Draft of December 27, 2023

AUTHORIZATION TO DISCHARGE UNDER THE OKLAHOMA POLLUTANT DISCHARGE ELIMINATION SYSTEM

OPDES Permit Number: OK0036978 Permit to Supply Reclaimed Water Number: RW19-002 Facility ID Number: S20580

PART I

In compliance with the Oklahoma Pollutant Discharge Elimination System (OPDES) Act, Title 27A OS § 2-6-201, *et seq.*, as amended, and the rules of the Oklahoma Department of Environmental Quality (DEQ) adopted thereunder (see the Oklahoma Administrative Code (OAC) 252:606, OAC 252:627, and OAC 252:656)); the Federal Clean Water Act (CWA), Public Law 95-217 (33 USC 1251, *et seq.*), Section 402; and the National Pollutant Discharge Elimination System (NPDES) regulations at Title 40 of the Code of Federal Regulations (CFR) Parts 122, 124, and 403),

Oklahoma City Water Utilities Trust 420 W. Main Street, Suite 500 Oklahoma City, OK 73102

is hereby authorized to discharge treated wastewater and supply reclaimed water for reuse from the North Canadian Wastewater Treatment Facility (WWTF) located at approximately

SW¹/4, of the Section 16, Township 13 North, Range 1 West, IM Oklahoma County, Oklahoma or at 12800 N Anderson Road, Jones, OK, 73049

to receiving waters: North Canadian River at the point located at approximately

Latitude:	35° 35' 49.480" N	[GPS: NAD83]
Longitude:	97° 18' 46.417" W	[GPS: NAD83]

Water Body ID No. OK520520000010 10

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 October 3, 2016.

The issuance date of this permit is Month Date, Year.

This permit shall become effective Month Date, Year.

This permit and authorization to discharge shall expire at midnight Month Date, Year.

For the Oklahoma Department of Environmental Quality:

A. Effluent Limitations and Monitoring Requirements (Outfall 001)

1. Effluent Limitations

During the period beginning the effective date and lasting through date of expiration the permittee is authorized to discharge treated wastewater in accordance with the following limitations:

	Di	Discharge Limitations			Monitoring Requirements		
Pollutants		Mass Loading (lb/day)	Co (mg/L,	Concentrations (mg/L, unless otherwise specified)		Frequency	Sample
		Monthly Avg.	Monthly Avg.	Weekly Avg.	Daily Max.		Гуре
Flow (mgd) [STORET: 50050]	Year round		Report		Report	Daily	Totalized
Biochemical Oxygen Demand, 5-Day, (BOD ₅) [STORET: 00310]	Year round	6672.0	10	15		Daily	24-hour
Total Suspended Solids (TSS) [STORET: 00530]	Year round	6672.0	10	15			composite
Dissolved Oxygen (DO) [STORET: 00300]	Year round		Instantaneous Minimum: 5.0		Daily	Grab	
Ammonia as N (NH ₃ -N) [STORET: 00610]	Year round	1334.4	2.0	3.0		Daily ^a	
Selenium, total (µg/L) ^b [STORET: 01147]	Year round	3.163	4.74		8.21	1 per 6 months	24-hour composite
Sulfate [STORET: 00945]	Year round		Report		Report	1 per month	
E. coli	May – Sep		126 °		406	2 per week	
[STORET: 51040]	Oct – Apr		630 °		2030	1 per week	
Total Residual Chlorine (TRC) [STORET: 50060]	Year round		Instantaneous Maximum: No measurable ^{d, e}		Doily	Grab	
pH (standard unit) [STORET: 00400]	Year round			6.5 – 9.0		Daily	

Limitations and Monitoring Requirements (Outfall 001)

^a Ammonia analysis shall also be performed concurrently with and on all samples collected for WET testing at Outfall 001 (see WET testing requirements for Outfall TX1 in Section VII.C). Results from concurrent ammonia analyses for Outfall TX1 may be used in partial fulfillment of ammonia monitoring requirements at Outfall 001.

^b The minimum quantification level (MQL) for selenium is **5.0** μ g/L. If any individual test result for selenium is less than the MQL, a value of "zero" may be used for the DMR calculations and reporting requirements.

- ^c *E. coli* shall be reported as most probable number (MPN)/100 mL, monthly average of *E. coli* is in **geometric mean** of all the test results during that month.
- ^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 No measurable is defined as less than 0.1 mg/L.

Sampling Point

- Grab samples taken in compliance with permit limits and monitoring requirements for DO, pH, TRC, and *E. coli* shall be taken at Outfall 001.
- Composite samples taken in compliance with permit limits and monitoring requirements for all other pollutants shall be taken at the auto-sampler located in the NW¼, SE¼, SW¼ of the Section 16, Township 13 North, Range 1 West, Indian Meridian, Oklahoma County, Oklahoma.

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 follow Part III of this permit.

2. Whole Effluent Toxicity

a. WET Reporting and Monitoring Requirements - Ceriodaphnia dubia

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 biologically treated municipal wastewater. 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 accredited by DEQ for those parameters.

	Effluent Characteristic			Reporting/Monitoring Requirements ^a			
	Test	Critical Dilution ^b	Parameter	7-day Min	Testing Frequency ^c	Sample Type	
	Conio dumbuin		Pass/Fail Survival [TLP3B]	Report			
Ceriodaphnia dubia 7-day	a	NOEC _L Survival [TOP3B]	Report				
ting	f chronic	1000/	% Mortality at Critical Dilution [TJP3B]	Report	1 per	24-hour	
NOEC static renewal,	100%	Pass/Fail Reproduction [TGP3B]	Report	quarter	composite		
		NOECs Reproduction [TPP3B]	Report				
	nesnwater		% Coeff of Variation [TQP3B]	Report			

Chronic WET Reporting and Monitoring Requirements (Outfall TX1)

^a See Part II, Section E of the permit, WET Limit, for additional monitoring and reporting conditions.

^b All chronic WET testing shall use the dilution series specified in Part II, Section E, Item 1 of the permit.
 ^c 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 monthly tests conducted pursuant to prior test failure may be substituted for a routine test result if the monthly test coincides within the testing period of the routine testing (see Part II, Section E, Item 2.a of the permit).

Ceriodaphnia dubia WET reporting and monitoring requirements apply beginning the effective date of the permit and the first reporting period is <u>1, 2024 to</u> <u>30, 2024</u>.

	Reporting/Monitoring Requirements ^a				
Effluent Characteristic	7-day Min	Testing Frequency ^b	Sample Type		
WET Limit for <i>Ceriodaphnia dubia</i> (Lowest lethal NOEC _L and/or sublethal NOEC _S) [STORET 51710]	100%	1 per quarter	24-hour composite		

Chronic WET Limit and Monitoring Requirements (Outfall TX1)

^a See Part II, Section E of the permit, WET Limit, for additional monitoring and reporting conditions.

Results of monthly tests conducted pursuant to prior test failure may be substituted for a routine test result if the monthly test coincides within the testing period of the routine testing (see Part II, Section E, Item 2.a of the permit).

WET reporting and monitoring requirements apply beginning the effective date of the permit. Compliance with the WET 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 of the permit.

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.

b. WET Reporting and Monitoring Requirements – Fathead minnows

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 biologically treated municipal wastewater. 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 accredited by DEQ for those parameters.

	Effluent Characteristic			Reporting/Monitoring Requirements ^a		
	Test	Critical Dilution ^b	Parameter	7-day Min	Testing Frequency ^f	Sample Type
	Pimephales		Pass/Fail Survival [TLP6C]	Report		
-	promelas		NOECL Survival [TOP6C]	Report		
ting	if (Fathead minnow), 7-day 1 ← chronic NOEC static renewal.	100%	% Mortality at Critical Dilution [TJP6C]	Report	1 per quarter ^e	24-hour composite
Tes		chronic NOEC static renewal.	Pass/Fail Reproduction [TGP6C]	Report		
			NOECS Reproduction [TPP6C]	Report		
	freshwater		% Coeff of Variation [TQP6C]	Report		
sting	Retest #1 [2241	5] ^c		Report	As	24-hour
Rete	Retest #2 [2241	6] °		Report	Required ^d	composite

Chronic WET Reporting and Monitoring Requirements (Outfall TX1)

See Part II, Section F of the permit, WET Testing, for additional monitoring and reporting conditions.

^b All chronic WET testing shall use the dilution series specified in Part II, Section F, Item 1 of the permit.

^c Apply according to results of test failure triggering monthly retests.

^d 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.

Results of retests conducted pursuant to prior test failure shall <u>not</u> be substituted on DMRs in lieu of routine test results (see Part II, Section F, Item 2.a of the permit).

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

Pimephales promelas (Fathead minnow) WET reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is _____ to ____. The first report is due on _____.

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 of the permit.

Concurrent Testing Provision for Chronic WET Testing: 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.

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

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

^a Two sets of samples for concurrent analyses are required for ammonia and pH. Report <u>only</u> those effluent samples collected for WET testing of the fathead minnow species.

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.

Samples sent directly to a <u>WET testing laboratory</u> 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 <u>table above</u>.

A second concurrent analysis is required for the sample that is sent to the <u>WET testing laboratory</u> and for the <u>table above</u>. Just prior to the first use of each composite sample for <u>WET testing</u> purposes, the biomonitoring laboratory shall take an adequately-sized portion of each composite sample, acidify it in accordance with preservation requirements in 40 CFR Part 136, and have it analyzed for ammonia (NH₃-N) at a <u>State accredited analytical laboratory</u>.

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 <u>State accredited analytical laboratory</u> must be composite samples that are <u>properly preserved</u>. These results may be included in the results for <u>Outfall 001</u>.

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.

B. Background Monitoring (Monitoring Point 999)

Not applicable.

C. Compliance Schedule

Not applicable to effluent discharge.

D. Sanitary Sewer Overflows

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

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 Wastewater Compliance Tracking Section, Water Quality Division of DEQ 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 <u>https://www.deq.ok.gov/water-quality-division/electronic-reporting/</u>. Assistance is also available by contacting DEQ at (405) 702-8100 or email <u>deqreporting@deq.ok.gov</u>.

The first report is due on the 15^{th} of MONTH 2024.

F. Category 3 Reclaimed Water for Water Reuse

Beginning the effective date and lasting through the expiration date of the permit, the Oklahoma City Water Utilities Trust (OCWUT), "the supplier", is authorized to supply treated wastewater from the North Canadian WWTF as Category 3 reclaimed water for reuse in cooling towers and other closed-loop systems owned and operated by the OG&E Redbud Energy Plant, "the user", in accordance with OAC 252:627 and OAC 252:656 and the following requirements. The OG&E Redbud Energy Plant has been assigned the user identification number **RWID21-004**.

1. Authorized Site for Water Reuse

The water reuse of Category 3 reclaimed water is permitted at one site, R01, which is owned and operated by the user.

Site	User	Legal	Method of	Authorized	Approx. En Reu	try Location of use Site
ID	0000	Description	Storage and Treatment	Uses	Latitude	Longitude
R01	OG&E Redbud Energy Plant	SE ¹ /4, NW ¹ /4, SW ¹ /4 of Section 17 Township 14 North Range 1 East, IM Oklahoma	Storage in an above ground tank followed by chlorine disinfection Coagulation, filtration, and chlorine disinfection Coagulation, filtration, chlorine disinfection secondary filtration, de-	Make-up water in cooling towers Fire suppression and evaporative cooling Steam generation in	35°41'4.668"N (GPS: NAD83)	97°13'29.712"W (GPS: NAD83)
		County	chlorination, softening, and reverse osmosis	turbines		

Water Reuse Site Information

Per information provided by the facility in the application submitted to DEQ on May 6, 2021, and additional information submitted to DEQ on later dates.

b

2. Limitations and Monitoring Requirements for Reclaimed Water

The permittee must comply with the following limitations and monitoring requirements that are established in the permit to supply Category 3 reclaimed water for reuse at the site listed above.

