicant for courtesy review.
July 5, 2018:	Draft permit package transmitted to EPA electronically for review.
May 23, 2018:	Selection of new bacteriological indicator received (E. coli in CFU/100 ml unit).
May 10, 2018:	Request for additional information sent to applicant.
April 26, 2018:	Administrative review of permit application completed.
April 25, 2018:	Site visit conducted.
April 11, 2018:	Revised Form 2M1 and certification of public notice of filing of application received.
March 16, 2018:	Notice of incomplete application sent to applicant.
January 29, 2018:	OPDES permit renewal application (Form 2M1) received.
July 3, 2013:	Previous OPDES permit issued.

B. PROPOSED PERMITTING ACTION

It is proposed that Permit No. OK0030333, which was effective August 1, 2013, and expired July 31, 2018, and for which application for renewal was timely submitted prior to permit expiration, be reissued for a five year term in accordance with regulations promulgated at 40 CFR 122.46(a) and OAC 252:606-1-3(b).

II. APPLICANT ACTIVITY

A. DESCRIPTION AND LOCATION OF FACILITY

The Chickasaw Wastewater Treatment Plant (WWTP), owned and operated by the City of Bartlesville, is located at 230 N. Chickasaw Avenue, Bartlesville, OK 74003, in the NW¼, NE¼, NW¼ of Section 7, Township 26 North, Range 13 East, Indian Meridian (I.M.), Washington County, Oklahoma. Under SIC Code 4952, this facility provides biological treatment of domestic sewage for the City of Bartlesville, population of approximately 35,750 (2017 census data).

B. WASTEWATER GENERATION AND TREATMENT

1. Treatment Plant

a. Wastewater

The facility's design average daily flow of 7.0 million gallons per day (mgd) is consistent with the State of Oklahoma Water Quality Management Plan (WQMP). Biological treatment of the waste stream into this Publicly Owned Treatment Works (POTW) facility, which is comprised primarily of domestic sewage, is by three primary clarifiers followed by three activated sludge aeration basins and three secondary clarifiers. After allowing for sufficient contact time in the chlorine contact basin for disinfection, excess chlorine is removed from the treated wastewater by the use of sulfur dioxide. A step aerator increases the dissolved oxygen in the effluent prior to discharge through Outfall 001 into the Caney River. Effluent flow measurement is accomplished by a 36" Parshall flume and an ultrasonic

transducer positioned just upstream from the step aerator.

b. Biosolids/Sludge

Two anaerobic digesters are utilized to reduce the volatile solids content of the biosolids/sewage sludge wasted from the activated sludge process, after which the digested sludge is stored in a storage tank. The sludge from the storage tank is gravity thickened and belt pressed as needed prior to land application on sites permitted under the Sludge Management Plan (SMP) No. 3574005 for Class B sludge that was approved by DEQ on December 2, 1994.

2. Industrial Contributions

The facility receives significant industrial wastewaters and has been required to develop and implement an industrial pretreatment program in accordance with Section 402(b)(8) of the Clean Water Act and the General Pretreatment Regulations per 40 CFR Part 403.

III. DISCHARGE INFORMATION

A. DISCHARGE LOCATION

Outfall 001 is a bankside discharge from a 36" diameter pipe through a concrete headwall into a perennial stream, the Caney River. The physical location of the outfall and the point designated for sampling are shown in the table below.

Sampling Point and Outfall Locations

Outfall		Location			Receiving Stream
		General Location	Legal Description	Latitude/Longitude	
001	Sampling Point	At the end of the step aerator	NW¼, NE¼, NW¼ of Section 7, Township 26 North, Range 13 East, I.M., Washington County, Oklahoma	36° 45' 24.074" N 95° 57' 54.766" W (GPS: 1983 NAD)	---
	Physical Location	Approximately 200 feet north of the step aerator	NW¼, NE¼, NW¼ of Section 7, Township 26 North, Range 13 East, I.M., Washington County, Oklahoma	36° 45' 25.965" N 95° 57' 54.406" W (GPS: 1983 NAD)	Caney River

B. DISCHARGE DESCRIPTION AND CHARACTERISTICS

A summary of biomonitoring (Whole Effluent Toxicity) testing data is provided in Section V.D.1.f(2). The previous permit had limits for lead. These permit limits will be continued in the draft permit. Data for pollutants present in the facility's effluent at measurable levels is summarized in the following table for Outfall 001.

Effluent Characteristic	Number of Data Points	DEQ MQL (µg/l unless otherwise specified)	Concentration (µg/l unless otherwise specified)	
			Average	Maximum
Copper, total ^a	1	1.0	3.0	3.0
Zinc, total ^a	1	20	45	45
Chloride (mg/l) ^b	2	10	92.7	93.1
Sulfate (mg/l) ^b	2	10	48.3	50.4
Total Dissolved Solids (mg/l) ^b	2	10	467	468

^a Based on data provided in the application received on 01/29/18.

^b Based on supplemental data received on 04/11/18.

IV. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

POTWs treating domestic sewage are required by 40 CFR 133 to provide secondary or secondary-equivalent treatment. The Oklahoma definition of secondary treatment, which sets minimum requirements for developing wasteload allocations for municipalities in the State's Water Quality Management Plan (WQMP), is defined at OAC 252:606-5-2(2). The definitions are dependent on the type of treatment system and whether the receiving stream flow is perennial or intermittent. Since the Chickasaw WWTP is a mechanical plant discharging to a perennial stream, secondary treatment is defined according to OAC 252:606-5-2(2)(B) as indicated below:

Mechanical – Perennial

- ◆ 5-day Biochemical Oxygen Demand (BOD₅)
 A monthly average effluent concentration of 30 mg/l BOD₅
 A weekly average effluent concentration of 45 mg/l BOD₅
- ◆ Total Suspended Solids (TSS)
 A monthly average effluent concentration of 30 mg/l TSS
 A weekly average effluent concentration of 45 mg/l TSS
- ◆ pH
 A pH range between 6.5 and 9.0 standard units, inclusive.

For an influent waste stream composed primarily of domestic sewage, compliance with the 85% minimum monthly average percent removal criteria for BOD₅/CBOD₅ and TSS is implied if the effluent is in compliance with the concentration standards for secondary treatment.

V. WATER QUALITY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

A. GENERAL

Section 101 of the Clean Water Act (CWA) states that "... it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." A permit containing technology-based permit limitations alone may not adequately protect the quality of a specific receiving stream. Thus, additional water quality-based effluent limitations and/or conditions are considered in the draft permit using narrative and numerical standards contained in the Oklahoma Water Quality Standards (OWQS), as amended (OAC 785:45), and implementation criteria contained in OACs 785:46 and 252:690, promulgated by the Oklahoma Water Resources Board (OWRB) and Department of Environmental Quality (DEQ), respectively. This is to ensure that no point-source discharge results in instream aquatic toxicity, a violation of applicable narrative or numerical State water

quality standards, or aquatic bioaccumulation which threatens human health.

B. RECEIVING STREAM DESIGNATED USES AND ANTIDegradation PROVISIONS

Outfall 001 discharges to the Caney River (WBID 121400020010_00) and is approximately 4.5 miles upstream from another segment of the Caney River (WBID 121400010010_10) in Stream Segment 121400 of the Middle Arkansas River Basin. As designated in Appendix A of the OWQS, the designated beneficial uses of both segments of the Caney River mentioned above are:

- Public and Private Water Supplies (OAC 785:45-5-10)
- Fish and Wildlife Propagation (OAC 785:45-5-12)/Warm Water Aquatic Community
- Agriculture (OAC 785:45-5-13)
- Primary Body Contact Recreation (OAC 785:45-5-16)
- Aesthetics (OAC 785:45-5-19)
- Fish Consumption (OAC 785:45-5-20)

The Caney River is not designated as an Outstanding Resource Water (ORW), High Quality Water (HQW), or Sensitive Water Supply (SWS) in Appendix A of the OWQS. However, the stream segment 121400 in which the Caney River lies is designated in Table 1 of Appendix B of the OWQS as an area of ecological and/or recreational significance. Since this is a permit renewal of an existing discharge and there is no proposed increase in flow, the reissuing of this permit is not likely to adversely affect any areas with waters of recreational and/or ecological significance. The stream segment is not listed in Table 2 of Appendix B as area which contains federally listed threatened or endangered species pursuant to the Federal Endangered Species Act.

C. WATER QUALITY STANDARDS IMPLEMENTATION

1. Water Quality Standards Implementation Process

To achieve the objectives stated in Section V.A above, each pollutant present at measurable levels in the facility's effluent, for which there are one or more applicable numerical water quality criteria, is screened against the applicable criteria to determine whether the pollutant has reasonable potential (RP) to exceed any of the criteria. The screens are performed in accordance with the OWQS, OWQS implementation criteria in OAC 785:46 and OAC 252:690, and the Continuing Planning Process (CPP) document. In the RP screening process, the 95th percentile effluent concentration, or estimate thereof if the effluent data set is not sufficiently large to determine it directly, is used to compute an instream concentration according to the regulatory mixing zone equations defined in OAC 785:46. The computed instream concentrations are then compared with the applicable criteria to determine whether RP is exhibited. If RP is exhibited, in accordance with 40 CFR 122.44(d)(1)(vi) and OAC 252:690, a wasteload allocation and criterion long term average is computed for each applicable criterion. Water quality-based permit limitations are calculated for each pollutant exhibiting RP for all applicable criteria. The most stringent of the resulting monthly average permit limitations is established in the draft permit for each pollutant requiring such limitations.

2. Summary of Regulatory Parameters

Regulatory receiving water flows are established in OAC 785:46. Effluent regulatory flows, as well as regulatory effluent and background pollutant concentrations are established in OAC 252:690, Subchapter 3. Definitions and values for these terms are as follows:

a. Effluent and Upstream Receiving Water Regulatory Flows

- $Q_{e(D)}$ POTW design flow rate. The flow rate used must be consistent with that in the WQMP. The design flow rate specified in the permit application and the approved design flow for this facility in the State Water Quality Management Plan (WQMP) is 7.0 mgd.
- $Q_{u(7Q2)}$ Upstream 7Q2 flow rate. This is the annual 7-day, 2-year low flow of the receiving stream. Where flow data published in the USGS publication, Statistical Summaries of Streamflow in and near Oklahoma Through 2007 by John M. Lewis and Rachel A. Esralew (<http://pubs.usgs.gov/sir/2009/5135/>), is available, minor adjustments for known upstream or downstream perennial flows, as appropriate, may be utilized to estimate the 7Q2 for a specific location upstream or downstream of the USGS gauging station. If streamflow is intermittent, if USGS 7Q2 data is not available, or if the applicant has not developed a site-specific 7Q2, a default value of 1 cfs (0.6463 mgd) is assumed.
- $Q_{u(LTA)}$ Upstream long-term average flow rate. This is the mean annual flow of the receiving stream. Where flow data published in the USGS publication, Statistical Summaries of Streamflow in and near Oklahoma Through 2007 by John M. Lewis and Rachel A. Esralew (<http://pubs.usgs.gov/sir/2009/5135/>), is available, minor adjustments for known upstream or downstream perennial flows, as appropriate, may be utilized to estimate the mean annual flow for a specific location upstream or downstream of the USGS gauging station. If published mean annual flow data is not available, it may be approximated by multiplying the receiving water's drainage area at the point of discharge by the mean annual runoff per unit area published in the CPP.
- $Q_{u(STA)}$ Upstream short-term average flow rate. This flow rate, used only in the sample standard (SS) agriculture screen, is a function of $Q_{u(LTA)}$. The equation is $Q_{u(STA)} = 0.68 \times Q_{u(LTA)}$.