Site ID	Parameter	Limitations	Monitoring Frequency	Sample Type	Monitoring Location
	Flow	Record (mgd)	Daily ^a	Totalized	
	Chlorine Disinfection at POE ^c	Free available chlorine (FAC) residual $\geq 0.20 \text{ mg/L}$	Every 12 hours	Grab	At the pump station, south
R01	E. coli °	Monthly geometric mean: < 126 MPN/100 mL Single sample maximum: < 406 MPN/100 mL	3 per week	Grab	of chlorination/ dechlorination basin ^b
	BOD ₅ or CBOD ₅	< 20.0 mg/L ^{d, e}	Weekly	Grab	

Limitation and Monitoring Requirements for Site R01

¹ When there is no supply of reclaimed water for the entire day, report "0" in the MOR, and write "No Supply" in the comments column.

^b The reclaimed water pump station is located at the North Canadian WWTF.

^c The facility has *E. coli* limits at Outfall 001, reported in MPN/100 mL, measured 1 per week October through April and 2 per week May through September. *E. coli* limits shall be used for the Permit to Supply.

- ^d The facility currently has a BOD₅ limit at Outfall 001. Results from BOD₅ analysis for Outfall 001 may be used in the fulfillment of BOD₅ monitoring requirements for the permit to supply unless the facility requests CBOD₅ instead.
- ^e BOD₅ (or CBOD₅, if the facility requests to use it instead) limit is the monthly average analyzed weekly from a grab sample. There is no daily maximum or weekly average limit.

3. Reporting and Record Keeping Requirements

a. Monthly Operation Reports (MORs)

Suppliers shall complete DEQ Form 627-001 "Water Reuse System Monthly Operation Report" (MOR) for each month for each reuse site in accordance with OAC 252:627-5-1(b) and (c).

The permittee/suppliers must retain copies of all MORs on-site for 3 years, as well as all records, including all maintenance records, and make them available for review by DEQ upon request in accordance with OAC 252:627-5-1(d) and (e).

b. Record Keeping Requirements for Commercial Fertilizer

Not applicable

4. Restrictions for Category 3 Reclaimed Water

a. OAC 252:627-3-3(b), the OCWUT shall ensure that Category 3 reclaimed water is not used from a lagoon cell that receives raw sewage. OAC 252:627-3-3(b) has the full list of restrictions, most of which are related to irrigation with reclaimed water.

b. The OCWUT shall ensure that Category 3 reclaimed water is only supplied to the OG&E Redbud Plant. The OCWUT must obtain a permit to construct and a permit to supply reclaimed water from DEQ before supplying reclaimed water from any other facility or to any user(s) or site(s) not authorized in this permit, including sites owned and/or operated by the City, and must provide information to DEQ on the intended use of the reclaimed water by the new user(s), and if applicable, information on specific reuse site(s) demonstrating that the requirements of OAC 252:627-3-4 for the proposed category of reclaimed water are met.

5. Signage Requirements

Pursuant to OAC 252:656-27-4(a), the OCWUT shall ensure that all reclaimed water piping in the distribution system up to the point of transfer to OG&E's control shall be embossed or integrally stamped on opposite sides every 3 feet with a warning that includes the following language: "CAUTION: RECLAIMED WATER – DO NOT DRINK."

6. Operation and Maintenance of the Distribution Systems

- a. The permittee/supplier shall maintain the structural integrity of all parts of the treated wastewater (reclaimed water) distribution system up to the point of transfer to OG&E's control and maintain it in good working condition.
- b. The permittee/supplier shall ensure that pump stations up to the point of transfer to OG&E's control are properly maintained and operated by doing the followings:
 - 1) Securing pump station(s) to prevent unauthorized access.
 - 2) Maintaining pump(s) in working condition.
 - 3) Keeping screen(s) free of debris to prevent clogging.
 - 4) Maintaining the required alarms in working order.
 - 5) Maintaining the required back-up generators and/or portable engine driven pumps in working order.
 - 6) Maintaining a complete set of operational instructions, emergency procedures and maintenance schedules.
- c. The permittee/supplier shall provide flow measuring devices to measure the amount of treated wastewater being distributed to each user. Flow measurement devices shall have recording, totalizing and instantaneous indicating capabilities.

Cross connections between treated wastewater/RW distribution lines and the public water supply lines are prohibited. The supplier and the user shall follow the requirements of OAC 252:626-5-15 and OAC 252:656-9-2.

G. Category 6 Reclaimed Water for Water Reuse

The OCWUT also supplies and reuses Category 6 reclaimed water for various uses within the WWTF. In accordance with OAC 252:627-1-3(b) and OAC 252:627-1-6(6), the use of Category 6 within the WWTF does not require a permit to supply and is included here for information purposes only.

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 CWA, 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(q) 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 OPDES Act, which has jurisdiction over the Indirect Discharges to and from such treatment works. This POTW's pretreatment program was approved on March 12, 1985, and modified on May 7, 1993, January 30, 1998, February 21, 2003, and February 23, 2012, to incorporate program revisions; the current POTW pretreatment program is being modified 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(d) 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 industrial users (IU) 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 IU to ensure compliance with applicable pretreatment standards and requirements. In the case of IU 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 40 CFR § 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

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- (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 DEQ.
- 2. The permittee shall establish and continue to develop and enforce technically based local limits (TBLL) to implement the provisions of 40 CFR § 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 § 403.5(a)(1) and (b) shall also be enforced by the permittee unless modified under this provision.

The permittee shall, within 60 days of the effective date of this permit, (1) submit a WRITTEN CERTIFICATION that a technical evaluation has been performed demonstrating that the existing 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, <u>or</u> (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 Part 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 semi-annually (once per six 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 semi-annually (once per six 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 Part 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 IUs 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 criterion 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 **March**.

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

- 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 North American Industry Classification System (NAICS) 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 IUs, 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 (SIU), 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 headwork loadings developed in the approved technically based local limits and water quality-based effluent concentrations necessary to meet state water quality standards.

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- 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 40 CFR Parts 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 at the end of Part II of the permit.

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

- 1. The sewage sludge disposal practices shall comply with the federal regulations for landfills, sludge, and solid waste disposal established at 40 CFR Parts 257, 503, and the DEQ rules governing Sludge Management (OAC 252:515 and OAC 252:606) as applicable.
- 2. The sludge removal shall also comply with the requirements of Sludge Disposition Plan number 3555023, approved by DEQ on January 4, 2001, that allows the permittee to land apply biosolids/ sewage sludge at numerous sites located in Oklahoma County, Oklahoma.
- 3. The permittee is required to maintain all records relevant to sewage sludge disposal for the life of the permit. These records shall be made available to DEQ upon request.
- 4. The permittee shall give 120 days prior notice to DEQ of any change planned in the sewage sludge disposal practice.
- 5. The permittee shall also comply with all applicable biosolids/sewage sludge requirements in Part IV of this permit.

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.
 - 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.
 - 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 Discharge and Stormwater Permits Section P. O. Box 1677 707 North Robinson Ave Oklahoma City, Oklahoma 73101-1677

E. WHOLE EFFLUENT TOXICITY LIMITS REQUIREMENTS

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.

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 accredited by DEQ 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 10 replicates consisting of a single (1) organism each 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 Effect Concentration Lethal) 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 Effect Concentration Sublethal) is defined as the greatest effluent dilution at and below which sublethality (toxicity:

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inhibited reproduction in the *Ceriodaphnia dubia* 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.

- c. The conditions of this item are effective beginning with the effective date of the WET limit as established in Part 1 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: both 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. The increased frequency of WET testing after a violation is used to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result. Testing conducted pursuant to the provision shall be reported in accordance with Item 3 of this section.
- d. 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 CWA.
- e. Upon becoming aware of the failure of any test, the permittee shall immediately notify the DEQ Water Quality Division biomonitoring coordinator and shall provide written notification within five 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 Test Failure

Upon becoming aware of the failure of any test, the permittee shall immediately notify the DEQ Water Quality Division's biomonitoring coordinator, and shall provide written notification 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 *Ceriodaphnia dubia* during routine testing, at least three additional monthly tests for *Ceriodaphnia dubia* are required (Part II, Section 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 may substitute one of the monthly tests that coincides within the quarter of a 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 the 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 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 40% percent of the *Ceriodaphnia dubia* test organisms in the control (0% effluent) or any effluent dilution 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 are 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 for toxicity 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 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 NOEC as described in EPA-821-R-02-013 or 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 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. In OAC 252:690-3-36, for discharges to a receiving stream classified as intermittent or to a receiving stream with no flow due to zero flow, 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. If the receiving stream has sufficient flow for a sample to be collected, the facility will return to receiving stream water instead of synthetic.
 - (2) If the receiving water is unsatisfactory because 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);
 - (c) the synthetic dilution water had a pH, hardness, and alkalinity like 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; and
 - (d) the receiving water test must be conducted at the start of each permitting cycle.
- 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 three 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 requirements specified 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 sample shall be used to initiate each test. The permittee must initiate the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Collection of the second and third composite samples must be timed so as to permit an approximately equal use distribution of the three composite samples for daily static renewals. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. 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 third composite sample, the permittee must ensure that the second composite sample is of sufficient volume to complete the required testing with daily renewal of effluent. The abbreviated 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 below. The 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 retain each full report pursuant to the records retention provisions of Part III of this permit. The permittee shall also submit to the DEQ Water Quality Division's biomonitoring enforcement coordinator a copy of the full laboratory test reports at TX1 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 reports shall be received no later than the 15th day of the month following the end of the testing period.
- b. A valid test for *Ceriodaphnia dubia* (excluding retests) at TX1 must be reported on the DMR for each reporting period specified in Part I of this permit. DMRs must be received by the 15th day of the month following the end of the testing period. The full report for the test (see Item 4.a above) shall be submitted along with the DMR. If a test is determined to be invalid, the repeat test must be conducted in the coinciding testing period; if the first sample of the repeat test is taken after the last day of the final month in a testing period, the facility will be out of compliance with the reporting period. If monthly retesting is required because of a WET limit permit violation, the monthly DMR will be reported to TX1A. Quarterly testing at TX1Q shall continue; the facility may substitute a monthly test from TX1A for the quarterly report if the test falls within the testing 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 *Ceriodaphnia dubia* [51710] result.
- c. If any test results in anomalous NOEC_L or NOEC_S finding (i.e., it indicates an interrupted dose response across the dilution series), DEQ recommends that the permittee contact the DEQ Water Quality Division's 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 monthly tests, shall be attached to the reporting period DMR for DEQ review.

A test is a <u>REPEAT</u> test if it is performed as the result of a previously invalid test. A test is a <u>RETEST</u> 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 <u>VALID</u> 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.
- (7) Parameter 51710: Report the NOEC value (lowest of lethal and sublethal) for *Ceriodaphnia dubia*.
- e. The permittee shall report the results for all toxicity <u>monthly testing</u> on the DMR(s) for the reporting period in which monthly testing is required, which shall be received no later than the 15th day of the month following the end of the monthly period. Results of all required monthly tests shall be reported under TX1A of the DMR for the reporting period (see Item 4.b above). If the permittee passes three consecutive tests in the six months after the initial failure, the permittee will return to quarterly testing. If the permittee takes the first sample of the monthly test after the last day of the final month in the monthly period, the facility will be out of compliance with the reporting period. The full laboratory report for the WET tests (see Item 4.a above) shall be submitted along with the retest DMR. Should test failures necessitate the continuation of monthly testing 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 monthly testing is not required during a given reporting period, the permittee shall leave these DMR fields blank and DMR TX1A will not be activated.

f. WET 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. *Ceriodaphnia dubia* [51710] on the DMR for the reporting period in accordance with Part III of this permit.

F. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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* (Fathead minnow) in accordance with the WET testing frequencies prescribed in Part I.

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 accredited by DEQ 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 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 replicates with eight 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 Effect Concentration Lethal) 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 Effect Concentration Sublethal) is defined as the greatest effluent dilution at and below which sublethality (toxicity: 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 immediately notify the DEQ Water Quality Division biomonitoring coordinator, and shall provide written notification 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 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 results in an NOEC_L and/or NOEC_s 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 NOEC_S value greater than or equal to the critical dilution, persistent lethality and/or sublethality is <u>not</u> 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 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 Percent Minimum Significant Difference (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 PMSD.

If the above criteria or criteria listed in Item 1.a are 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 for toxicity 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 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 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. In OAC 252:690-3-36, for discharges to a receiving stream classified as intermittent or to a receiving stream with no flow due to zero flow, 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. If the receiving stream has sufficient flow for a sample to be collected, the facility will return to receiving stream water instead of synthetic.

- (2) If the receiving water is unsatisfactory because 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);
 - (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; and
 - (d) the receiving water test must be conducted at the start of each permitting cycle.
- 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 three 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 requirements specified 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 sample shall be used to initiate each test. The permittee must initiate the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Collection of the second and third composite samples must be timed so as to permit an approximately equal use distribution of the three composite samples for daily static renewals. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. 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.
 - (5) If it is anticipated that flow from the outfall being tested may cease prior to collection of the third composite sample, the permittee must ensure that the second composite sample is of sufficient volume to complete the required testing with daily renewal of effluent. The abbreviated 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 below. 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.

Oklahoma City Water Utilities Trust - North Canadian Wastewater Treatment Facility

4. Reporting

- a. The permittee shall retain each full report pursuant to the records retention provisions of Part III of this permit. The permittee shall also submit to the DEQ biomonitoring enforcement coordinator a copy of the full laboratory test reports at TX1 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 reports shall be received no later than the 15th day of the month following the end of the testing period.
- b. A valid test for *Pimephales promelas* (excluding retests) at TX1 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. An electronic DMR and a copy of the lab report must be received by the 15th day of the month following the end of the testing period.

If a test is determined to be invalid, the repeat test must be conducted in the coinciding quarter; if the first sample of the repeat test is taken after the last day of the final month in a testing period, the facility will be out of compliance with the reporting period. If a lethal and/or sublethal test failure is experienced for *Pimephales promelas*, two monthly WET retests are required during the two-month period following the month in which the test failure is experienced.

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 finding (i.e., it indicates an interrupted dose response across the dilution series), DEQ recommends that the permittee contact the DEQ Water Quality Division's 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 <u>REPEAT</u> test if it is performed as the result of a previously invalid test. A test is a <u>RETEST</u> 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 <u>VALID</u> 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 <u>VALID</u> toxicity <u>retests</u> on the DMR(s) for that reporting period.
 - Retest #1 (STORET 22415): If the <u>first</u> monthly retest following failure of a routine test for *P. promelas* results in an NOEC_L and/or NOEC_S less than the critical dilution, report a "1"; otherwise, report a "0".
 - (2) Retest #2 (STORET 22416): If the <u>second</u> monthly retest following failure of a routine test for *P. promelas* results in an NOEC_L and/or NOEC_S 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 received no later than the 15th day of the month at the end of the testing period for 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 once per 6 months (actual testing must occur during the periods June 1 through September 30 and December 1 through March 31) for the approved test specie(s).
- 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 control 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 Tracking Section to update the permit reporting requirements and TX1S will be activated while TX1Q will be deactivated. 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 before the frequency reduction was granted and shall remain for the life of the permit. TX1Q will be reactivated and TX1S will be discontinued for the life of the permit. If the permittee is performing a TRE this section does not apply.

6. Toxicity Reduction Evaluation

a. Within 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 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 stepwise 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 E-mail: <u>orders@ntis.gov</u> (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 E-mail: <u>nscep@bps-lmit.com</u> 1-(800) 490-9198

- (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 to 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 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 TRE Activities no later than 28 months after confirming lethality and/or sublethality in the retests. The final report shall provide information pertaining to the specific control mechanism(s) selected that will, when implemented, result in reduction of effluent toxicity to the level at which there is no significant lethality and/or sublethality at the critical dilution. The final report shall also provide a schedule for implementing the selected control mechanism(s).
 - 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(s) 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).

METALS AND CYANIDE	<u>(µg/L)</u>	EPA METHOD
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

MINIMUM QUANTIFICATION LEVELS (MQL)

Oklahoma City Water Utilities Trust - North Canadian Wastewater Treatment Facility

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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
Phenols, (Total) ¹	10	604
<u>DIOXIN</u>		
2,3,7,8-Tetrachlorodibenzo-	0.00001	1613

P-Dioxin (TCDD)^{2,4}

VOLATILE COMPOUNDS

Acrolein ³	50	624.1
Acrylonitrile ³	50	624.1
Benzene ³	10	624.1
Bromoform ⁴	10	624.1
Carbon Tetrachloride ⁴	10	624.1
Chlorobenzene ⁴	10	624.1

MINIMUM QUANTIFICATION LEVELS (MQL)

Chlorodibromomethane ⁴	10	624.1
Chloroethane	50	624.1
2-Chloroethylvinyl Ether ³	10	624.1
Chloroform ⁴	10	624.1
Dichlorobromomethane ⁴	10	624.1
1,1-Dichloroethane ⁴	10	624.1
1,2-Dichloroethane ⁴	10	624.1
1,1-Dichloroethylene ⁴	10	624.1
1,2-Dichloropropane ⁴	10	624.1
1,3-Dichloropropylene ⁴	10	624.1
Ethylbenzene ⁴	10	624.1
Methyl Bromide [Bromomethane]	50	624.1
Methyl Chloride [Chloromethane]	50	624.1
Methylene Chloride ⁴	20	624.1
1,1,2,2-Tetrachloroethane ⁴	10	624.1
Tetrachloroethylene ⁴	10	624.1
Toluene ⁴	10	624.1
1,2-Trans-Dichloroethylene ⁴	10	624.1
1,1,1-Trichloroethane ⁴	10	624.1
1,1,2-Trichloroethane ⁴	10	624.1
Trichloroethylene ⁴	10	624.1
Vinyl Chloride ⁴	10	624.1

ACID COMPOUNDS

2-Chlorophenol ⁴	20	625.1
2,4-Dichlorophenol ⁴	20	625.1
2,4-Dimethylphenol ¹	20	625.1
4,6-Dinitro-o-Cresol		
[12 methyl 4,6-dinitrophenol] ⁴	50	625.1
2,4-Dinitrophenol ⁴	50	625.1
2-Nitrophenol ⁴	20	625.1
4-Nitrophenol ⁴	50	625.1
p-Chloro-m-cresol		
[4 chloro-3-methylphenol] ¹	20	625.1
Pentachlorophenol ⁴	50	625.1
Phenol ⁴	20	625.1
2,4,6-Trichlorophenol ⁴	20	625.1
BASE/NEUTRAL COMPOUNDS		
Acenaphthene ⁴	20	625.1
Acenaphthylene ⁴	20	625.1
Anthracene ⁴	20	625.1
Benzidine ³	50	625.1
Benzo(a)Anthracene ⁴	20	625.1
Benzo(a)Pyrene ⁴	20	625.1
3,4-Benzofluoranthene ⁴	20	625.1

MINIMUM QUANTIFICATION LEVELS (MQL)

Benzo(ghi)Perylene	20	625.1
Benzo(k)Fluoranthene ⁴	20	625.1
Bis(2-Chloroethoxy) Methane ⁴	20	625.1
Bis(2-Chloroethyl) Ether ⁴	20	625.1
Bis(2-Chloroisopropyl) Ether ⁴	20	625.1
Bis(2-Ethylhexyl) Phthalate ⁴	20	625.1
4-Bromophenyl Phenyl Ether ⁴	20	625.1
Butylbenzyl Phthalate ⁴	20	625.1
2-Chloronapthalene ⁴	20	625.1
4-Chlorophenyl Phenyl Ether ⁴	20	625.1
Chrysene ⁴	20	625.1
Dibenzo (a,h) Anthracene	20	625.1
1,2-Dichlorobenzene ⁴	20	625.1
1,3-Dichlorobenzene ⁴	20	625.1
1,4-Dichlorobenzene ⁴	20	625.1
3,3'-Dichlorobenzidine	20	625.1
Diethyl Phthalate ⁴	20	625.1
Dimethyl Phthalate ⁴	20	625.1
Di-n-butyl Phthalate ⁴	20	625.1
2,4-Dinitrotoluene ⁴	20	625.1
2,6-Dinitrotoluene ⁴	20	625.1
Di-n-octyl Phthalate ⁴	20	625.1

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1,2-Diphenylhydrazine ³	20	625.1
Fluoranthene ⁴	20	625.1
Fluorene ⁴	20	625.1
Hexachlorobenzene ⁴	10	625.1
Hexachlorobutadiene ⁴	20	625.1
Hexachlorocyclopentadiene ⁴	20	625.1
Hexachloroethane	20	625.1
Indeno (1,2,3-cd) Pyrene	20	625.1
(2.3-o-phenylene pyrene)		
Isophorone ⁴	20	625.1
Naphthalene ⁴	10	625.1
Nitrobenzene ⁴	20	625.1
N-nitrosodimethylamine	50	625.1
N-nitrosodi-n-propylamine	20	625.1
N-nitrosodiphenylamine	20	625.1
Phenanthrene ⁴	20	625.1
Pyrene ⁴	20	625.1
1,2,4-Trichlorobenzene ⁴	20	625.1
PESTICIDES		
Aldrin ¹	0.05	608.3
Alpha-BHC ¹	0.05	608.3

MINIMUM QUANTIFICATION LEVELS (MQL)

0.05	609
0.05	608.3
0.05	608.3
0.2	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.05	608.3
0.25	608.3
0.25	608.3
0.25	608.3
0.25	608.3
0.25	608.3
	0.05 0.05 0.05 0.2 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.25 0.25 0.25 0.25 0.25

PCB-1260	0.25	609
PCB-1016	0.25	608.3
PCB, total	0.25	608.3
Toxaphene ¹	0.3	608.3

¹Based on Contract Required Quantitation Level (CRQL) developed pursuant to 40 CFR Part 122
²Dioxin National Strategy
³No CRQL ("Contract Required Quantification Level" developed pursuant to 40 CFR Part 122)
⁴ CRQL basis, equivalent to MQL

Note: MQL is based on 3.3 times the Limit of Detection (LOD) or the Method Detection Level (MDL).

Methods/MQL List modified 6/20/08

FACT SHEET

(Draft of December 27, 2023)

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

OPDES Permit Number:	OK0036978
Permit to Supply Reclaimed Water Number:	RW19-002
Reclaimed Water User ID Number:	RWID21-004
Facility ID Number:	S20580
Applicant:	Oklahoma City Water Utilities Trust 420 W Main St., Suite 500 Oklahoma City, OK 73102
Issuing Office:	Oklahoma Department of Environmental Quality Water Quality Division 707 North Robinson Ave P.O. Box 1677 Oklahoma City, Oklahoma 73101-1677
Prepared By:	Ismat Esrar, P.E. Municipal Discharge and Stormwater Permits Section Water Quality Division
Date Prepared:	December 27, 2023
Reviewed By:	Michael B. Moe, P.E., Manager Municipal Discharge and Stormwater Permits Section Water Quality Division
	Patrick Rosch, P.E., Manager Municipal 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(1), 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 of the Code of Federal Regulations. Citations to OAC 252 refer to promulgated regulations listed at Titles 252, Oklahoma Administrative Code.