Upstream flows for this facility are based on published data for USGS gauging station 07174400, located on the Caney River at Bartlesville, and approximately 0.2 mile upstream of the facility's point of discharge (POD). Due to close proximity between the gauging station and the facility's POD, adjustment in $Q_{u(7Q2)}$ and $Q_{u(LTA)}$ is not necessary.

Upstream Regulatory Flows (mgd)

Flowstream	$Q_{u(7Q2)}$	$Q_{u(LTA)}$	$Q_{u(STA)}^a$
Caney River at Gauging Station 07174400	8.9836	766.5118	521.2280

^a $Q_{u(STA)} = 0.68 \times Q_{u(LTA)}$

b. Dilution Ratios (Q^*)

- Q^* Ratio of effluent flow to stream flow, also known as dilution capacity. The Q^* ratios for municipal discharges, as well as their values, are defined in the following table:

Q* Values (Outfall 001)

Q* Ratio	Corresponding Water Quality Screens	Implementation Reference	Value
$Q_{e(D)} / Q_{u(7Q2)}$	Type of WET Testing	OAC 252:690-3-31	0.77920
	Chronic Toxicity	OAC 252:690-3-53(1)(B)	
$Q_{e(D)} / Q_{u(LTA)}$	Human Health/Fish Flesh	OAC 252:690-3-66(2)	0.00913
	Human Health/Fish Flesh and Water	OAC 252:690-3-73(2)	
	Raw Water Column		
	Agriculture/Yearly Mean Standard	OAC 252:690-3-81(1)(B)	
$Q_{e(D)} / Q_{u(STA)}$	Agriculture/Sample Standard	OAC 252:690-3-81(2)(B)	0.01343

c. Characterization of Pollutant Effluent Concentrations

For purposes of determining whether water quality-based effluent limitations are required, one of two methods for determining C_{95} is employed, depending on the size of the effluent data set (i.e., number of data points).

C_{95} 95th percentile maximum likelihood effluent concentration for purposes of determining whether effluent limitations are required.

Method 1:

In accordance with OAC 252:690-3-4, at least 10 data points are required to calculate the standard deviation, and in accordance with OAC 252:690-3-8(a), if at least 10 data points are available, C_{95} is calculated directly from the effluent data set, assuming a log-normal distribution, according to the following equation:

$$C_{95} = \text{EXP}(\ln(x)_{\text{avg}} + 1.645 \times s_{\ln(x)})$$

$$\text{where } \ln(x)_{\text{avg}} = \frac{\left(\sum_{i=1}^N \ln(x_i) \right)}{N} \text{ and } s_{\ln(x)} = \sqrt{\frac{N \sum_{i=1}^N (\ln(x_i))^2 - \left(\sum_{i=1}^N \ln(x_i) \right)^2}{N(N-1)}}$$

In the above equations, $\ln(x)_{\text{avg}}$ represents the arithmetic average of the set of log-transformed data points, and $s_{\ln(x)}$ represents the standard deviation of the set of log-transformed data points.

In accordance with OAC 252:690-3-2(1), Robust Regression on Order Statistics (ROS) will be used to estimate the unmeasurable quantities if the data set has at least three measurable data points. However, if the data set has fewer than three measurable data points, Robust ROS will not be used and the DEQ will use 1/2 of the MQL to estimate the unmeasurable quantities.

Method 2:

In accordance with OAC 252:690-3-8(a), if less than 10 effluent data points are available; C_{95} must be estimated from the mean effluent concentration, as follows:

$$C_{95} = C_{\text{mean}} \times 2.135, \text{ where } C_{\text{mean}} \text{ is calculated as the arithmetic mean}$$

In accordance with OAC 252:690-3-2(1), the DEQ will use 1/2 of the MQL to estimate the unmeasurable quantities for the calculation of C_{mean} .

$C_{95(M)}$ 95th percentile maximum likelihood effluent concentration for purposes of determining whether additional effluent monitoring is required.

In accordance with OAC 252:690-3-90, where the effluent data set is comprised of fewer than 10 data points, a determination of whether further effluent monitoring of a pollutant is warranted in the absence of a requirement for effluent limitations by using the "TSD method." The TSD method is based on the methodology in Section 3.3.2 of Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001. The 95th percentile effluent concentration calculated using the TSD method is referred to as $C_{95(M)}$.

$C_{95(M)}$ is calculated according to the following equation:

$$C_{95(M)} = C_{\max} \times RPF_{95(M)}$$

$RPF_{95(M)}$ is calculated, assuming a log-normal distribution, according to the following equation:

$$RPF_{95(M)} = \frac{\text{EXP} \left[1.645 \sqrt{\ln(1+CV^2)} - 0.5 \ln(1+CV^2) \right]}{\text{EXP} \left[z_N \sqrt{\ln(1+CV^2)} - 0.5 \ln(1+CV^2) \right]}$$

where z_N is the upper k^{th} percentile of the normal distribution, $k = 0.05^{1/N}$ (for the 95% confidence level), and CV is assumed to equal 0.6.

The values of z_N and the resulting value of $RPF_{95(M)}$ for values of N from 1 to 9 are shown in the following table:

N	1	2	3	4	5	6	7	8	9
z_N	-1.645	-0.760	-0.336	-0.068	0.124	0.272	0.390	0.489	0.574
$RPF_{95(M)}$	6.199	3.795	3.000	2.585	2.324	2.141	2.006	1.898	1.811

CV Relative variability of a data set. In accordance with OAC 252:690-3-7, CV is defined as the standard deviation of a data set divided by its arithmetic average where at least 10 effluent data points are available.

$$CV = \frac{s_x}{C_{\text{avg}}}$$

Standard deviation of a data set s_x is calculated according to the following equation:

$$s_x = \sqrt{\frac{N \sum_{i=1}^N (x_i^2) - \left(\sum_{i=1}^N x_i \right)^2}{N(N-1)}}$$

Where fewer than 10 data points are available, a default CV value of 0.6 is assumed.

Values of C_{95} , $C_{95(M)}$, and CV are summarized for quantifiable pollutants with applicable water quality criteria in the following table:

C_{mean}, C_{max}, C₉₅, C_{95(M)}, and CV Values for Quantifiable Pollutants (Outfall 001)

Effluent Characteristic	No. of Data Points (N)	MQL (µg/l unless otherwise specified)	Concentration (µg/l unless otherwise specified)				CV ^a
			C _{mean}	C ₉₅	C _{max}	C _{95(M)}	
Copper, total	1	1	3	6.4	3	18.6	---
Zinc, total	1	20	45	96.1	45	279.0	---
Chloride (mg/l)	2	10	92.7	197.9	93.1	353.3	---
Sulfate (mg/l)	2	10	48.3	103.1	50.4	191.3	---
Total Dissolved Solids (mg/l)	2	10	467.0	997.0	468	1776.1	---

^a A coefficient of variation (CV) is calculated only where an effluent data set consists of at least ten data points, of which at least three must be measurable. A CV value of 0.6 is assumed where a data set is of insufficient size to calculate a CV directly (see OAC 252:690-3-7).

d. Pollutant Background Concentrations

C_b Upstream or background concentration of a pollutant. Site specific data is used where available. Where such data is not available, and in streams where $Q_{u(7Q2)} = 0$ in the absence of known upstream toxicants, background concentrations are assumed to be zero. For the agriculture screens, C_b is computed using the segment average YMS and SS values for the receiving stream segment published in Appendix F to OAC 785:45 according to the following equation: $C_b = 2 \times YMS - SS$. Background levels are described in the following table:

Background Concentrations of Pollutants Present in Effluent (Outfall 001)

Pollutant	No. of Data Points (N)	Background Concentration (C _b) (mg/l unless otherwise specified)	Data Source
Copper, total (µg/l)	---	Assumed zero ^a	---
Zinc, total (µg/l)	---	Assumed zero ^a	---
Chloride (mg/l)	---	61	Calculated ^b
Sulfate (mg/l)	---	23	Calculated ^b
Total Dissolved Solids (TDS) (mg/l)	---	304	Calculated ^b

^a No background data available. Background level is assumed to be zero in accordance with OAC 252:690-3-11(c).

^b Since no site-specific background data is available, background is calculated from segment-averaged YMS and SS criteria in accordance with OAC 252:690-3-16(a) for segment 121400.

e. Other Applicable Terminology

C_{crit} Numerical water quality criterion for a specific pollutant. For some pollutants, aquatic toxicity criteria are pH- or hardness-dependent. In such cases, in accordance with OAC 785:46-5-8, site-specific pH or hardness data, if available, may be used. If site-specific pH or hardness data is not available, the segment averaged pH or hardness from OAC 785:46, Appendix B, is used. Where a specific pollutant screen exhibits reasonable potential, C_{crit} is used to calculate the wasteload allocation. Criteria applicable to Outfall 001 are as follows:

- ◆ Fish and wildlife propagation (F&WP/WWAC) use
 - C_A: Acute toxicity criterion
 - C_C: Chronic toxicity criterion
- ◆ Fish consumption use

C_{FF} : Human health criterion for the consumption of fish flesh

- ◆ Public and private water supply (PPWS) use
 - C_{RAW} : Raw water column criterion
 - C_{FFW} : Human health criterion for the consumption of fish flesh and water
- ◆ Agriculture use
 - C_{YMS} : Yearly mean standard
 - C_{SS} : Sample standard

C_d Instream concentration of a specific pollutant, according to the appropriate mixing equation.