I. PERMITTING BACKGROUND

A. CHRONOLOGY OF PERMITTING ACTIVITIES

The following is a chronology of permitting activities since issuance of the previous Oklahoma Pollutant Discharge Elimination System (OPDES) permit:

Month Date, Year:	Public Notice of Draft published by facility.
Month Date, Year:	Public Notice of Draft published by DEQ.
Month Date, Year:	Draft permit package sent to applicant for public notice review.
April 24, 2024:	Response to comments emailed to the applicant.
April 19, 2024:	EPA no objection letter received.
April 9, 2024:	Comments received from applicant on draft permit.
March 21, 2024:	Draft permit package sent to EPA for review.
March 21, 2024	Draft permit package sent to applicant for courtesy review.
July 19, 2023:	Additional information received from the applicant.
June 14, 2023:	Additional information received from the applicant.
May 19, 2023:	Additional information received from the applicant.
March 17, 2023:	Request for additional information sent to applicant.
March 15, 2023:	Site visit conducted.
July 12, 2022:	Request for additional analytical information sent to applicant.
December 1, 2021:	Additional analytical information received from applicant.
November 30, 2021:	Scheduled expiration date of previous OPDES permit; permit administratively continued.
October 22, 2021:	Request for additional analytical information sent to applicant.
August 5, 2021:	Administrative review of permit application completed.
June 21, 2021:	Received certified copy of the notice of filing.
June 16, 2021:	Notice of incomplete application sent to applicant.
May 6, 2021:	OPDES permit application (Form 2M1) received.
October 3, 2016:	Previous OPDES permit issued.

B. PROPOSED PERMITTING ACTION

It is proposed that the OPDES Permit Number OK0036978, which was effective December 1, 2016, and for which application for renewal was timely submitted prior to permit expiration date, be reissued; and that the permit to supply reclaimed which was included in the previous OPDES Permit Number OK0036978 and which was subsequently assigned Permit Number RW19-002 be reissued and combined with the discharge permit for a five-year term in accordance with the regulations promulgated at 40 CFR § 122.46(a), OAC 252:606-1-3(b), and OAC 252:627-1-3(d).

II. APPLICANT ACTIVITY

A. DESCRIPTION AND LOCATION OF FACILITY

The North Canadian Wastewater Treatment Facility (WWTF), which is owned and operated by the Oklahoma City Water Utilities Trust (OCWUT), is located at 12800 N Anderson Road, Jones, Oklahoma, 73049, or in the SW¹/₄ of the Section 16, Township 13 North, Range 1 West, Indian Meridian (IM), Oklahoma County, Oklahoma. Under the standard industrial classification (SIC) code 4952 or the North American Industrial Classification System (NAICS) code 221320, this facility provides biological treatment of domestic sewage for the City of Oklahoma City.

Fact Sheet

B. WASTEWATER GENERATION AND TREATMENT

1. Treatment Plant

a. Wastewater

The facility's design average daily flow of 80.0 million gallons per day (mgd) is the same design average daily flow specified in Oklahoma's Water Quality Management Plan (WQMP). The WWTF consists of three major wastewater treatment systems referred to as Phase I, Phase II, and Phase III (A&B), which have similar, but different-sized, equipment.

Due to extended detention times in the collection system, peroxide catalyst is added to the influent wastestream for odor control in a junction box just north of Phase I. From there the flow is split between the two wastewater treatment systems referred to as Phase I and Phase II. Phase I was upgraded in 2004 using submersible lift pumps whereas Phase II has retained the original screw lift pump design. Once the wastewater is lifted, it goes through mechanical bar screens followed by grit removal in each system. The primary treatment of the wastestream takes place in primary clarifiers. A few primary clarifiers are covered with fiberglass domes to assist in controlling the odor. Secondary and tertiary treatment occur through biological treatment of the wastestream is treated further by settlement in secondary clarifiers. After allowing for sufficient contact time with chlorine gas in the Phase I and Phase II disinfection basins, excess chlorine is removed by use of sulfur dioxide.

The facility uses the Phase III (A&B) system to treat extremely high flows. During high flow conditions, wastewater is pumped from the FEB to one (or both) of the aeration basins. These are basins converted from aerobic sludge digestors to aeration basins. These aeration basins run independent of one another. Each basin has 2 clarifiers, the wastewater leaves the aeration basins and goes to the 2 clarifiers. Wastewater leaving the clarifiers over the weirs goes to the main plant's contact basin that also contains flow from Phase I for disinfection.

The facility occasionally diverts part of the treated effluent from each phase (before flow measurement) to a storage tank to use as non-potable reclaimed water for fire hydrants, belt presses, bar screen cleaning, etc. Water reuse of reclaimed water within the WWTF is considered as Category 6, which does not require a permit to supply. Any unused treated effluent in the storage tank is pumped to a common junction box to combine with the treated effluent from Phase I – III (A&B). The combined effluent is then carried by a common 8-foot diameter pipe to the North Canadian River to discharge through Outfall 001.

Effluent flow measurement is accomplished utilizing an ultrasonic flow metering device positioned over an 84-inch Cipoletti trapezoidal weir and two 72-inch Parshall flumes; one located on the discharge of the filter facility or on one of the two chlorine contact basins. An auto-sampler is located near Outfall 001 with the capability of composite sampling. All grab samples are also collected at the Outfall 001.

b. Biosolids/Sludge

The biosolids/sewage sludge generated by the facility are mixed in sludge holding tanks where sludge is conditioned with polymer prior to being dewatered by four belt presses. Lime is added for stabilization and pH correction to produce Class B biosolids, which is then land applied on approximately 13,000 acres of land owned by the City of Oklahoma City or on privately-owned pasture acreage through agreements with the individual landowners. The location of the biosolids/sewage sludge application sites are detailed in Section V.F of the fact sheet. The biosolids/sewage sludge is
land applied in accordance with Sludge Management Plan (SMP) No. 3555023, approved by DEQ in December 1995.

2. Industrial Contributions

The facility receives significant industrial wastewaters from several industries and has implemented an Industrial Pretreatment Program in accordance with Section 402(b)(8) of the Clean Water Act (CWA) and the general pretreatment regulations pursuant to 40 CFR Part 403.

3. Reclaimed Water for Water Reuse

The facility supplies Category 3 reclaimed water in accordance with OAC 252:627 and after complete treatment through the WWTF to the Oklahoma Gas and Electric Company (OG&E) Redbud Energy Plant for reuse in industrial cooling towers, filtered fire suppression, evaporative cooling, and water processing for steam generation. Reclaimed water is chlorinated at the WWTF and then pumped over nine miles to the OG&E Redbud Energy Plant, where it is stored in an above-ground tank, known as the Grey Water Tank, where sodium hypochlorite is added. Water is pumped from this tank to two destinations. One stream goes to the cooling towers, where it is re-chlorinated and cycled four times before being discharged to the OCWUT wastewater collection system, which carries it back to the North Canadian WWTF. The other stream flows to the pre-mix tank, where a polymer is added for coagulation. This water then goes through the primary filters (gravel, garnet, sand, anthracite) and the filtrate is stored in the Fire Water Tank. Sodium hypochlorite is added to the filtrate in the line prior to it entering the Fire Water Tank. Reclaimed water leaving this tank now meets Category 2 treatment requirements. This Category 2 reclaimed water is then dispersed to the Air Inlet coolers for the Combustion Gas Turbines 1-4, the Secondary Filters (multimedia), and to the fire suppression system, as needed. The North Canadian WWTF supplies an average of 4.7 mgd reclaimed water, but the user agreement between OCWUT and OG&E allows for up to 11 mgd.

The OCWUT also supplies Category 6 reclaimed water after complete treatment in accordance with OAC 252:627 for various uses within the WWTF itself. Irrigation is not an allowable reuse under the Category 6 use of reclaimed water. The location and the other related information of the water reuse site R01 are available in Section VIII.C.1 of this fact sheet. Category 6 water reuse does not require a permit to supply and is included here for informational purposes only.

III. DISCHARGE INFORMATION

A. DISCHARGE LOCATION

The facility discharges through Outfall 001, which is a bankside discharge from an 8-foot diameter pipe through a concrete headwall into a perennial stream. The physical location of the outfall and the point designated for sampling are shown in the table below:

	Location								
	General Location	Legal Description	Latitude	Longitude	Stream				
Outfall 001 (physical location)	Approximately 200 feet southeast of the Phase II chlorine contact basin	NW ¹ /4, SE ¹ /4, SW ¹ /4	35° 35' 49.480" N (GPS: NAD83 ^a)	97° 18' 46.417" W (GPS: NAD83 ^a)	Norrth Canadian River				
Sampling Point	DO, pH, TRC, and <i>E. coli</i> : at the Outfall 001 <u>All Others</u> : at the auto- sampler	North, Range 1 West, IM Oklahoma County	35° 24' 50.011" N (GPS: NAD83 ^a)	97° 18' 47.010" W (GPS: NAD83 ^a)					

Sampling Point and Outfall Location

^a The North American Datum of 1983 or NAD83.

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B. DISCHARGE CHARACTERISTICS

1. Priority and Other Pollutants

The previous permit had effluent limitations for selenium. Discharge Monitoring Reports (DMRs) submitted to DEQ by the facility show that the facility is in compliance with permit limits for selenium. Because neither the discharge flow, nor the receiving stream's low flow, nor the Water Quality Standards for selenium has changed, re-evaluation of selenium limits is not needed. The limits for selenium will remain in the draft permit.

Data for the priority and other pollutants present in the facility's effluent at measurable levels is summarized in the following table:

	Number of		Concentration			
	Samples (N)	MQL *	Average	Maximum		
Arsenic, total	1	0.5	2.0	2.0		
Copper, total	1	1.0	2.0	2.0		
Zinc, total	1	20.0	40.0	40.0		
Chloride, mg/L	3	10.0	126.0	135.0		
Sulfate, mg/L	4	10.0	123.3	134.0		
Dissolved solids, total (TDS), mg/L	3	10.0	525.6	630.0		

Priority and Other Pollutants (Outfall 001)

(Concentration in μ g/L, unless otherwise specified)

^a Minimum Quantification Level (MQL) is the lowest concentration at which a particular substance can be quantitatively measured. MQL of different priority pollutants are listed in Table B-1 of Appendix-B, OAC 252:690.

2. Biomonitoring Summary

A summary of biomonitoring or whole effluent toxicity (WET) testing data is provided in Section V.D.1.f(2).

IV. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

POTWs treating domestic sewage are required by 40 CFR Part 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 Oklahoma'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 North Canadian WWTF 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

A weekly average effluent concentration of 45 mg/L

Total Suspended Solids (TSS)

A monthly average effluent concentration of 30 mg/L

A weekly average effluent concentration of 45 mg/L

pН

A pH range between 6.5 and 9.0 standard units, inclusive.

For an influent wastestream 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 follows 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's Water Quality Standards (OWQS) in OAC 252:730 and implementation of OWQS contained in OAC 252:690 and OAC 252:740 promulgated by DEQ. This is to ensure that no point-source discharge results in instream aquatic toxicity, a violation of applicable narrative or numerical water quality standards, or aquatic bioaccumulation which threatens human health.