D. WATER QUALITY-BASED REQUIREMENTS

1. Criteria for Protection of the Fish and Wildlife Propagation Use

a. DO and DO-Demanding Substances (Outfall 001)

OAC 785:45-5-12(f)(1) requires that where DO-demanding substances are present in an effluent at significant levels, a Wasteload Allocation (WLA) must be established according to certain seasonal criteria dependent on the receiving water's aquatic community subcategory. In determining the WLA for DO-demanding substances, the prescribed level of secondary treatment for the facility (see Section IV) is modeled to determine if it meets the aforementioned seasonal criteria. If the model indicates that a more stringent WLA than secondary is required to meet these criteria, the more stringent WLA (often referred to as a "tertiary" level of treatment) will be used once it is granted technical approval by EPA Region 6. It is then promulgated as an amendment to the State WQMP. The approved WLA for DO-demanding substances for this facility at a design average flow of 7.0 mgd is shown in the following table:

DO-Based WLA (Outfall 001)

Season	Level of Treatment	WLA Parameters (in mg/l)			
		BOD ₅	TSS	NH ₃ -N	DO
Year round	Tertiary	10.0	15.0	2.0	---

For purposes of establishing permit limitations for DO-demanding substances, the seasonal monthly average limit (MAL) in the draft permit for each effluent characteristic is set equal to the corresponding WLA concentration shown in the table. The corresponding weekly average limit (WAL) is set equal to 1.5 times the seasonal WLA concentration in accordance with 40 CFR 122.45(d)(2).

b. pH (Outfall 001)

OAC 785:45-5-12(f)(3) states "pH values shall be between 6.5 and 9.0 in waters designated for fish and wildlife propagation; unless pH values outside that range are due to natural conditions." This pH range is established in the draft permit.

c. Oil and Grease (Outfall 001)

In accordance with OAC 758:45-5-12(f)(4), a narrative condition prohibiting the discharge of any visible sheen or globules of oil or grease or in quantities that adhere to stream banks and coat bottoms of water courses or which cause deleterious effects to the biota will be included in the draft permit.

d. Toxicity from Halogenated Oxidants (Outfall 001)

OAC 785:46-3-1(c) states “Toxicity from halogens (e.g., chlorine, bromine, and bromo-chloro compounds) will be controlled by dehalogenation rather than WET testing. However, use of dehalogenation shall not exempt an effluent from the WET testing requirements of this Subchapter.” Chapter 2, Part III of the CPP implements this narrative criterion as follows: The requirement of OAC 785:46-3-1(c) for dehalogenation is typically implemented as “no measurable amount” in the effluent. For chlorine, “No measurable amount” is defined by the DEQ to be less than 0.1 mg/l.

e. Ammonia Toxicity (Outfall 001)

(1) Criterion and Implementation

Interim implementation for controlling ammonia toxicity is described in OAC 785:46 and OAC 252:690. OAC 785:46-5-3(b)(3) states “For regulatory purposes, there is a reasonable potential for chronic toxicity if concentrations of ammonia outside the chronic regulatory mixing zone exceed 6 mg/l.” For POTWs, OAC 252:690-3-20 through 3-23 requires that where seasonal DO-based monthly average ammonia limits are established, those limits must be compared with toxicity-based monthly average ammonia limits determined using the interim 6 mg/l chronic toxicity criterion, the conservative substance mixing zone equations for chronic toxicity, and a monitoring frequency of 3 per week.

(2) Determination of Toxicity-Based Limits

Toxicity-based ammonia limits are determined in accordance with OAC 252:690-3-22.

(a) Wasteload Allocation and Criterion Long Term Average Concentration

C_c for ammonia is 6 mg/l and C_b is assumed to be zero. The chronic toxicity wasteload allocation equations for ammonia are as follows:

$$WLA_{NH_3} = 6 \left(\frac{1 + Q^*}{1.94 Q^*} \right), \text{ for } Q^* \leq 0.1823.$$

$$WLA_{NH_3} = 6 (6.17 - 15.51 Q^*), \text{ for } 0.1823 < Q^* < 0.3333.$$

$$WLA_{NH_3} = 6 \text{ mg/l, for } Q^* \geq 0.3333.$$

Q^* for this application is 0.7792, so the third equation is used. Thus, $WLA_{NH_3} = 6.0$ mg/l. WLA_{NH_3} is a short term value and must be converted to a long term average for development of permit limits. LTA_{NH_3} is calculated on a 99% probability basis, and the equation is as follows:

$$LTA_{NH_3} = WLA_{NH_3} \times \text{EXP} \left[0.5 \ln \left(1 + \frac{CV^2}{4} \right) - 2.326 \left(\ln \left(1 + \frac{CV^2}{4} \right) \right)^{0.5} \right],$$

where a CV value of 0.6 is assumed. Thus, $LTA_{NH_3} = 3.2$ mg/l.

(b) Permit Limits

The toxicity-based monthly average limit (MAL_{NH_3}) is calculated on a 95% probability basis, and the daily maximum limit (DML_{NH_3}) is calculated on a 99% probability basis. The monitoring frequency basis is 3/week (or 12/month). The limits equations are as follows:

$$MAL_{NH_3} = LTA_{NH_3} \times EXP \left[1.645 \left(\ln \left(1 + \frac{CV^2}{N_m} \right) \right)^{0.5} - 0.5 \ln \left(1 + \frac{CV^2}{N_m} \right) \right],$$

where N_m is the per month monitoring frequency.

Thus, based on $N_m = 12$, $MAL_{NH_3} = 4.1$ mg/l.

$$DML_{NH_3} = LTA_{NH_3} \times EXP \left(2.326 \left(\ln(1 + CV^2) \right)^{0.5} - 0.5 \ln(1 + CV^2) \right)$$

Thus, $DMI_{NH_3} = 9.9$ mg/l.

(3) Comparison of Toxicity-Based Ammonia Limits with DO-Based Ammonia Limits

In accordance with OAC 252:690-3-23, the most stringent monthly average limit for each season and its associated weekly average or daily maximum limit, as appropriate, is established in the permit.

Comparison of Ammonia Limits (mg/l)

Type of Limit	Year round		
	Monthly Average	Weekly Average	Daily Maximum
DO-based	2.0	3.0	---
Toxicity-based	4.1	---	9.9
Draft Permit (DO-based)	2.0	3.0	---

As shown in the table above, the DO-based ammonia limits are more stringent. Therefore, DO-based ammonia limits will continue in the draft permit.

(4) Performance-Based Ammonia Monitoring Frequency Reduction

In accordance with OAC 252:690-3-26, the performance-based monitoring frequency reduction is applicable only to toxicity-based ammonia limits. Since DO-based ammonia limits are implemented in the draft permit, monitoring frequency reduction for ammonia is not applicable to this permit.

f. Whole Effluent Toxicity (Outfall 001)

(1) Criterion and Implementation

Whole effluent toxicity (WET) testing is the most direct measure of potential aquatic toxicity, since it incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. OAC 785:45-5-12(f)(6)(A) states “Surface waters of the state shall not exhibit acute toxicity and shall not exhibit chronic toxicity outside the chronic regulatory mixing zone. Acute test failure and chronic test failure shall be used to determine discharger compliance with these narrative aquatic life toxics criteria.” This narrative toxicity criterion is implemented according to procedures described at OAC 785:46, Subchapter 3, OAC 252:690-3-17 through 3-43, and Chapter 3 of the CPP.

Two types of WET tests are used to implement the narrative toxicity criterion. The 48-hour acute test is used to protect against acute toxicity, and the 7-day chronic test is used to protect against chronic toxicity outside the chronic regulatory mixing zone. Two test species are used. The vertebrate species is *Pimephales promelas* (Fathead minnow), and the invertebrate species is *Daphnia pulex* (for acute testing) or *Ceriodaphnia dubia* (for chronic testing).

(2) WET Testing Historical Summary

Outfall TX1 is functionally identical to Outfall 001. The previous permit required only chronic WET testing of both the *Ceriodaphnia dubia* (*C. dubia*) and Fathead minnow species, on a quarterly basis. The previous permit used a 7Q2 flow of 8.98 mgd for the Caney River, which resulted in a Q* value greater than 0.3333. The critical dilution was 100% for chronic WET testing; a 0.75 dilution series was used.

The previous permit has WET limit for *C. dubia* and biomonitoring requirement for Fathead minnow. OAC 252:690-3-40 requires that both lethal effects and significant sublethal effects at or below the critical dilution are considered as test failures. In the following chronic WET testing summary table, where a test failed, or would have failed under current test failure criteria, the No Observed Effect (NOEC) concentrations (NOEC_L for lethal effects and NOEC_S for sublethal effects) are shown **underlined in bold face**.

**Summary of Chronic WET Test Results by Species (Outfall TX1)
 June 2013 through May 2018**

<i>Ceriodaphnia dubia</i>				<i>Pimephales promelas</i> (Fathead minnow) ^a			
Reporting period	NOEC _L ^b	NOEC _S ^b	WET/22414	Reporting period	NOEC _L ^b	NOEC _S ^b	WET/22414
06/01/13 - 08/31/13	100%	100%	100%	06/01/13 - 08/31/13	100%	100%	N/A
09/01/13 - 11/30/13	100%	100%	100%	09/01/13 - 11/30/13	100%	100%	N/A
12/01/13 - 02/28/14	100%	100%	100%	12/01/13 - 02/28/14	100%	100%	N/A
03/01/14 - 05/31/14	100%	100%	100%	03/01/14 - 05/31/14	100%	100%	N/A
06/01/14 - 08/31/14	100%	100%	100%	06/01/14 - 08/31/14	100%	100%	N/A
09/01/14 - 11/30/14	100%	100%	100%	09/01/14 - 11/30/14	100%	100%	N/A
12/01/14 - 02/28/15	100%	100%	100%	12/01/14 - 02/28/15	100%	100%	N/A
03/01/15 - 05/31/15	100%	100%	100%	03/01/15 - 05/31/15	100%	100%	N/A
06/01/15 - 08/31/15	100%	100%	100%	06/01/15 - 08/31/15	100%	100%	N/A
09/01/15 - 11/30/15	100%	100%	100%	09/01/15 - 11/30/15	100%	100%	N/A
12/01/15 - 02/29/16	100%	100%	100%	12/01/15 - 02/29/16	100%	100%	N/A
03/01/16 - 05/31/16	100%	100%	100%	03/01/16 - 05/31/16	100%	100%	N/A
06/01/16 - 08/31/16	100%	100%	100%	06/01/16 - 08/31/16	100%	100%	N/A
09/01/16 - 11/30/16	100%	100%	100%	09/01/16 - 11/30/16	100%	100%	N/A
12/01/16 - 02/28/17	100%	100%	100%	12/01/16 - 02/28/17	100%	100%	N/A
03/01/17 - 05/31/17	100%	100%	100%	03/01/17 - 05/31/17	100%	100%	N/A
06/01/17 - 08/31/17	100%	100%	100%	06/01/17 - 08/31/17	100%	100%	N/A
09/01/17 - 11/30/17	100%	100%	100%	09/01/17 - 11/30/17	100%	100%	N/A
12/01/17 - 02/28/18	100%	100%	100%	12/01/17 - 02/28/18	100%	100%	N/A
03/01/18 - 05/31/18	100%	100%	100%	03/01/18 - 05/31/18	100%	100%	N/A

^a There was no WET limit for fathead minnow during this permit cycle.

^b NOECs reported in percent effluent.

(3) Reasonable Potential

(a) Criteria for Reasonable Potential

According to 40 CFR 122.44(d)(1)(v), when the permitting authority determines that a discharge causes, has the reasonable potential (RP) to cause, or contributes to an in-stream excursion above a narrative criterion within an applicable State water quality standard for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity.

In accordance with the narrative criteria established in OAC 785:46-3-5 and cited by reference in OAC 252:690-3-18, RP exists whenever persistent lethality is demonstrated. In addition, the OAC 785:46-3-5 states that the permitting authority may deem RP to be demonstrated whenever intermittent toxicity or persistent toxicity occurs. Persistent toxicity (lethality and/or sublethality) is defined in OAC 252:690-1-2 as repeat failure (failure of the routine test plus one of the two monthly retests) of an acute or chronic WET test and intermittent toxicity is defined as two or more lethal or sublethal effect test failures of a routine acute or chronic WET test within any 18-month period. OAC 252:690-3-19(a) requires a toxicity reduction evaluation (TRE) when persistent toxicity is demonstrated. DEQ may also incorporate a WET limit or chemical-specific effluent limits into a permit when RP is established per OAC 690:3-19(b). In

accordance with OAC 252:690-3-19(c) the effective date of a WET limit for the affected species may be deferred up to three years from the effective date of the permit.

(b) Application of Criteria to the Draft Permit and Permitting Actions

As shown in the summaries of WET testing above, there was no test failure for any of the test species for chronic WET testing. Therefore, the draft permit will continue to have (1) WET limit for *C. dubia*, and (2) chronic biomonitoring for fathead minnow species as detailed in the following section.

(4) Whole Effluent Toxicity Testing Requirements

(a) Type of WET Testing Required

In accordance with OAC 252:690-3-31, the type of WET test(s) required is based on the value of Q^* , as follows:

- ◆ Where $Q^* < 0.054$, acute testing only is required.
- ◆ Where $Q^* > 0.3333$, chronic testing only is required.
- ◆ Where $0.054 \leq Q^* \leq 0.3333$, both acute and chronic testing are required.

Since Q^* is 0.7792, only chronic testing is required

(b) Critical Dilutions

The chronic critical dilution (CCD), expressed as percent effluent, is based on the value of Q^* using the following set of equations:

$$CCD = 100 \times \frac{1.94 Q^*}{(1 + Q^*)}, \text{ where } Q^* \leq 0.1823$$

$$CCD = 100 \times \frac{1}{(6.17 - 15.51 Q^*)}, \text{ where } 0.1823 < Q^* < 0.3333$$

$$CCD = 100, \text{ where } Q^* \geq 0.3333$$

Since Q^* for this application is 0.7792, the third equation is used, and the CCD is 100%, which is the same as the CCD in the previous permit.

(c) Dilution Series

A 0.75 dilution series is used for all WET testing. Where it is practical to do so, the critical dilution is bracketed. The purpose of doing so is to evaluate dose response both above and below the critical dilution. For critical dilutions between 76% and 95%, OAC 252:690, Appendix D, Table D-2, requires that a 100% effluent dilution be added to the dilution series to bracket the critical dilution. In accordance with OAC 252:690-3-33, the dilution series for chronic WET testing is as follows (critical dilutions are shown **underlined in bold face**):

Chronic test: **100%**, 75%, 56%, 42%, and 32%, plus a dilution water control.

(d) Frequency of WET Testing

In accordance with OAC 252:690-3-41, the permittee will be required to perform quarterly testing of the specified test species for the chronic WET test.

Since there was no test failure for fathead minnow during the previous permitting cycle, the facility will be subject to a one year “trial period” of quarterly chronic WET testing for fathead minnow. After completion of the stated trial period, the permittee may request for a reduction in the frequency of WET testing in accordance with OAC 252:690-3-42(2).

In accordance with OAC 252:690-3-42(4), WET testing frequency reduction is not applicable to *C. dubia* due to established WET limit.

(e) Concurrent Testing Requirements

In accordance with OAC 252:690-3-25, the draft permit will include a provision for concurrent testing of ammonia and pH on all composite samples collected for chronic WET testing of the fathead minnow species. The draft permit will not specify any concurrent testing requirements for the invertebrate species.

2. Aquatic Toxicity, Human Health and Raw Water Column Criteria for Toxic Substances for Protection of the Fish and Wildlife Propagation, Fish Consumption and Public and Private Water Supply Uses

a. Criteria and Implementation

(1) Aquatic Toxicity – Fish and Wildlife Propagation Use (Outfall 001)

Acute and chronic aquatic toxicity numerical criteria are specified at OAC 785:45-5-12(f)(6)(G) and are implemented according to procedures in OAC 785:46, Subchapter 5, OAC. 252:690-3-51 through 3-57, and Chapter 3 of the CPP.

Aquatic toxicity numerical criteria are hardness-dependent for certain metals. The equations for calculating hardness-dependent criteria (for those metals present at quantifiable levels in the combined discharge) and the resulting acute and chronic criteria are as follows:

Hardness-dependent Aquatic Toxicity Criteria for the Caney River

Effluent Characteristic	Acute Toxicity Criteria		Chronic Toxicity Criteria	
	Equation	Value ^a	Equation	Value ^a
Copper, total	$C_{acute} = e^{(0.9422 [\ln (\text{hardness})] - 1.3844)}$	31.72	$C_{chronic} = e^{(0.8545 [\ln (\text{hardness})] - 1.386)}$	20.18
Zinc, total	$C_{acute} = e^{(0.8473 [\ln (\text{hardness})] + 0.884)}$	188.22	N/A	---

^a Based on a segment-averaged receiving water hardness of 170.41 mg/l.

(2) Protection of Human Health – Fish Consumption Use (Outfall 001)

Criteria for the protection of human health for the consumption of fish flesh apply only to receiving waters not designated as habitat-limited aquatic communities. Additional human health/fish flesh criteria are recommended by EPA in the National Recommended Water Quality Criteria (NRWQC). NRWQC criteria are not binding upon individual states, however.

OWQS and NRWQC criteria for the protection of human health for the consumption of fish flesh are specified at OAC 785:45-5-20(b) and Publication No. EPA 822-Z-99-001, respectively, and are implemented according to the procedures in OAC 785:46, Subchapter 7, OAC 252:690-3-64 through 3-70, and Chapter 3 of the CPP.

(3) Protection of Raw Water Column and Human Health – Public and Private Water Supply Use (Outfall 001)

OWQS raw water column criteria and criteria for the protection of human health for the consumption of fish flesh and water are specified at OAC 785:45-5-10(1) and 785:45-5-10(6), respectively, and are implemented according to the procedures in OAC 785:46, Subchapter 7, OAC 252:690-3-71 through 3-77, and Chapter 3 of the CPP. These criteria apply only to receiving waters specifically designated in OAC 785:45, Appendix A, for the PPWS use.

b. Determination of Reasonable Potential and Wasteload Allocation

(1) Reasonable Potential and WLA Equations

(a) Aquatic Toxicity – Fish and Wildlife Propagation Use (Outfall 011)

❖ **Acute Toxicity**

For determining whether there is reasonable potential to exceed acute toxicity numerical criteria for discharges to streams, OAC 785:46-5-3(b)(2) defines a pollutant's concentration at the edge of the acute regulatory mixing zone (C_d) as:

$$C_d = C_b + \frac{Q_{e(D)}}{64.63} (C_{95} - C_b), \text{ where } Q_{e(D)} \text{ is expressed in mgd.}$$

In order for C_d to fall in the range between C_b and C_{95} , the value for $Q_{e(D)}$ used in the equation must be less than or equal to 64.63 mgd. If the actual $Q_{e(D)} > 64.63$ mgd, a value of 64.63 mgd is used in the reasonable potential equation.

Should a pollutant's acute toxicity screen exhibit reasonable potential, a water quality-based limit is required for that pollutant and a wasteload allocation is calculated for each applicable criterion. For discharges to streams, the acute toxicity wasteload allocation is calculated in accordance with OAC 252:690-3-55(1)(A), as follows:

$$WLA_A = C_b + \frac{64.63}{Q_{e(D)}} (C_A - C_b), \text{ where } Q_{e(D)} \text{ is expressed in mgd.}$$

As with the reasonable potential equation, if the actual $Q_{e(D)} > 64.63$ mgd, a value of 64.63 mgd is used in the WLA equation.

❖ **Chronic Toxicity**

For determining whether there is reasonable potential to exceed chronic toxicity numerical criteria, OAC 785:46-5-3(b)(2) defines a pollutant's maximum concentration at the boundary of the chronic regulatory mixing zone (C_d) as:

$$C_d = C_b + 1.94 Q^* \frac{(C_{95} - C_b)}{(1 + Q^*)}, \text{ for } Q^* \leq 0.1823$$

$$C_d = C_b + \frac{(C_{95} - C_b)}{(6.17 - 15.51 Q^*)}, \text{ for } 0.1823 < Q^* < 0.3333$$

$$C_d = C_{95}, \text{ for } Q^* \geq 0.3333$$

Should a pollutant's chronic toxicity screen exhibit reasonable potential, a water quality-based limit is required for that pollutant and a wasteload allocation is calculated for each applicable criterion. For discharges to streams, the chronic toxicity wasteload allocation is calculated in

accordance with OAC 252:690-3-55(1)(B), as follows:

$$WLA_C = C_b + \left(\frac{1 + Q^*}{1.94 Q^*} \right) (C_C - C_b), \text{ for } Q^* \leq 0.1823$$

$$WLA_C = C_b + (6.17 - 15.51 Q^*) (C_C - C_b), \text{ for } 0.1823 < Q^* < 0.3333$$

$$WLA_C = C_C, \text{ for } Q^* \geq 0.3333$$

(b) Protection of Human Health – Fish Consumption Use

OAC 785:46-7-3(b)(1) defines the reasonable potential equation for a pollutant's instream concentration C_d after complete mixing as follows:

$$C_d = \frac{(C_{95} Q^* + C_b)}{(1 + Q^*)}$$

The human health/fish flesh wasteload allocation is calculated in accordance with OAC 252:690-3-68, as follows:

$$WLA_{FF} = C_{FF} + \frac{(C_{FF} - C_b)}{Q^*}$$

Should a pollutant's OWQS human health/fish flesh screen exhibit reasonable potential, a water quality-based limit is required for that pollutant and a wasteload allocation is calculated for each applicable criterion. Where a discharge is located less than five miles upstream of a PWS intake (see Section III.A), OAC 252:690-3-68 requires that a human health/fish flesh wasteload allocation equal to the criterion be established for any pollutant detected in the discharge to which a human health/fish flesh criterion applies. Since there is no PWS intake within five miles of this discharge the WLA equation above is used.