B. RECEIVING STREAM DESIGNATED USES AND ANTIDEGRADATION PROVISIONS

The facility discharges through Outfall 001 into the North Canadian River, waterbody identification (WBID) # OK520520000010_10 in segment 520520 of the Canadian River Basin. This stream segment of the North Canadian River is not listed in Appendix A of the OWQS. Therefore, default designations of the surface water have been used pursuant to OAC 252:730-5-3(a). The default designated beneficial uses of the North Canadian River of this stream segment are:

- Fish and Wildlife Propagation (OAC 252:730-5-12)/Warm Water Aquatic Community
- Agriculture (OAC 252:730-5-13)
- Primary Body Contact Recreation (OAC 252:730-5-16)
- Aesthetics (OAC 252:730-5-19)
- Fish Consumption (OAC 252:730-5-20)

The North Canadian 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. The segment 520520 in which the North Canadian River lies is designated in Table 1 of Appendix B of the OWQS as an area of ecological and/or recreational significance. However, this 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. 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 ecological and/or recreational significanc.

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 to exceed any of the criteria. The screens are performed in accordance with the OWQS, OWQS implementation criteria in OAC 252:690 and OAC 252:740, and the Continuing Planning Process (CPP) document. In the reasonable potential 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 252:740. The computed instream concentrations are then compared with the applicable criteria to determine whether reasonable potential is exhibited. If reasonable potential 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 reasonable potential 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 252:740. 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 average flow rate. The flow rate used must be consistent with that in the WQMP. The design average flow rate specified in the permit application and the approved design flow for this facility in the WQMP is **80.0** 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 United States Geological Survey (USGS) publication, <u>Statistical Summaries of Streamflow in and near Oklahoma Through 2007</u> 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 or USGS 7Q2 data is not available or the applicant has not developed a site-specific 7Q2, a default value of 1 cubic foot per second (cfs) or 0.6463 mgd is assumed.
- $Q_{u(LTA)}$ Upstream long-term average (LTA) flow rate. This is the mean annual flow of the receiving stream. Where flow data published in the USGS publication, <u>Statistical Summaries of Streamflow in and near Oklahoma Through 2007</u> by John M. Lewis and Rachel A. Esralew (<u>http://pubs.usgs.gov/sir/2009/5135/</u>), 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 (STA) flow rate. This flow rate, used only in the sample standard (SS) agriculture screen, is a function of $Q_{u(LTA)}$. The equation is $Q_{u(STA)} = 0.68 \text{ x}$ $Q_{u(LTA)}$.

Upstream flows for this facility are based on published data for USGS gauging station 07241520, located on the North Canadian River at Britton Road in Oklahoma City, approximately 9 miles upstream of the facility's point of discharge (POD). Based on the gauging station data, the upstream

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annual 7-day, 2-year low flow of the receiving stream $Q_{u(7Q2)}$ is 39.0 cfs or 25.21 mgd and the longterm average annual flow of the receiving stream at the gauging station $Q_{u(LTA)}$ is 472.0 cfs or 305.05 mgd. As shown in the following table, $Q_{u(LTA)}$ is adjusted to the POD by multiplying the mean annual runoff per unit area (0.20 cfs/mi²) by the stream's contributing drainage area between the gauging station and the POD (17.0 mi²), and adding this value with the $Q_{u(LTA)}$ at the gauging station.

Upstream Regulatory Flows (Stream flow in mgd)

Stream Flow	Qu(7Q2)	Q _{u(LTA)}	Q _{u(STA)} ^a
Canadian River at Gauging Station 07228500	25.21	305.05	
Add contributing drainage area between the gauging station and the POD		0.20 × 17 x 0.6463 = 2.2	
Upstream flow at POD	25.21	307.25	208.93

^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* Ratio	Corresponding Water Quality Screens	Implementation Reference	Value	
0 /0	Type of WET Testing	OAC 252:690-3-31	2 1722	
Qe(D) / Qu(7Q2)	Chronic Toxicity	Implementation Reference OAC 252:690-3-31 OAC 252:690-3-53(1)(B) OAC 252:690-3-66(2) OAC 252:690-3-66(2) OAC 252:690-3-73(2) OAC 252:690-3-81(1)(B) OAC 252:690-3-81(2)(B)	3.1/33	
	Human Health/Fish Flesh	OAC 252:690-3-66(2)		
	Human Health/Fish Flesh and Water	OAC 252(600, 2, 72(2))	0.2604	
Qe(D) / Qu(LTA)	Raw Water	uality ScreensImplementation ReferenceestingOAC 252:690-3-31eityOAC 252:690-3-53(1)(B)h FleshOAC 252:690-3-66(2)sh and WaterOAC 252:690-3-73(2)an StandardOAC 252:690-3-81(1)(B)StandardOAC 252:690-3-81(2)(B)	0.2004	
Qe(D) / Qu(LTA) Human Health/Fish Flesh Human Health/Fish Flesh and Water Raw Water 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)	0.3829	

Q* Values (Outfall 001)

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).

C₉₅ 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:

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

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

In the above equations, $ln(x)_{avg}$ represents the arithmetic average of the set of logtransformed data points, and $s_{ln}(x)$ represents the standard deviation of the set of logtransformed 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 DEQ will use $\frac{1}{2}$ 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:

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

If only a single effluent data point is available, it is $C_{E(mean)}$ for the purpose of determining C₉₅. In accordance with OAC 252:690-3-2(1), DEQ will use $\frac{1}{2}$ 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 <u>Technical Support Document for Water Quality-Based Toxics Control</u>, 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:

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

where z_N is the upper kth percentile of the normal distribution, $k = 0.05^{1/N}$ (for the 95% confidence level), and coefficient of variance (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:

Ν	1	2	3	4	5	6	7	8	9
ZN	-1.645	-0.760	-0.336	-0.068	0.124	0.272	0.390	0.489	0.574
RPF95(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 may be determined according to the following equation.

$$CV = \frac{S_x}{C_{avg}}$$

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:

(concentrations in $\mu g/L$, unless otherwise specified)								
Effluent Characteristic	Number of Data	MOL		Concer	ntration		CV ^a	
	Points (N)	oints (N)		C ₉₅	C_{max}	C _{95(M)}		
Arsenic, total	1	0.5	2.0	4.27	2.0	12.4		
Copper, total	1	1.0	2.0	4.27	2.0	12.4		
Zinc, total	1	20.0	40.0	85.4	40.0	248.0		
Chloride, mg/L	3	10.0	126.00	269.0	135.0	405.0		
Sulfate, mg/L	4	10.0	123.3	263.1	134.0	346.4		

C_{mean}, C_{max}, C₉₅, C_{95(M)}, and CV Values for Quantifiable Pollutants (Outfall 001) (Concentrations in µg/L, unless otherwise specified)

A 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).

525.6

1122.2

630.00

1890.0

10.0

d. Pollutant Background Concentrations

TDS, mg/L

 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 the 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 of OAC 252:730 according to the equation C-11 available in Appendix C of OAC 252:690: $C_b = 2 \times YMS - SS$.

Background concentrations of different pollutants are described in the following table:

3

Dollutont	Number of	Background	Data
Fonutant	Data Points (N)	Concentration (C _b)	Source
Arsenic, total		Assumed zero ^a	
Copper, total		Assumed zero ^a	
Zinc, total		Assumed zero ^a	
Chloride, mg/L		229.0	Calculated ^b
Sulfate, mg/L		170.0	Calculated ^b
TDS, mg/L		869.0	Calculated ^b

Background Concentrations of Pollutants Present in Effluent (Outfall 001)

(Concentration in µg/L, unless otherwise specified)

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 segmentaveraged YMS and SS criteria in accordance with OAC 252:690-3-16(a). For chloride, $C_b = 2 \times 335 - 441 = 229 \text{ mg/L}$, for sulfate, $C_b = 2 \times 224 - 278 = 170 \text{ mg/L}$, and for TDS, $C_b = 2 \times 1196 - 1523 = 869 \text{ mg/L}$.

e. Other Applicable Terminology

C_{criterion} 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 252:740-5-8, 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 252:740, Appendix B, is used. Where a specific pollutant screen exhibits reasonable potential, C_{criterion} is used to calculate the wasteload allocation (WLA). Criteria applicable to Outfall 001 are as follows:

Fish and wildlife propagation (F&WP/WWAC) use

C _A :	Acute	toxicity	criterion
$\mathbf{C}_{\mathbf{A}}$.	ricute	toxicity	enterion

C_C: Chronic toxicity criterion

Fish consumption use

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

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 252:730-5-12(f)(1) requires that where dissolved oxygen (DO)-demanding substances are present in an effluent at significant levels, a 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 of this fact sheet) is modeled to determine if it meets the 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 WQMP. The current WLA for DO-demanding substances for this facility at a design average flow of 80.00 mgd is shown in the following table:

DO-Based WLA (Outfall 001)

(Concentration in mg/L, unless otherwise specified)

Season	Level of		WLA Pa	rameters	
	Treatment	BOD ₅	TSS	NH ₃ -N	DO
Year round	Tertiary	10	10	2.0	5.0

The WLA for a particular discharge is dependent on several factors such as the outfall location of the facility, stream critical low flows, the available dilution or mixing zone, water quality criteria, discharge flows and background conditions of the receiving water. This WLA was established in 1989 and several factors related to the WLA have changed since then. If and when a revised WLA is approved and finalized, it will be incorporated in the next permit renewal.

For purposes of establishing permit limitations for DO-demanding substances, the seasonal monthly average limit 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 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 252:730-5-12(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 252:730-5-12(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 252:740-3-1(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." The requirement of OAC 252:740-3-1(c) for dehalogenation is typically implemented as "no measurable amount" in the effluent in accordance with OAC 252:690-3-28. "No measurable amount" is defined by DEQ to be < 0.1 mg/L for halogenated oxidants.

e. Ammonia Toxicity (Outfall 001)

(1) Criterion and Implementation

Interim implementation for controlling ammonia toxicity is described in OAC 252:690 and OAC 252:740 and. OAC 252:740-5-3(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_{NH3} =
$$6\left(\frac{1+Q^*}{1.94Q^*}\right)$$
, for Q* ≤ 0.1823 .

WLA_{NH3} = 6 mg/l, for $Q^* \ge 0.3333$.

 Q^* for this application is 0.5671, so the third equation is used. Thus, $WLA_{NH3} = 6.00 \text{ mg/L}$. WLA_{NH3} is a short-term value and must be converted to a long-term average for development of permit limits. LTA_{NH3} is calculated on a 99% probability basis, and the equation is as follows:

$$LTA_{NH3} = WLA_{NH3} \times EXP\left(0.5 \ln\left(1 + \frac{CV^2}{4}\right) - 2.326\left(\ln\left(1 + \frac{CV^2}{4}\right)\right)^{0.5}\right),$$

where a CV value of 0.6 is assumed. Thus, $LTA_{NH3} = 3.16 \text{ mg/L}$.

(b) Permit Limits

The toxicity-based monthly average limit (MAL_{NH3}) is calculated on a 95% probability basis, and the daily maximum limit (DML_{NH3}) is calculated on a 99% probability basis. The monitoring frequency basis is 3 per week (or 12 per month). The limits equations are as follows:

$$MAL_{NH3} = LTA_{NH3} \times EXP\left(1.645\left(\ln\left(1 + \frac{CV^2}{N_m}\right)\right)^{0.5} - 0.5\ln\left(1 + \frac{CV^2}{N_m}\right)\right),$$

where N_m is the per month monitoring frequency.

Thus, based on
$$N_m = 12$$
, MAL_{NH3} = 4.14 mg/L.

$$DML_{NH3} = LTA_{NH3} \times EXP(2.326(\ln(1+CV^2))^{0.5} - 0.5\ln(1+CV^2))$$

Thus, $DML_{NH3} = 9.86 \text{ mg/L}$.

(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

(Concentration in mg/L, unless otherwise specified)

	Spring (Apr 1 – May 31)			Summer (Jun 1 – Oct 31)			Winter (Nov 1 – Mar 31)		
Type of Limit	Monthly	Weekly	Daily	Monthly	Weekly	Daily	Monthly	Weekly	Daily
	Average	Average	Maximum	Average	Average	Maximum	Average	Average	Maximum
DO-Based	2.0	3.0		2.0	3.0		2.0	3.0	
Toxicity-Based	4.14		9.86	4.14		9.86	4.14		9.86
Draft Permit	2.0	3.0		2.0	3.0		2.0	3.0	

From the table, the more stringent DO-based ammonia limits will continue to remain in the permit.

(4) Performance-Based Ammonia Monitoring Frequency Reduction

Not applicable.

f. Whole Effluent Toxicity Testing (Outfall 001)

(1) Criterion and Implementation

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 252:730-5-12(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 252:740, 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* (*D. pulex* for acute testing) or *Ceriodaphnia dubia* (*C. dubia* for chronic testing).

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(2) WET Testing Historical Summary

The previous permit required chronic WET testing of both the *C. dubia* and fathead minnow species on a quarterly basis. The previous permit used a 7Q2 flow of only 25.2 mgd for the North Canadian River upstream of the North Canadian wastewater treatment facility's POD, which resulted in a Q* value >0.3333. The critical dilution was 100% and a 0.75 dilution series was used. In the following summary table, where a test failed, or would have failed under current test failure criteria, the No Observed Effect Concentrations (NOEC, NOEC_L for lethal effects and NOEC_S for sublethal effects) are shown <u>underlined in bold face</u>.

Cerioo	Ceriodaphnia dubia			Pimephales Promelas			
Date	NOECL	NOECs	WET Limit ^a	Date	NOECL	NOECs	WET Limit
	TX1Q				TX1Q		
12/1/16 to 2/28/17	100%	100%	100%	12/1/16 to 2/28/17	100%	100%	n/a
3/1/17 to 5/31/17	100%	100%	100%	3/1/17 to 5/31/17	100%	100%	n/a
6/1/17 to 8/31/17	100%	100%	100%	6/1/17 to 8/31/17	100%	100%	n/a
9/1/17 to 11/30/17	100%	100%	100%	9/1/17 to 11/30/17	100%	100%	n/a
12/1/17 to 2/28/18	100%	100%	100%	12/1/17 to 2/28/18	100%	100%	n/a
3/1/18 to 5/31/18	100%	100%	100%	3/1/18 to 5/31/18	100%	100%	n/a
6/1/18 to 8/31/18	100%	100%	100%	6/1/18 to 8/31/18	100%	100%	n/a
9/1/18 to 11/30/18	100%	100%	100%	9/1/18 to 11/30/18	100%	100%	n/a
12/1/18 to 2/28/19	100%	100%	100%	12/1/18 to 2/28/19	100%	100%	n/a
3/1/19 to 5/31/19	100%	100%	100%	3/1/19 to 5/31/19	100%	100%	n/a
6/1/19 to 8/31/19	100%	100%	100%	6/1/19 to 8/31/19	100%	100%	n/a
9/1/19 to 11/30/19	100%	100%	100%	9/1/19 to 11/30/19	100%	100%	n/a
12/1/19 to 2/28/20	100%	100%	100%	12/1/19 to 2/28/20	100%	100%	n/a
1/1/20 ° to 3/31/20	100%	100%	100%		TX1-S		
3/1/20 to 5/31/20	100%	100%	100%	12/1/19 to 5/31/20	100%	100%	n/a
6/1/20 ° to 8/31/20	100%	100%	100%	1/1/20 ^b to 6/20/20	100%	100%	n/a
7/1/20 ° to 9/30/20	100%	100%	100%	7/1/20 to 12/31/20	100%	100%	n/a
10/1/20 to 12/31/20	100%	100%	100%	1/1/21 to 6/30/21	100%	100%	n/a
1/1/21 to 3/31/21	100%	100%	100%	7/1/21 to 12/31/21	100%	100%	n/a
4/1/21 to 6/30/21	100%	100%	100%	1/1/22 to 6/30/22	100%	100%	n/a
7/1/21 to 9/30/21	100%	100%	100%	7/1/22 to 12/31/22	100%	100%	n/a
10/2/21 to 12/31/21	100%	100%	100%	1/1/23 to 6/30/23	100%	100%	n/a
1/1/22 to 3/31/22	100%	100%	100%	7/1/23 to 12/31/23	100%	100%	n/a
4/1/22 to 6/30/22	100%	100%	100%				
7/1/22 to 9/30/22	100%	100%	100%				
10/1/22 to 12/31/22	100%	100%	100%				
1/1/23 to 3/31/23	100%	100%	100%				
4/1/23 to 6/30/23	75%	<u>32%</u>	<u>32%</u>				
May Retest	100%	100%	100%				

Summary of Chronic WET Test Results by Species (December 2016 through June 2023)

June Retest	100%	100%	100%		
July Retest	100%	100%	100%		
7/1/23 to 9/30/23	100%	100%	100%		
10/1/23 to 12/31/23	100%	100%	100%		

^a There was a WET Limit for *C. dubia* during this permit cycle.

^b Test frequency reduction for fathead minnows effective 1/1/20.

^c Switched to calendar quarters 1/1/20. 7/21/20 test reported for 6-8/20 & 7-9/20.

(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 252:740-3-5 and cited by reference in OAC 252:690-3-18, RP exists whenever persistent lethality is demonstrated. In addition, the OAC 252:740-3-5 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. In accordance with OAC 252:690-3-19(b) 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

The above summary of WET testing results since the effective date of the previous permit shows that the facility had WET limits for *C. dubia* and WET testing for fathead minnow. The facility failed the WET limit during the 4/1/23 to 6/30/23 quarter, but had no lethal or sublethal failure of fathead minnow during the previous permit cycle. Therefore, no RP to fathead minnow is demonstrated and no further action is required for this species. The previous permit had quarterly WET limits for *C. dubia* and quarterly biomonitoring for fathead minnow and these quarterly WET limits for *C. dubia* and quarterly biomonitoring for fathead minnow will be continued in the draft permit.

(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 $0.054 \le Q^* \le 0.3333$, both acute and chronic testing are required.

Since Q* is 3.1733, 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:

$$CCD = 100 \times \frac{1.94 \, Q^*}{(1+Q^*)}, \text{ where } Q^* \le 0.1823.$$
$$CCD = 100 \times \frac{1}{(6.17 - 15.51 \, Q^*)}, \text{ where } 0.1823 < Q^* < 0.3333$$

CCD = 100, where $Q^* \ge 0.3333$.

Since Q^* for this application is 3.1733, the last equation is used, and the CCD calculates to a value of 100%.

(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 each type test are as follows (critical dilutions are shown <u>underlined in bold face</u>):

Chronic test: <u>100%</u>, 75%, 56%, 42%, and 32%, plus a dilution water control.

(d) Frequency of Chronic WET Testing

In accordance with OAC 252:690-3-41, the permittee shall continue to conduct quarterly testing of both test species. Since there is no failure of fathead minnows during the previous permitting cycle, DEQ has established a WET testing trial period of one year for this species. After completion of the stated trial period, the permittee may request for a reduction in the frequency of WET testing for fathead minnows in accordance with OAC 252:690-3-42(2).

In accordance with OAC 252:690-3-42(4), reductions in WET limit testing frequency are not allowed. Therefore, the *C. dubia* species is not eligible for frequency reduction.

(e) Concurrent Testing Requirements

Pursuant to OAC 252:690-3.-25, the draft permit will include a provision for concurrent testing of ammonia as N 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 *daphnid* testing.

2. Aquatic Toxicity, Human Health and Raw Water 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 252:730-5-12(f)(6)(G) and are implemented according to procedures in OAC 252:740, 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 Canadian River

Effluent	Acute Toxicity Criter	ia	Chronic Toxicity Criteria		
Characteristic	Equation	Value ^a	Equation	Value ^a	
Copper, total	$C_{acute} = e^{(0.9422 (\ln (hardness)) - 1.3844)}$	61.48	$C_{chronic} = e^{(0.8545 (ln (hardness)) - 1.386)}$	36.78	
Zinc, total	$C_{acute} = e^{(0.8473 (ln (hardness)) + 0.884)}$	341.30	N/A		

(Concentrations in μ g/L, unless otherwise specified)

^a Based on a segment-averaged receiving water hardness of 344.00 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 252:730-5-20(b) and Publication No. EPA 822-Z-99-001, respectively, and are implemented according to the procedures in OAC 252:740, Subchapter 7, OAC 252:690-3-64 through 3-70, and Chapter 3 of the CPP.

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

OWQS raw water criteria and criteria for the protection of human health for the consumption of fish flesh and water are specified at OAC 252:730-5-10(1) and OAC 252:740-5-10(6), respectively, and are implemented according to the procedures in OAC 252:740, 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 252:730, Appendix A, for the Public and Private Water Supply (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 001)

For determining whether there is reasonable potential to exceed <u>acute</u> toxicity numerical criteria for discharges to streams, OAC 252:740-5-3(b)(2) defines a pollutant's concentration at the edge of the acute regulatory mixing zone (C_d) as:

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

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(a)(1), as follows:

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

For determining whether there is reasonable potential to exceed <u>chronic</u> toxicity numerical criteria, OAC 252:740-5-3(b)(2) defines a pollutant's maximum concentration at the boundary of the chronic regulatory mixing zone (C_d) as:

$$C_{d} = C_{b} + 1.94 Q^{*} \frac{(C_{95} - C_{b})}{(1 + Q^{*})}$$
, for Q* ≤ 0.1823

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

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

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(a)(1), as follows:

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

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 $WLA_{c} = C_{b} + (6.17 - 15.51 \, Q^{*})(C_{c} - C_{b})$, for $0.1823 < Q^{*} < 0.3333$

WLA_C = C_C, for Q* \geq 0.3333

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

OAC 252:740-7-3(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 uses the above equation.

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 and Human Health – Public and Private Water Supply Use (Outfall 001)

The receiving stream is not listed for PPWS; therefore, these criteria are not applicable in this permit.

(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 $Q_{e(D)} = 3.0 \text{ mgd}$, 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.

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Effluent	Effluent Acute Toxicity				Chronic Toxicity				
Characteristic	C_d	CA	$C_d > C_A?$	WLAA	C_d	C _C	$C_d > C_C?$	WLA _C	
Arsenic, total	4.27	340.0	No		4.27	150.0	No		
Copper, total	4.27	61.48	No		4.27	36.79	No		
Zinc, total	85.40	341.30	No				N/A		

Results of Acute and Chronic Toxicity Screens (Outfall 001)

(Concentrations in µg/L unless otherwise specified)

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

Results of the OWQS and NRWQC human health/fish flesh screens for Outfall 001, using $Q^* = 0.0121$, 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 OWQS and NRWQC Human Health/Fish Flesh Screens (Outfall 001)

	State Hun	nan Healtl	n/Fish Fles	NRWQC Criteria			
Effluent Characteristic	C_d	\mathbf{C}_{FF}	$C_d > C_{FF}?$	WLA _{FF}	C_d	C _{NRWQC}	$C_d > C_{NRWQC}?$
Arsenic, total	0.88	205.0	No				

(Concentrations in µg/L unless otherwise specified)

In accordance with OAC 252:690-3-68, when instream concentration exceeds NRWQC criteria and there are no applicable state criteria for the pollutant, effluent monitoring sufficient to provide at least 10 data points over a three month to one year period is required in the permit rather than effluent limitations. Instream concentration exceeds NRWQC criteria in the previous permit and the facility collected 10 data points. RP calculation ensued the same result. Based on the BPJ of the permit writer, no additional monitoring of manganese is required in the draft permit.