In accordance with EPA Region 6 policy, pollutants are screened for reasonable potential to exceed NRWQC human health/fish flesh consumption criteria and, if reasonable potential is exhibited, effluent monitoring of those pollutants is required as a permit condition in lieu of establishing effluent limitations.

(c) Protection of Raw Water Column and Human Health – Public and Private Water Supply Use (Outfall 001)

OAC 785:46-7-3(b)(2) defines the reasonable potential equation for a pollutant's instream concentration C_d after complete mixing as follows:

$$C_d = \frac{(C_{95} Q^* - C_b)}{(1 + Q^*)}$$

Raw water column and human health/fish flesh and water wasteload allocations are calculated in accordance with OAC 252:690-3-75, as follows:

$$WLA_{Raw} = C_{Raw} + \frac{(C_{Raw} - C_b)}{Q^*}, \text{ for the raw water column criterion, and}$$

$$WLA_{FFW} = C_{FFW} + \frac{(C_{FFW} - C_b)}{Q^*}, \text{ for the human health/fish flesh and water criterion}$$

Should a pollutant's OWQS human health/fish flesh screen exhibit reasonable potential, a water quality-based limit is required for that pollutant and a wasteload allocation is calculated

for each applicable criterion. Where a discharge is located less than five miles upstream of a PWS intake (see Section III.A), OAC 252:690-3-68 requires that a human health/fish flesh wasteload allocation equal to the criterion be established for any pollutant detected in the discharge to which a human health/fish flesh criterion applies. The receiving stream, the Caney River, is designated with PPWS beneficial use; however, there are no PWS intakes within five (5) miles downstream from the facility's POD.

In accordance with EPA Region 6 policy, pollutants are screened for reasonable potential to exceed NRWQC human health/fish flesh consumption criteria and, if reasonable potential is exhibited, effluent monitoring of those pollutants is required as a permit condition in lieu of establishing effluent limitations.

(2) Results of Reasonable Potential Screening

(a) Aquatic Toxicity – Fish and Wildlife Propagation Use (Outfall 001)

Results of the acute and chronic toxicity screens for Outfall 001, using $Q_{e(D)} = 7.0$ mgd, C_{95} values reflected in Section V.C.2.c, pollutant background levels reflected in Section V.C.2.d, and any hardness-dependent metals criteria reflected in Section V.D.2.a(1), are shown in the table below. Any required WLAs are also shown.

Results of Acute and Chronic Toxicity Screens (Outfall 001)
 (concentrations in $\mu\text{g/l}$ unless otherwise specified)

Effluent Characteristic	Acute Toxicity				Chronic Toxicity			
	C_d	C_A	$C_d > C_A?$	WLA_A	C_d	C_C	$C_d > C_C?$	WLA_C
Copper, total	0.69	31.72	No	N/A	6.41	20.18	No	N/A
Zinc, total	10.41	188.22	No	N/A	---	N/A	---	---

(b) Protection of Human Health – Fish Consumption Use (Outfall 001)

Measurable pollutants (total copper and total zinc) do not have human health/fish flesh criteria.

(c) Protection of Raw Water Column and Human Health – Public and Private Water Supply Use (Outfall 001)

The results of the raw water column and human health/fish flesh and water screens for Outfall 001, using $Q^* = 0.0091$, C_{95} values reflected in Section V.C.2.c, and background levels reflected in Section V.C.2.d are shown in the table below. Any required OWQS WLAs are also shown.

Results of Raw Water Column and Human Health/Fish Flesh and Water Screens
 (concentrations in $\mu\text{g/l}$ unless otherwise specified)

Effluent Characteristic	Raw Water Column				Human Health/Fish Flesh and Water			
	C_d	C_{Raw}	$C_d > C_{Raw}?$	WLA_{Raw}	C_d	C_{FFW}	$C_d > C_{FFW}?$	WLA_{FFW}
Copper, total	0.06	1,000	No	N/A	---	---	---	---
Zinc, total	0.87	5,000	No	N/A	---	---	---	---

c. Permit Limitations

Water quality screen results show none of the measurable pollutants demonstrated reasonable potential

to exceed any of the applicable criteria. Thus, further evaluation of permit limits is not applicable.

3. Mineral Constituent Criteria for Protection of the Agriculture Use (Outfall 001)

a. Criteria and Implementation

Yearly mean standard (YMS) and sample standard (SS) criteria for surface waters designated for the Agriculture use are specified at OAC 785:45-5-13 and Appendix F thereto, and are implemented according to procedures in OAC 785:46, Subchapter 9, OAC 252:690-3-79 through 3-85, and Chapter 3 of the CPP. OAC 785:46-9-2 requires that where segment-averaged YMS and SS values in OAC 785:45, Appendix F, are available and are adequate to represent the receiving stream in question, they shall be used as the criteria for protection of the Agriculture use. The statistical relationship between background, YMS, and SS values for mineral constituents described at OAC 252:690-3-16(a) as shown below is used to calculate site-specific background.

$$C_b = 2 \times C_{YMS} - C_{SS}$$

The results are shown in the following table.

Background, YMS Criterion and SS Criterion for Outfall 001
 (concentration expressed in mg/l)

Pollutants	YMS Criterion	SS Criterion	C _b
Chloride ^a	98	135	61
Sulfate ^a	34	45	23
Total Dissolved Solids (TDS) ^a	410	516	304

^a Criteria and background are based on segment-averaged data (segment 121400).

b. Determination of Reasonable Potential, Wasteload Allocation, and Criteria Long Term Average

(1) Reasonable Potential, Wasteload Allocation, and Criteria Long Term Average Equations

(a) Yearly Mean Standard

OAC 785:46-9-5(b) and (c) define the reasonable potential equation for a POTW discharge's instream pollutant concentration C_{d(YMS)} after complete mixing as follows:

$$C_{d(YMS)} = \frac{(C_{95} Q^* + C_b)}{(1 + Q^*)}, \text{ where } Q^* = Q_{e(D)}/Q_{u(LTA)}$$

In accordance with OAC 785:46-9-5(c), C_{d(YMS)} is compared against the higher of the YMS criterion or 700 mg/l for TDS. C_{d(YMS)} is compared against the higher of the YMS criterion or 250 mg/l for chloride and sulfate.

When reasonable potential is demonstrated, wasteload allocation and criteria long term average concentrations must be determined. OAC 252:690-3-83(1) defines a pollutant's YMS wasteload allocations, WLA_{YMS}, as follows:

$$WLA_{YMS} = C_{YMS} + \frac{(C_{YMS} - C_b)}{Q^*}, \text{ where } Q^* = Q_{e(D)}/Q_{u(LTA)}$$

In accordance with OAC 252:690-3-84(a), YMS criteria long term average, LTA_{YMS}, is defined as follows:

$$LTA_{YMS} = WLA_{YMS}$$

(b) Sample Standard

OAC 785:46-9-5(b) and (d) define the reasonable potential equation for a pollutant's instream concentration $C_{d(SS)}$ after complete mixing as follows:

$$C_{d(SS)} = \frac{(C_{95} Q^* + C_b)}{(1 + Q^*)}, \text{ where } Q^* = Q_{e(D)}/Q_{u(STA)}$$

In accordance with OAC 785:46-9-5(d), $C_{d(SS)}$ is compared against the higher of the SS criterion or 700 mg/l for TDS. $C_{d(SS)}$ is compared against the higher of the SS criterion or 250 mg/l for chloride and sulfate.

When reasonable potential is demonstrated, wasteload allocation and criteria long term average concentrations must be determined. OAC 252:690-3-83(2) defines a pollutant's SS wasteload allocations, WLA_{SS} , as follows:

$$WLA_{SS} = C_{SS} + \frac{(C_{SS} - C_b)}{Q^*}, \text{ where } Q^* = Q_{e(D)}/Q_{u(STA)}$$

In accordance with OAC 252:690-3-84(b), SS criterion long term average, LTA_{SS} , is calculated assuming a log-normal distribution and using a 99% probability basis according to the following equation. A CV of 0.6 is used in the absence of an effluent data set sufficiently large to calculate a CV.

$$LTA_{SS} = WLA_{SS} \times \text{EXP} \left(0.5 \ln \left(1 + \frac{CV^2}{4} \right) - 2.326 \sqrt{\ln \left(1 + \frac{CV^2}{4} \right)} \right)$$

(2) Screening Results

Results of the YMS and SS screens for Outfall 001, using $Q_{e(D)}$, $Q_{e(LTA)}$, and $Q_{u(STA)}$ values in Section V.C.2.a, C_{95} value in Section V.C.2.c, and background levels and YMS and SS criteria reflected in Section V.D.3.a, are shown in the following tables.

(a) Yearly Mean Standard

Results of Yearly Mean Standard Reasonable Potential Screen
 (Concentrations in mg/l)

Pollutant	$C_{d(YMS)}$	Criterion			$C_{d(YMS)} > \text{Max}(C_{YMS}, \text{Default})?$	WLA_{YMS}
		C_{YMS}	Default	$\text{Max}(C_{YMS}, \text{Default})$		
Chloride	62.2	98	250	250	No	N/A
Sulfate	23.7	34	250	250	No	N/A
TDS	310.3	410	700	700	No	N/A

(b) Sample Standard

Results of Sample Standard Reasonable Potential Screen
 (Concentrations in mg/l)

Pollutant	C _{d(ss)}	Criterion			C _{d(ss)} >Max(C _{ss} , Default)?	WLA _{ss}
		C _{ss}	Default	Max(C _{ss} , Default)		
Chloride	62.8	135	250	250	No	N/A
Sulfate	24.1	45	250	250	No	N/A
TDS	313.2	516	700	700	No	N/A

c. Permit Limitations

Based on the results of the YMS and SS screens shown in the tables above, reasonable potential is not demonstrated at Outfall 001 for chloride, sulfate, and TDS. Thus, further limitation evaluation is not applicable.

4. Bacterial Criteria for Protection of the Primary Body Contact Recreation and Public and Private Water Supply Uses

a. Bacteria Limitation – Primary Body Contact Recreation Use (PBCR) (Outfall 001)

The previous permit contained effluent limits for fecal coliform. However, fecal coliform is no longer used as an indicator for bacterial criteria and has been deleted from Oklahoma’s Water Quality Standards as of September 12, 2014. In accordance with the revised OAC 252:690-3-86, either E. coli or enterococci are now the only valid bacteriological indicators. E. coli has been chosen by the permittee via correspondence received 05/23/2018 as limit indicator.

- In accordance with OAC 252:690-3-86(a)(2), the draft permit will have a E. Coli monthly average limit (MAL) of 126 Colony Forming Units (CFU)/100ml, expressed as a geometric mean, and a daily maximum limit (DML) of 406 CFU/100ml for streams, in effect for the “recreational period” of May 1 through September 30.
- In accordance with OAC 252:690-3-89(a)(3)(A), the draft permit will have a bacteria monitoring frequency of twice per week during the months of May through September to protect the PBCR beneficial use.

b. Total Coliform – Public and Private Water Supply Use (Outfall 001)

In accordance with OAC 252:690-3-78, total coliform criteria are applied where a discharge is within five miles upstream of a public water supply intake or within five miles of such an intake in a lake. A total coliform limit is not required because there is no PWS surface water intake within five miles downstream from the facility’s POD.

5. Criteria for Protection of the Aesthetics Use (Outfall 001)

a. General

Nutrient loading in Oklahoma’s surface waters, particularly of phosphorus, has become an area of concern. OAC 785:45-5-9(d) states “Nutrients from point source discharges or other sources shall not cause excessive growth of periphyton, phytoplankton, or aquatic macrophyte communities which impairs any existing or designated beneficial use.” This narrative criteria is echoed in the State of

Oklahoma's general antidegradation policy as applied to beneficial uses (OAC 785:45-3-2(d)) as "No water quality degradation which will interfere with the attainment or maintenance of an existing or designated beneficial use shall be allowed."

b. Nutrient Limitations and Monitoring Requirements

The previous permit for the Chickasaw WWTP contained no nitrate or phosphorus limits or reporting requirements. According to the 2016 Beneficial Use Monitoring Program (BUMP) Report published by the Oklahoma Water Resources Board, the Caney River near Ramona, approximately 32 miles downstream from the facility's POD, is not impaired for nitrate or phosphorus. Thus, in the judgment of the permit writer, monitoring of effluent nutrient levels is not warranted at this time. The permit will, however, contain a narrative condition for control of solids to protect the Aesthetics use.

c. Floatable Solids and Foam

In accordance with OAC 785:45-5-9(b), a narrative condition prohibiting the discharge of floating solids or visible foam in other than trace amounts will be included in the permit.

E. MONITORING REQUIREMENTS

1. Effluent Monitoring Requirements (Outfall 001)

a. General

In accordance with OAC 252:690-3-90, where reasonable potential to exceed an applicable criterion is not exhibited, the background is unknown and there are fewer than 10 effluent data points to characterize the effluent, further effluent monitoring may be warranted based on use of the TSD method for computing $C_{95(M)}$ (see Section V.C.2.c). The TSD procedure accounts for the inherent uncertainty in characterizing an effluent distribution from a small data set.

b. Applicability

Water quality-based limitations are not required for any priority pollutants.

Effluent data set comprised of 10 or more data points is not available for any measurable pollutants.

All other pollutants detectable in the discharge which have State of Oklahoma water quality criteria are screened for reasonable potential using $C_{95(M)}$ in place of C_{95} to determine which of them may require effluent monitoring (see Section V.C.2.c).

c. Results of Reasonable Potential Screening Using $C_{95(M)}$

Where the instream concentration after mixing (C_d), calculated using $C_{95(M)}$ in place of C_{95} , exceeds an applicable criterion for a pollutant, a short term effluent monitoring requirement (sufficient to collect a minimum of ten data points) is established in the permit for that pollutant in accordance with OAC 252:690-3-90. Reasonable potential may then be reassessed with the larger effluent data set and the permit may be reopened, if necessary, to add appropriate effluent limitations. Results of the reasonable potential screens using $C_{95(M)}$ are shown in the following tables:

(1) Aquatic Toxicity Criteria

Results of Acute and Chronic Toxicity RP Screens using $C_{95(M)}$ (Outfall 001)
 (concentrations in $\mu\text{g/l}$ unless otherwise specified)

Effluent Characteristic	Acute Toxicity			Chronic Toxicity		
	C_d	C_{acute}	$C_d > C_{acute}?$	C_d	$C_{chronic}$	$C_d > C_{chronic}?$
Copper, total	2.01	31.72	No	18.60	20.18	No
Zinc, total	30.21	188.22	No	---	N/A	---

(2) Human Health/Fish Flesh Criteria

Measurable pollutants (total copper and total zinc) do not have human health/fish flesh criteria.

(3) Raw Water Column and Human Health/Fish Flesh and Water Criteria

Results of Raw Water Column and Human Health/Fish Flesh and Water RP Screens Using $C_{95(M)}$ (Outfall 001)
 (concentrations in $\mu\text{g/l}$ unless otherwise specified)

Effluent Characteristic	Raw Water Column Criteria			Human Health/Fish Flesh and Water Criteria		
	C_d	C_{Raw}	$C_d > C_{Raw}?$	C_d	C_{FFW}	$C_d > C_{FFW}?$
Copper, total	0.17	1,000	No	---	N/A	---
Zinc, total	2.52	5,000	No	---	N/A	---

(4) YMS and SS Agriculture Criteria

Results of Agriculture YMS and SS RP Screens for Additional Effluent Monitoring using $C_{95(M)}$ - Outfall 001
 (concentrations in mg/l)

Effluent Characteristic	YMS Criteria			SS Criteria		
	C_d	$\text{Max}(C_{YMS}, \text{Default})$	$C_d > C_{YMS}?$	C_d	$\text{Max}(C_{YMS}, \text{Default})$	$C_d > C_{SS}?$
Chloride	63.6	250	No	64.9	250	No
Sulfate	24.5	250	No	25.2	250	No
TDS	317.3	700	No	323.5	700	No

Based on the results of the reasonable potential screens using $C_{95(M)}$, additional effluent monitoring is not required for any pollutant.

2. Background Monitoring Requirements (Monitoring Point 999)

OAC 252:690-3-10 requires that, where available, background levels be included in reasonable potential assessments and in calculating wasteload allocations.

a. Assessment for Aquatic Toxicity and Human Health/Fish Flesh Criteria

In general, if water quality-based limits derived from aquatic toxicity, human health, or raw water column criteria are established in a permit for a pollutant based on an assumed zero background (or a partial background data set consisting of less than 10 data points), background monitoring for that pollutant will be required. There are two exceptions to this requirement, both of which exclude

background concentration as a component in the wasteload allocation equation. These exceptions are as follows:

- where permit limits are based on a chronic toxicity criterion in an effluent-dominated discharge situation, and
- where permit limits are based on a raw water column or human health/fish flesh and water criterion and the associated wasteload allocation was set equal to that criterion because the discharge is in close proximity to a PWS intake (not applicable to this facility).

Where permit limits for a pollutant are not required and the background is unknown (assumed zero), background monitoring may be justified for the purpose of reassessing whether there is reasonable potential to exceed an applicable criterion. In such cases, OAC 252:690-3-12 requires that the background trigger to criterion (BT/C) ratio be used to determine whether background monitoring is warranted for a pollutant. The trigger background concentration for a criterion is defined in OAC 252:690-1-2 as “the background concentration necessary to trigger reasonable potential for a substance to exceed an applicable criterion given a specified mean effluent concentration.” As described in Appendix J of OAC 252:690, the procedure involves calculating a BT/C ratio for each applicable criterion and comparing each such ratio with an associated threshold value, $(BT/C)_{max}$, which is a function of the magnitude of each criterion. Where the BT/C ratio > 1.0 , the C_{95} concentration is less than the criterion and there is no possibility of exhibiting reasonable potential to exceed that criterion at any background level which is less than or equal to the criterion. Where the BT/C ratio ≤ 1.0 , the C_{95} concentration is at least as high as the criterion and, depending on the magnitude of the criterion, background monitoring may be justified. If the BT/C ratio $\leq (BT/C)_{max}$ for any of the applicable criteria for a pollutant, then background monitoring for that pollutant is required. In order for $(BT/C)_{max}$ to be appropriately more sensitive to criteria of smaller magnitude, at which a measurable background level of a pollutant may have a relatively greater impact in the determination of reasonable potential, the value of the $(BT/C)_{max}$ threshold value function increases as the magnitude of a criterion decreases within the range of 1 to 1000 $\mu\text{g/l}$.

(1) Calculation of $(BT/C)_{max}$

The value of $(BT/C)_{max}$ for each applicable criterion is an inverse function of the criterion’s magnitude with two break points (or “hinges”), one at 1.0 $\mu\text{g/l}$ and the other at 1,000.0 $\mu\text{g/l}$. It is calculated as follows:

$$(BT/C)_{max} = 1.0, \text{ where the criterion} \leq 1.0 \mu\text{g/l.}$$

$$(BT/C)_{max} = \frac{1}{2^{\log(\text{criterion})}}, \text{ where } 1.0 \mu\text{g/l} < \text{the criterion} \leq 1,000.0 \mu\text{g/l.}$$

$$(BT/C)_{max} = 0.125, \text{ where the criterion} > 1,000.0 \mu\text{g/l.}$$

(2) Calculation of BT/C Ratios

Background trigger concentrations are first calculated for all applicable criteria and the BT/C concentration is then calculated by dividing the criterion-specific background trigger concentration by the applicable criterion. Values of $Q_{e(D)}$, Q^* , C_{95} , C_A , C_C , C_{FF} , C_{Raw} , and C_{FFW} are as previously defined.

(a) Acute Toxicity Criteria

$$BT/C_{Acute} = \frac{\left(\frac{64.63 C_A - Q_{e(D)} C_{95}}{64.63 - Q_{e(D)}} \right)}{C_A}, \text{ where } Q_{(D)} < 64.63 \text{ mgd.}$$

BT/C_{Acute} is not defined for values of $Q_{e(D)} \geq 64.63$ mgd.

(b) Chronic Toxicity Criteria

For discharges to streams, the following equations are used:

$$BT/C_{Chronic} = \frac{\left(\frac{(1+Q^*) C_C - 1.94 Q^* C_{95}}{1 - 0.94 Q^*} \right)}{C_C}, \text{ where } Q^* \leq 0.1823$$

$$BT/C_{Chronic} = \frac{\left(\frac{(6.17 - 15.51 Q^*) C_C - C_{95}}{5.17 - 15.51 Q^*} \right)}{C_C}, \text{ where } 0.1823 < Q^* < 0.3333$$

$BT/C_{Chronic}$ is not defined for $Q^* \geq 0.3333$ (effluent-dominated discharge situations), since the background level is not a component of the chronic toxicity reasonable potential equation.