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

The receiving stream is not listed for PPWS; therefore, these criteria are not applicable in this permit.

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

a. General

Yearly mean standard (YMS) and sample standard (SS) criteria for surface waters designated for the agriculture use are described in OAC 252:730-5-13 and Appendix F thereto. Both sets of numerical criteria are implemented according to the screening procedures in OAC 252:740, Subchapter 9. OAC 252:690-3-81 specifies that for POTW discharges, the regulatory flows for implementing YMS criteria are $Q_{e(D)}$ and $Q_{u(LTA)}$. For implementing SS criteria, the regulatory flows are $Q_{e(D)}$ and $Q_{u(STA)}$.

In the absence of site-specific YMS and SS criteria, a mineral constituent's background concentration (C_b) is derived from the basin wide YMS and SS criteria in OAC 252:730, Appendix F, as follows:

 $C_b = YMS - (SS - YMS) = 2 YMS - SS$

For chloride, $C_b = 2 \times 335 - 441 = 229.0 \text{ mg/L}.$ For sulfate, $C_b = 2 \times 224 - 278 = 170.0 \text{ mg/L}.$ For TDS, $C_b = 2 \times 1196 - 1523 = 869.0 \text{ mg/L}.$

b. Reasonable Potential

(1) Yearly Mean Standard

OAC 252:740-9-4(b) and (c) define a POTW discharge's instream pollutant concentration $C_{d(YMS)}$, after complete mixing, as follows:

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

Chloride and sulfate, $C_{d(YMS)}$ is compared against the higher of the YMS criterion or 200 mg/L. For TDS, $C_{d(YMS)}$ is compared against the higher of the YMS criterion or 700 mg/L. The results of the YMS RP screen are shown in the following table:

						$C_{122} \approx 2$		
Pollutant	C _{mean}	C ₉₅	C _b	C _{d(YMS)}	C_{YMS}	Default	Maximum (C _{YMS} , Default)	$C_{d(YMS)} > C_{YMS}$
Chloride	126.0	269.0	229.0	237.3	335.0	200.0	335.0	No
Sulfate	123.3	263.1	170.0	189.2	224.0	200.0	224.0	No
TDS	525.6	1122.2	869.0	921.3	1196.0	700.0	1196.0	No

Results of Yearly Mean Standard Screen for Effluent Limits (Outfall 001) (Concentration in mg/L, unless otherwise specified)

(2) Sample Standard

OAC 252:740-9-4(b) and (d) define a POTW discharge's instream pollutant concentration $C_{d(SS)}$, after complete mixing, as follows:

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

For chloride and sulfate, $C_{d(SS)}$ is compared against the higher of the SS criterion or 200 mg/L. For TDS, $C_{d(SS)}$ is compared against the higher of the SS criterion or 700 mg/L. The results of the SS reasonable potential screen are shown in the following table:

Results of Sample Standard Screen for Effluent Limits (Outfall 001)
(Concentrations in mg/L, unless otherwise specified)

						$C_{V(G)} >$		
Pollutant	C _{mean}	C95	C _b	$C_{d(SS)}$	C _{SS}	Default	Maximum (C _{SS} , Default)	$C_{d(SS)} > C_{SS}$
Chloride	126.0	269.0	229.0	240.1	441.0	200.0	441.0	No
Sulfate	123.3	263.1	170.0	195.8	278.0	200.0	278.0	No
TDS	525.6	1122.2	869.0	939.1	1523.0	700.0	1523.0	No

c. WLA and Criterion LTA Concentrations

The results of the screening indicate that there is no RP at Outfall 001 for chlorides, sulfates, or TDS to exceed both YMS and SS criteria. Thus, YMS and SS wasteload allocations are not required for these pollutants.

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 (Outfall 001)

- In accordance with OAC 252:690-3-86(a)(2), the draft permit will have an *Escherichia coli (E. coli)* monthly average limit (MAL) of 126 most probable number (MPN)/100 mL, expressed as a geometric mean, and a daily maximum limit (DML) of 406 MPN/100 mL for streams, in effect for the "recreational period" of May 1 through September 30 to protect primary body contact recreation (PBCR) beneficial use.
- Additionally, pursuant OAC 252:690-3-86(b), the draft permit will also have an *E. coli* monthly average limit of 630 MPN/100 mL, expressed as a geometric mean, and a daily maximum limit of 2030 MPN/100 mL from October 1 through April 30 for streams stated in OAC 252:690-3-86(c)(1) to protect secondary body contact recreation (SBCR) beneficial use that shall apply to permittees that discharge to waterbodies that are on the 303(d) list for bacteria.
- In accordance with OAC 252:690-3-89(a)(3)(A), the draft permit will have bacteria monitoring frequency of twice per week during the months of May through September and once per week during the months of October through April to protect the Primary Body Contact Recreation (PBCR) beneficial use.

The facility selected to report E. coli in MPN/100 mL in a letter received by DEQ on April 22, 2015.

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

Since this receiving stream is not listed as a Public and Private Water Supply no permitting action is necessary to protect this use.

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

a. General

Pursuant to OAC 252:730-5-19, "the surface waters of the state must be free from floating materials and suspended substances that produce objectionable color and turbidity. The surface water must also be free from noxious odors and tastes, from materials that settle to form objectionable deposits, and discharges that produce undesirable effects or are a nuisance to aquatic life. In addition, surface waters of the state shall be virtually free from all coloring materials which produce an aesthetically unpleasant appearance."

b. Floatable Solids and Foam

OAC 252:730-5-9(b) states that the surface waters of the state shall be free of floating debris, bottom deposits, scum, foam and other materials from other than natural sources. A narrative condition

prohibiting the discharge of floating solids or visible foam in other than trace amounts will be included in the permit.

c. Nutrient Limitations and Monitoring Requirements

Nutrient loading in Oklahoma's surface waters, particularly of phosphorus, has become an area of concern. OAC 252:730-5-9(d) states, "Nutrients from point source discharges or other sources shall not cause excessive growth of periphyton, phytoplankton, or aquatic saprophyte communities which impairs any existing or designated beneficial use." This narrative criterion is echoed in the Oklahoma's general antidegradation policy as applied to beneficial uses (OAC 252:730-3-2(d)) as, "No water quality degradation which will interfere with the attainment or maintenance of an existing or designated beneficial use shall be allowed."

The previous permit for the facility did not contain any nitrate or phosphorus limits or reporting requirements. According to stream monitoring data on the North Canadian River near Shawnee, Oklahoma at Site ID# 520510000110-005AT available on the OWRB's website under the Beneficial Use Monitoring Program (BUMP), the trophic condition of the North Canadian River, about 40 streammiles downstream from the facility's POD, is hypereutrophic.

According to BUMP data, the annual average concentrations of *nitrite plus nitrate* in the North Canadian River, from 2005 to 2012, ranged from 1.23 mg/L to 3.44 mg/L. At these low concentrations, *nitrite plus nitrate* did not demonstrate any negative effects that would impair the designated beneficial uses of the river. The annual average concentrations of *total phosphorus*, recorded during the same period, ranged from 0.708 mg/L to 1.273 mg/L. The trophic status of the North Canadian River is hypereutrophic, with trophic state index (TSI) ranged from 99 to 105.

Given the distance of the POD from the OWRB's monitoring site, it is the best professional judgment (BPJ) of the permit writer that the nutrient concentrations, particularly phosphorus, in the facility's discharge will have little or no impact on the Aesthetics uses of the receiving stream. Therefore, monitoring of effluent nutrient levels is not warranted at this time.

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 required for selenium. All other pollutants detectable in the discharge which have Oklahoma's 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 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(a). Reasonable potential may then be reassessed with the larger effluent data set and the permit 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

	I	Acute Toxicit	у	Chronic Toxicity			
Elliueni Characteristic	C_d	C _A	$C_d > C_A?$	C_d	C _C	$C_d > C_C?$	
Arsenic, total	12.4	340.0	No	12.4	150.0	No	
Copper, total	12.4	61.5	No	12.4	36.8	No	
Zinc, total	248.0	341.3	No	N/A	N/A	N/A	

Results of Acute and Chronic Toxicity RP Screens Using C_{95(M)} (Outfall 001) (Concentrations in µg/L, unless otherwise specified)

(2) Human Health/Fish Flesh Criteria

Results of Human Health/Fish Flesh RP Screens Using C_{95(M)} (Outfall 001)

(Concentrations in μ g/L unless otherwise specified)

Effluent Characteristic	C _d	C_{FF}	$C_d > C_{FF}$?
Arsenic, total	2.6	205.0	No

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

Not applicable.

(4) YMS and SS Agriculture Criteria

Results of Agriculture YMS and SS RP Screens Using C_{95(M)} (Outfall 001) (Concentrations in mg/L, unless otherwise specified)

Effluent Characteristic		YMS Criteria	l	SS Criteria			
Elliueni Characteristic	C_d	C_{YMS}	$C_d > C_{YMS}?$	C_d	C _{SS}	$C_d > C_{SS}?$	
Chloride	265.4	335.0	No	277.7	441.0	No	
Sulfate	206.4	224.0	No	218.8	278.0	No	
TDS	1079.9	1196.0	No	1151.7	1523.0	No	

Based on the results of these RP screens using $C_{95(M)}$, monitoring of chloride, sulfate, and TDS to provide 10 data points in accordance with OAC 252:690-3-90 is not required in the draft permit.

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, Human Health, and Raw Water Criteria

In general, if water quality-based limits derived from aquatic toxicity, human health, or raw water 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 or human health/fish flesh and water criterion <u>and</u> the associated wasteload allocation was set equal to that criterion because the discharge is near 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 C₉₅ 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 C₉₅ 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 μ 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 µg/L and the other at 1,000.0 µg/L. It is calculated as follows:

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

$$(BT/C)_{max} = \frac{1}{2^{\log(criterion)}}$$
, where the criterion > 1.0 µg/L and ≤ 1,000.0 µg/L.

 $(BT/C)_{max} = 0.125$, where the criterion > 1,000.0 µg/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_{FFW} , and C_{Raw} are as previously defined.

(a) Acute Toxicity Criteria

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

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

(b) Chronic Toxicity Criteria

For discharges to streams, the following equations are used:

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

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

 $BT/C_{Chronic}$ is not defined for $Q^* \ge 0.3333$ (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} =
$$\frac{(1 + Q^*)C_{FF} - Q^*C_{95}}{C_{FF}}$$

(e) Human Health/Fish Flesh and Water Criteria

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

E.C.	Effluent	Background	BT/C ratio		ent	Background		
Characteristic	limit	assumed	procedure	Туре	BT/C	(\mathbf{DT}/\mathbf{C})	BT/C ratio ≤	monitoring
Characteristic	required? a	zero? ^b	applicable?	Criterion	Ratio	$(D1/C)_{max}$	$(BT/C)_{max}?$	required?
				Acute	N/A	0.173	N/A	
Arsenic, total	No	Yes	Yes	Chronic	N/A	0.221	N/A	No
				FF	> 1.0	0.201	No	
Common total	N	Vee	Vaa	Acute	N/A	0.289	N/A	N
Copper, total	NO	Yes	res	Chronic	N/A	0.338	N/A	INO
Zinc, total	No	Yes	Yes	Acute	N/A	0.173	N/A	No

(3) Summary of Background Monitoring Requirements

Summary of Background Monitoring Requireme	ents (Outfall 001)
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^a BT/C ratio procedure is not applicable because permit limits are based on a chronic toxicity criterion in an effluent dominated discharge.

^b Taken from BUMP report data. The use of background levels published in USGS, BUMP, USAP, or TMDL reports is generally derived from a "complete" background data set and are therefore considered "known."