(c) Human Health/Fish Flesh Criteria

$$BT/C_{FF} = \frac{(1 + Q^*)C_{FF} - Q^* C_{95}}{C_{FF}}$$

(d) Raw Water Column Criteria

$$BT/C_{Raw} = \frac{(1 + Q^*)C_{Raw} - Q^* C_{95}}{C_{Raw}}$$

(e) Human Health/Fish Flesh and Water Criteria

$$BT/C_{FFW} = \frac{(1 + Q^*)C_{FFW} - Q^* C_{95}}{C_{FFW}}$$

(3) Summary of Background Monitoring Requirements

Summary of Background Monitoring Requirements (Outfall 001)

Effluent Characteristic	Effluent limit required?	Background assumed zero?	BT/C ratio procedure applicable?	BT/C Ratio Assessment				Background monitoring required?
				Type Criterion	BT/C Ratio	(BT/C) _{max}	BT/C ratio ≤ (BT/C) _{max} ?	
Copper, total	No	Yes	Yes	Acute	>1	0.353	No	No
				Chronic	N/A ^a	0.405	N/A	
				Raw	>1	0.125	No	
Zinc, total	No	Yes	Yes	Acute	>1	0.207	No	No
				Raw	>1	0.125	No	

^a BT/C ratio is not defined where $Q^* > 0.3333$.

As shown in the above table, background monitoring is not required for any pollutant.

b. Assessment for Agriculture Criteria

Where background data is not available for mineral constituents, background concentrations are calculated from historical YMS and SS data in Appendix F of OAC 785:45 (see Section V.D.3). Since high levels of chloride, sulfate, and TDS are typically not characteristic of treated municipal wastewater discharges, background monitoring for these mineral constituents is not warranted.

F. BIOSOLIDS/SEWAGE SLUDGE REQUIREMENTS

Biosolids/sewage sludge disposal practices shall comply with the Federal regulations for land application of biosolids/sewage sludge, established at 40 CFR Part 503, and the DEQ rules governing Sludge Management (OAC 252:606) as applicable.

The sludge removal shall also comply with the requirements of Sludge Management Plan (SMP) No. 3574005, approved by Department of Environmental Quality on December 2, 1994, that allows the permittee to land apply biosolids/sewage sludge at sites permitted in the SMP and subsequent amendments.

The permittee is required to maintain all records relevant to sewage biosolids/sewage sludge disposal for the life of the permit. These records shall be made available to the ODEQ upon request.

The permittee shall give 120 days prior notice to DEQ of any change planned in the biosolids/sewage sludge disposal practice.

G. 303(d) LIST

The facility discharges to the Caney River (WBID 121400020010_00) in Segment No. 121400 of the Middle Arkansas River Basin. The Caney River is not on the Category 5 303(d) list in Appendix C of the 2016 Integrated Report. Therefore, additional monitoring requirements are not established in the proposed permit. A re-opener clause is included in the permit to allow for modification and/or reissuance to require additional monitoring and/or effluent limitations where actual or potential exceedances of State water quality criteria are determined to be the result of the permittee's discharge to the receiving water(s), or a revised Total Maximum Daily Load is established for the receiving water(s). Modification and/or reissuance of the permit shall follow regulations listed at 40 CFR 124.5.

H. ANTIDegradation REQUIREMENTS

Because no antidegradation restrictions are listed in Appendix A of the OWQS for the stream segment of the Caney River, to which the Chickasaw WWTP discharges (see Section V.B), implementation of the State's antidegradation policy, as described at OAC 785:46, Subchapter 13, indicates that no special requirements beyond Tier 1 protection (maintenance and protection of designated uses, as herein described) are necessary.

I. PROTECTION OF ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT

The stream segment of the Caney River, to which the Chickasaw WWTP discharges, is not considered by the U.S. Fish and Wildlife Service (USFWS) to be a sensitive area for endangered or threatened species. Therefore, notification to the USFWS is not required.

VI. GROUNDWATER PROTECTION

For municipal facilities, permits issued through the Water Quality Division's Construction Permit Section for plant design and construction (pursuant to the requirements of OAC 252:656) and land application of non-industrial

wastewater and/or biosolids (pursuant to the requirements of OAC 252:621 and OAC 252:606, respectively) are considered sufficient to protect groundwater quality.

VII. DRAFT PERMIT EFFLUENT LIMITATIONS

A. GENERAL

In accordance with 40 CFR 122.44(a), (d) and (l), pollutant limitations and monitoring requirements are established in the draft permit based on the more stringent of technology-based, water quality-based, or previous permit requirements. Both concentration and mass (loading) limits are established unless it is impractical to specify loading limits because of the units in which concentration limits are expressed (e.g., standard units for pH). Such loading limitations are calculated using the facility’s design average daily flow according to the following equation:

$$\text{Mass loading limit (in lbs/day)} = \text{Concentration limit (in mg/l)} \times Q_{e(D)} \text{ (in mgd)} \times 8.34$$

The facility’s approved design average daily flow of 7.0 mgd is used to calculate all loading limits.

B. EFFLUENT LIMITATIONS

Beginning the effective date and lasting through the expiration date of the permit, the facility is authorized to discharge treated wastewater in accordance with the following limits and reporting requirements.

1. Effluent Concentration Limitations and Reporting Requirements

Effluent Characteristic ^a		Water Quality Standards				Previous Permit				Draft Permit			
		Daily Min	Monthly Avg	Weekly Avg	Daily Max	Daily Min	Monthly Avg	Weekly Avg	Daily Max	Daily Min	Monthly Avg	Weekly Avg	Daily Max
BOD ₅	Year round	---	10.0	15.0	---	---	10.0	15.0	---	---	10.0	15.0	---
TSS	Year round	---	15.0	22.5	---	---	15.0	22.5	---	---	15.0	22.5	---
Ammonia (NH ₃ -N)	Year round	---	2.0	3.0	---	---	2.0	3.0	---	---	2.0	3.0	---
Fecal coliform ^b (colonies/100 ml)	May - Sep	---	---	---	---	---	200 (geo. mean)	---	400	---	---	---	---
E. coli ^{b, c} (CFU/100 ml)	May - Sep	---	126 (geo. mean)	---	406	---	---	---	---	---	126 (geo. mean)	---	406
Total Residual Chlorine ^d	Year round	---	---	---	< 0.1	---	---	---	< 0.1	---	---	---	< 0.1
pH (standard units)	Year round	6.5	---	---	9.0	6.5	---	---	9.0	6.5	---	---	9.0
Lead, total ^e (µg/l)	Year round	---	---	---	---	---	4.7	---	11.3	---	4.7	---	11.3

^a Units are mg/l, unless otherwise specified.

^b Fecal coliform limits have been replaced by E. coli limits due to changes in the Water Quality Standards (OAC 785:45).

^c E. coli bacteriological indicator and reporting unit of Colony Forming Unit (CFU)/100 ml were chosen by the permittee via email correspondence received 05/23/2018.

^d If no chlorine is used for an entire reporting period, the permittee shall report a value of “zero” for the daily maximum and enter “No chlorine used this reporting period” in the comments section on the DMR for that reporting period in lieu of the indicated testing. For any week in which chlorine is used, the indicated testing shall be done until the chlorine is no longer in use and at least one subsequent test verifies that the effluent meets the total residual chlorine limit.

^e Results of effluent analyzed for pretreatment program may be used in lieu of a separate test for total lead.

2. Monthly Average Mass Loading Limitations and Reporting Requirements

Effluent Characteristic ^a		Water Quality Standards	Previous Permit	Draft Permit
Flow (mgd)	Year round	---	Report	Report
BOD ₅	Year round	583.8	583.8	583.8
TSS	Year round	875.7	875.7	875.7
Ammonia (NH ₃ -N)	Year round	116.8	118.8 ^b	116.8
Lead, total	Year round	0.274	0.274	0.274

^a Units are lbs/day, unless otherwise specified.

^b Mass loading for ammonia specified in the previous permit was determined based on monthly average concentration limit of 2.0 mg/l and facility's approved design average daily flow of 7.0 mgd. However, the calculated mass loading that was implemented in the previous permit appears to contain computational error.

3. Monitoring Requirements and Sample Types

Effluent Characteristic ^a		Previous OPDES Permit		Draft Permit	
		Measurement Frequency	Sample Type	Measurement Frequency	Sample Type
Flow	Year round	Daily	Totalized	Daily	Totalized
BOD ₅	Year round	5/week	12-hour composite	5/week	12-hour composite
TSS	Year round	5/week	12-hour composite	5/week	12-hour composite
Ammonia (NH ₃ -N) ^b	Year round	5/week	12-hour composite	5/week	12-hour composite
E. coli	May - Sep	---	---	2/week ^c	Grab
Total Residual Chlorine	Year round	Daily	Grab	Daily	Grab
pH	Year round	Daily	Grab	Daily	Grab
Lead, total ^d	Year round	1/quarter	24-hour composite	1/quarter	24-hour composite

^a Monitoring frequencies for flow and DO-based parameters are in accordance with OAC 252:606, Appendix A, Table 1-3 for activated sludge facilities and based on facility's design capacity of 7.0 mgd.

^b Results from concurrent ammonia analyses for Outfall TX1 may be used in partial fulfillment of ammonia monitoring requirements at Outfall 001.

^c E. coli monitoring frequency for PBCR in accordance with OAC 252:690-3-89(a)(3)(A).

^d Results of effluent analyzed for pretreatment program may be used in lieu of a separate test for total lead.

4. Sampling Point

Effluent samples for compliance with permit limits and monitoring requirements shall be taken at the end of the step aerator located in the NW¹/₄, NE¹/₄, NW¹/₄ of Section 7, Township 26 North, Range 13 East, I.M., Washington County, Oklahoma.

C. BIOMONITORING OUTFALL (OUTFALL TX1)

Outfall TX1 is designated for biomonitoring reporting purposes. It is functionally identical to Outfall 001.

1. Previous Permit

The previous permit required only chronic WET testing and contained WET limits for *C. dubia* and biomonitoring requirements for *Pimephales promelas* (fathead minnow). The monitoring requirements are restated in the following tables:

a. *C. dubia*

Previous Permit's WET Limit

Effluent Characteristic	Reporting/Monitoring Requirements		
	7-day Min	Testing Frequency	Sample Type
Whole Effluent Toxicity Limit (lowest lethal NOEC _L and/or sublethal NOECs for <i>C. dubia</i>) [STORET 22414]	100%	1/quarter	24-hr comp

Previous Permit's WET Monitoring and Reporting Requirements

Effluent Characteristic			Reporting/Monitoring Requirements		
Test	Critical Dilution	Parameter	7-day Min	Testing Frequency	Sample Type
<i>Ceriodaphnia dubia</i> , 7-day chronic NOEC static renewal, freshwater	100%	Pass/Fail Survival [TLP3B]	Report	1/quarter	24-hr comp
		NOEC _L Survival [TOP3B]	Report		
		% Mortality at Critical Dilution [TJP3B]	Report		
		Pass/Fail Reproduction [TGP3B]	Report		
		NOEC _S Reproduction [TPP3B]	Report		
		% Coeff of Variation [TQP3B]	Report		

b. Fathead Minnow

Previous Permit's WET Monitoring and Reporting Requirements

Effluent Characteristic			Reporting/Monitoring Requirements		
Test	Critical Dilution	Parameter	7-day Min	Testing Frequency	Sample Type
Routine Testing <i>Pimephales promelas</i> (Fathead minnow), 7-day chronic NOEC static renewal, freshwater	100%	Pass/Fail Survival [TLP6C]	Report	1/quarter	24-hr comp
		NOEC _L Survival [TOP6C]	Report		
		% Mortality at Critical Dilution [TJP6C]	Report		
		Pass/Fail Growth [TGP6C]	Report		
		NOEC _S Growth [TPP6C]	Report		
		% Coeff of Variation [TQP6C]	Report		
Retesting	Retest #1 [22415]		Report	As required	24-hr comp
	Retest #2 [22416]		Report		

2. Draft Permit

During the period beginning the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge from Outfall TX1 (functionally identical to Outfall 001). The discharge consists of treated wastewater from a municipal wastewater treatment system. Such discharge shall be limited and monitored by the permittee as specified below.

The permittee is encouraged to perform required biomonitoring activities as early in the reporting period as is practical to ensure sufficient time remains in the reporting period should retests/repeat tests be necessary.

All laboratory analyses for the biomonitoring parameters specified in this permit must be performed by a laboratory certified by the Oklahoma Department of Environmental Quality for those parameters.

a. WET Reporting and Monitoring Requirements for *C. dubia*

**Whole Effluent Toxicity Reporting and Monitoring Requirements
 (Outfall TX1)**

Effluent Characteristic			Reporting/Monitoring Requirements ^a		
Test	Critical Dilution ^c	Parameter	7-day Min	Testing Frequency ^b	Sample Type
<i>Ceriodaphnia dubia</i> , 7-day chronic NOEC static renewal, freshwater	100%	Pass/Fail Survival [TLP3B]	Report	1/quarter	24-hr comp
		NOEC _L Survival [TOP3B]	Report		
		% Mortality at Critical Dilution [TJP3B]	Report		
		Pass/Fail Reproduction [TGP3B]	Report		
		NOEC _S Reproduction [TPP3B]	Report		
		% Coeff of Variation [TQP3B]	Report		

^a See Part II, Section E, Whole Effluent Toxicity Limit, for additional monitoring and reporting conditions.
^b Quarterly reporting periods commence with the effective date of the permit. A valid WET test shall be reported for *C. dubia* for each reporting period. Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results.
^c All chronic WET testing shall use the dilution series specified in Part II, Section E, Item 1.

C. dubia whole effluent toxicity reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is _____ to _____.

Whole Effluent Toxicity Limit and Monitoring Requirements (Outfall TX1)

Effluent Characteristic	Reporting/Monitoring Requirements ^a		
	7-day Min	Testing Frequency	Sample Type
Whole Effluent Toxicity Limit (lowest lethal NOEC _L and/or sublethal NOECs for <i>C. dubia</i>) {STORET 22414}	100%	1/quarter ^b	24-hr comp

^a See Part II, Section E, Whole Effluent Toxicity Limit, for additional monitoring and reporting conditions.
^b Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results.

Whole effluent toxicity monitoring and reporting requirements apply beginning the effective date of the permit.

Compliance with the Whole Effluent Toxicity Limit is required beginning the effective date of the permit.

WET Testing Summary Reports: Reports of all WET testing initiated, regardless of whether such tests are carried to completion, shall follow the requirements of Part II, Section E, Item 4.

Sampling Location: Samples taken in compliance with the monitoring requirements specified above for Outfall TX1 shall be taken at the same location as for Outfall 001.

b. WET Reporting and Monitoring Requirements for Fathead minnow

Whole Effluent Toxicity Reporting and Monitoring Requirements (Outfall TX1)

Effluent Characteristic			Reporting/Monitoring Requirements ^a		
Test	Critical Dilution ^d	Parameter	7-day Min	Testing Frequency ^f	Sample Type
Routine Testing	100%	Pass/Fail Survival [TLP6C]	Report	1/quarter ^e	24-hr comp
		NOEC _L Survival [TOP6C]	Report		
		% Mortality at Critical Dilution [TJP6C]	Report		
		Pass/Fail Growth [TGP6C]	Report		
		NOEC _S Growth [TPP6C]	Report		
		% Coeff of Variation [TQP6C]	Report		
Retesting	Retest #1 [22415] ^b		Report	As required ^c	24-hr comp
	Retest #2 [22416] ^b		Report		

- ^a See Part II, Section F, Whole Effluent Toxicity Testing, for additional monitoring and reporting conditions.
- ^b Applies according to results of test failure triggering monthly retests.
- ^c Monthly retesting required only if routine test for reporting period fails. Fill out ONLY these two retest parameters on the retest DMRs, do not change the original results, and put the correct submission date in the lower right hand corner of the DMR.
- ^d All chronic WET testing shall use the dilution series specified in Part II, Section F, Item 1
- ^e Results of retests conducted pursuant to prior test failure shall not be submitted on DMRs in lieu of routine test results (see Part II, Section F, Item 2.a).
- ^f See provision for monitoring frequency reduction after the first year (Part II, Section F, Item 5).

P. promelas (fathead minnow) whole effluent toxicity reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is ___ to ___.

WET Concurrent Testing Provisions:

In accordance with OAC 252:690-3-30, where there is reason to believe certain substances may cause or contribute to whole effluent toxicity, the permit may require testing of those substances concurrently with WET testing. Specific concurrent testing requirements for ammonia are described at OAC 252:690-3-25.

Concurrent analyses of ammonia and pH are required for each individual effluent sample collected for chronic WET testing or retesting of the Fathead minnow species. Reporting of concurrent testing results shall be in accordance with the following requirements. Results shall also be submitted in or concurrently with each WET test report.

Concurrent Effluent Testing for Chronic WET Tests – Reporting Requirements (Outfall TX1)

Effluent Characteristic	Concentration			Monitoring Requirements	
	Daily Min	Monthly Avg	Daily Max	Monitoring Frequency ^a	Sample Type
Ammonia, (NH ₃ -N) (mg/l) ^{b,c} [STORET 00610]	Report	Report	Report	1/quarter	24 hr comp ^c
pH (std units) ^{b,c} [STORET 00400]	Report	N/A	Report	1/quarter	Measured in each composite effluent sample, including static renewals, just prior to first use ^c

- ^a See provision for WET testing monitoring frequency reduction after the first year (Part II, Section F, Item 5).
- ^b Report only those effluent samples collected for WET testing of the Fathead minnow species.
- ^c Samples collected for WET testing purposes, including static renewals, shall be of sufficient volume to allow for the required concurrent analyses in addition to the WET testing itself.

Two sets of samples for **concurrent analyses** are required for ammonia and pH:

Samples sent directly to a WET testing laboratory shall NOT undergo any preservation other than refrigeration to maintain a temperature at or below 6°C but not frozen prior to arrival and processing at the WET testing laboratory. These results may be used in the table above.

A second concurrent analysis is required for the sample that is sent to the WET testing laboratory and for the table above.

Just prior to the first use of each composite sample for WET testing purposes, the biomonitoring laboratory shall take an adequately-sized portion of each composite sample, acidify it in accordance with preservation requirements in 40 CFR 136, and have it analyzed for ammonia (NH₃-N) at a state certified analytical laboratory. The pH measurement required for the above table must be taken just prior to the acidification step. These pH and ammonia readings should NOT be included in the results for Outfall 001.

Samples sent directly to a state certified analytical laboratory must be composite samples that are properly preserved. These results may be included in the results for Outfall 001.

WET Testing Summary Reports: Reports of all WET testing initiated, regardless of whether such tests are carried to completion, shall follow the requirements of Part II, Section F, Item 4.

Sampling Location: Samples taken in compliance with the monitoring requirements specified above for Outfall TX1 shall be taken at the same location as for Outfall 001.

D. COMPLIANCE SCHEDULE

The facility shall comply with the Consent Order Case No. 13-205.

VIII. SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The following changes were made in the draft permit relative to the previous OPDES permit:

- Fecal coliform limits in the previous permit have been replaced by E. coli limits due to changes in the Water Quality Standards (OAC 785:45).
- Mass loading for ammonia has been changed to 116.8 lbs/day as the previous 118.8 lbs/day appears to contain computational error.
- Schedule of compliance is added for compliance with the Consent Order Case No. 13-205.

IX. ADMINISTRATIVE RECORD

The following sources were used to prepare the draft permit and constitute a part of its administrative record:

A. APPLICATIONS

OPDES Permit Application No. OK0030333 (Form 2M1), received January 29, 2018 and the revised Form 2M1 received April 11, 2018.

B. CLEAN WATER ACT CITATIONS

Sections 301, 303(d), 305(b), 402(a), and 402(o).

C. 40 CFR CITATIONS

40 CFR Parts 122, 124, and 136.

D. STATE LAW, STANDARDS, AND RULES AND REGULATIONS

Oklahoma Pollutant Discharge Elimination System (OPDES) Act, 27A O.S. §2-6-201 *et seq.*

OAC 252:606, Discharge Standards (DEQ).

OAC 252:690, Water Quality Standards Implementation (DEQ).

OAC 785:45, Oklahoma Water Quality Standards (OWRB).

OAC 785:46, OWQS Implementation (OWRB).

Oklahoma Continuing Planning Process (CPP) Document (DEQ).

E. MISCELLANEOUS

- Category 5 303(d) list, in Appendix C of the 2016 Integrated Report.
- 2016 Beneficial Use Monitoring Program Report (OWRB).
- WQMP amendment dated February 23, 1994 for DO-demanding substances.
- Permit file, OPDES Permit No. OK0030333, including selected biomonitoring laboratory reports.
- Integrated Compliance Information System (ICIS-OPDES), August 2013 through February 2018.
- EPA Region 6 revision to Post Third Round Biomonitoring Policy, dated June 30, 2000.
- USGS publication, Statistical Summaries of Streamflow in and near Oklahoma Through 2007 by John M. Lewis and Rachel A. Esralew (<http://pubs.usgs.gov/sir/2009/5135>).
- Part III and IV of OPDES Permit No. OK0030333.

X. REVIEW BY OTHER AGENCIES AND FINAL DETERMINATION

A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers, State Historical Preservation Office and to the Field Supervisor of the U.S. Fish and Wildlife Service upon the publication of the notice. If comments are received from these agencies or other State or Federal agencies with jurisdiction over fish, wildlife, or public health, the permit may be denied or additional conditions may be included in accordance with regulations promulgated at 40 CFR 124.59.

The public notice describes the procedures for the formulation of final determinations.