^c BT/C ratio procedure is not applicable because pollutant exhibited reasonable potential to exceed an applicable criterion.

Background monitoring is not required for any of the above-referenced pollutants.

F. BIOSOLIDS/SEWAGE SLUDGE REQUIREMENTS

The biosolids/sewage sludge beneficial reuse and disposal practices shall comply with the Federal regulations for landfills, biosolids/sewage sludge land application, and solid waste disposal established at 40 CFR Parts 257, 503, and the DEQ rules governing Sludge Management (OAC 252:515 and OAC 252:606) as applicable.

The biosolids/sewage sludge beneficial reuse practices shall also comply with the requirements of Sludge Management Plan Number 3555023, approved by DEQ on January 4, 2001, that allows the permittee to land apply biosolids/sewage sludge at numerous sites located in Oklahoma County, Oklahoma.

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

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

G. 303(d) LIST

1. Water Quality Assessment and Causes of Impairment

The Category 5 303(d) list, in Appendix C of the 2022 Integrated Report, indicates that the stream segments of the North Canadian River (WBID # OK520520000010_10 and OK520520000010_20), to which the North Canadian WWTF discharges, are impaired. The stream segment OK520520000010_10 is impaired for Enterococcus and the stream segment OK520520000010_20 is impaired for dieldrin, DO, and sulfate. A Total Maximum Daily Load (TMDL) development process was completed for bacteria in March 2010 (TMDL ID: 38885), but it did not stipulate specific control actions.

2. 303(d) List-Related Permitting Actions

a. Enterococcus

Pursuant to OAC 252:690-3-86(b), *E. coli* limits are currently being implemented for bacterial impairments. As discussed in Section V.D.4, permit limits for *E. coli* established in the draft permit to control the discharge of bacteria in the receiving stream. Therefore, additional permit limits for bacteria are not needed.

b. DO

Controls for low DO are established in the draft permit through year-round effluent limits for BOD5.

c. Dieldrin

The facility submitted effluent analyses for dieldrin in two additional effluent samples taken one week apart. The facility analyzed the effluent samples taken on March 31, 2023, and April 7, 2023.

Sampling and Analysis for Cause of Impairment (Outfall 001)

	Date	Effluent Concentration	Minimum Quantitation	Water Quality
Parameter	Collected	(End of Pipe)	Limit (MOL)	Standards Criteria
D' 111	03/31/23	BPQL ^a	0.05	0.056
Dieldrin	04/07/23	BPQL ^a	0.05	0.056

(Concentrations in µg/L, unless otherwise specified)

Below Practical Quantitation Limit (BPQL) of 0.05 μ g/L for dieldrin reported by the lab, which is the same or less than the Minimum Quantitative Level (MQL) for dieldrin in OAC 252:690 Appendix B.

Effluent concentrations submitted for dieldrin are BPQL, with the detection limit equal to or less than the MQL, as adopted by DEQ in OAC 252:690. Since effluent concentrations submitted for dieldrin are also less than the end-of-pipe criteria outlined in OAC 252:730, Appendix G, no further action is necessary with respect to this pollutant.

d. Sulfate

The facility tested effluent for sulfate to determine whether the facility has been contributing to the impairments of this stream segment. The results were compared to the applicable Water Quality Standards criteria and are listed in the following table:

Parameter	Date Collected	Effluent Concentration (End of Pipe)	MQL	Water Quality Standards Minimum Criteria	Sample Standard	Yearly Mean Standard
	4/07/21	125.0		200.0		224.0
Sulfata ¹	4/07/23	134.0	10.0		278.0	
Sulfate ¹	4/25/23	4/25/23 107.0		200.0	278.0	224.0
	03/31/23	127.0				

Concentrations are in mg/L, unless otherwise specified.

Based on the test results, sulfate is present in the effluent at concentrations higher than the MQL but less than the applicable criteria for this pollutant. This is a renewal permit for an existing facility with no proposed increase in flow or loading, and the current permit does not have limits for sulfate. Since sulfate is present in the facility's discharge and the WWTF receives a significant amount of industrial wastewater, the facility will receive monitoring requirements for sulfate at a frequency of once per month to keep track of the level of this pollutant.

H. ANTIDEGRADATION REQUIREMENTS

Because no antidegradation restrictions are listed in Appendix A of the OWQS for this water body, implementation of the State of Oklahoma antidegradation policy, as described at OAC 252:740, Subchapter 13, states 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 Canadian River to which the facility 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.

J. REOPENER CLAUSE

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 TMDL is established for the receiving water(s). Modification and/or reissuance of the permit shall follow regulations listed at 40 CFR § 124.5.

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). Mass-loading limitations are calculated using the facility's design average daily flow according to the following equation:

Mass loading limit (in lb/day) = Concentration limit (in mg/L) × $Q_{e(D)}$ (in mgd) × 8.34

The facility's approved design average daily flow of **80.0 mgd** is used to calculate all mass-loading limits.

B. EFFLUENT LIMITATIONS

The following final limitations and monitoring requirements for Outfall 001 apply for the life of the permit.

1. Final Mass Loading Limitations and Reporting Requirements for Outfall 001

Effluent Characteristic ^a		Water Quality Standards	Previous Permit	Draft Permit
		Monthly Average	Monthly Average	Monthly Average
Flow (mgd)	Year round		Report Monthly Ave & Daily Max	Report Monthly Ave & Daily Max
BOD ₅	Year round	6672.0	6672.0	6672.0
TSS	Year round	6672.0	6672.0	6672.0
Ammonia as N	Year round	1334.4	1334.4	1334.4
Selenium, total Year round		3.163	3.163	3.163
a Units are lb/day	unless otherw	vise specified		·

Final Mass Loading Limitations and Reporting Requirements

Units are lb/day, unless otherwise specified.

2. Final Concentration Limitations and Reporting Requirements for Outfall 001

		Wa	ter Quali	ty Stand	lards		Previou	s Permit	t		Draft	Permit	
Effluent Chara	acteristic ^a	Daily	Monthly	Weekly	Daily	Daily	Monthly	Weekly	Daily	Daily	Monthly	Weekly	Daily
		Min	Avg	Avg	Max	Min	Avg	Avg	Max	Min	Avg	Avg	Max
BOD ₅	Year round		10	15			10	15			10	15	
TSS	Year round		10	15			10	15			10	15	
Ammonia as N	Year round		2.0	3.0			2.0	3.0			2.0	3.0	
DO	Year round	5.0				5.0				5.0			
E lib	May – Sep		126 °		406		126 °		406		126 °		406
E. COll	Oct - Apr		630 °		2030		630 °		2030		630 °		2030
Total Residual	V	Ins	tantaneou	s Maxim	um:	Ins	tantaneou	ıs Maxim	um:	Ins	tantaneou	ıs Maxin	num:
Chlorine (TRC)	i ear round		No meas	urable ^{d,}	e		No meas	urable ^{d, '}	e		No meas	surable ^{d,}	e
Selenium, total (in µg/L)	Year round						4.74		8.21		4.74		8.21
Sulfate	Year round										Report		Report
pH (standard units)	Year round	6.5			9.0	6.5			9.0	6.5			9.0

Final Concentration Limitations and Reporting Requirements

Units are mg/L, unless otherwise specified.

b E. coli shall be reported in most probable number (MPN)/100 mL

с Monthly average of *E. coli* shall be reported as geometric mean of all the sample during that month

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 No measurable is defined as less than 0.1 mg/L.

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b. Monitoring Frequencies and Sample Types for Outfall 001

Performance-based monitoring frequency reductions are considered in accordance with OAC 252:690-3-91 and Chapter 3 of the CPP. Where Significant Noncompliance (SNC) with permit limitations has been exhibited during the period of record, the facility is ineligible for any performance-based monitoring frequency reduction for the affected pollutant. If a permittee has experienced no permit limit violation of any kind for a limited parameter during the permit cycle, a performance-based monitoring frequency reduction may be granted according to Table I-1 in Appendix I of OAC 252:690. Results of the evaluation are as follows:

Performance-Based Monitoring Frequency Reduction Evaluation (Outfall 001) (Period of Record – October 2017 through September 2022)

	Previou	ıs Permit		Perfor	Eligible for		
Effluent Characteristic ^a	Monitoring Frequency	Monthly Average Concentration Limit	Image: A constraint of const		Monitoring Frequency Reduction?		
Selenium, total (µg/L)	6 per month	4.74			No	No	No Reduction

Units are mg/L, unless otherwise specified.

The monitoring requirements sampling types for Outfall 001 are as follows:

		Previo	us Permit	Draft	Permit
Effluent Characteristic		Measurement Frequency	Sample Type	Measurement Frequency ^a	Sample Type ^a
Flow	Year round	Daily	Totalized	Daily	Totalized
BOD ₅	Year round	Daily	24-hour composite	Daily	24-hour composite
TSS	Year round	Daily	24-hour composite	Daily	24-hour composite
Ammonia – as N ^b Apr - Oct		Daily	24-hour composite Daily		24-hour composite
DO	Year round	Daily	Grab	Daily	Grab
E seli	May – Sep	2 per week	Grab	2 per week	Grab
E. COll	Oct - Apr	1 per week	Grab	1 per week	Grab
TRC	Year round	Daily	Grab	Daily	Grab
Selenium, total	Year round	1 per 6 months ^c	24-hour composite	1 per 6 months ^c	24-hour composite
Sulfate	Year round			1 per month	24-hour composite
pН	Year round	Daily	Grab	Daily	Grab

Final Monitoring Requirements and Sample Types

Monitoring frequency is in accordance with OAC 252:606, Table 1-3 of Appendix A and OAC 252:690-3-89(2). b Ammonia analysis shall also be performed concurrently with and on all samples collected for WET testing at

Outfall 001 (see WET testing requirements for Outfall TX1 in Section VII.C). Results from concurrent ammonia analyses for Outfall TX1 may be used in partial fulfillment of ammonia monitoring requirements at Outfall 001. с

Monitoring frequency of selenium is in accordance with OAC 252:690-3-89(2) and Table I-1 in Appendix I of OAC 252:690, except selenium

C. BIOMONITORING (OUTFALL TX1)

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

1. Previous Permit

The chronic WET testing for *C. dubia* and fathead minnow species along with concurrent testing for ammonia and pH on fathead minnow had been established in the previous permit. WET limits were established for *C. dubia* in the previous permit. The biomonitoring or WET testing requirements remain unchanged in the draft permit and are restated in the Item 2 below.

2. Draft Permit

a. WET Reporting and Monitoring Requirements - C. dubia

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 biologically treated municipal wastewater. 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 accredited by DEQ for those parameters.

		Effluen	t Characteristic	Rep	oorting/Moni Requirement	toring ts ^a
Test Critical Dilution ^b		Critical Dilution ^b	Parameter	7-day Min	Testing Frequency ^c	Sample Type
			Pass/Fail Survival [TLP3B]	Report		
	Ceriodaphnia		NOEC _L Survival [TOP3B]	Report		
ting	<i>dubia</i> , 7-day	1000/	% Mortality at Critical Dilution [TJP3B]	Report	1 per	24-hour
Tes	static renewal.	100%	Pass/Fail Reproduction [TGP3B]	Report	quarter	composite
freshwater			NOEC _s Reproduction [TPP3B]	Report		
			% Coeff of Variation [TQP3B]	Report		

Chronic WET Reporting and Monitoring Requirements (Outfall TX1)

^a See Part II, Section E of the permit, WET Limit, for additional monitoring and reporting conditions.

^b All chronic WET testing shall use the dilution series specified in Part II, Section E, Item 1 of the permit.
^c 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 monthly tests conducted pursuant to prior test

failure may be substituted for a routine test result if the monthly test coincides within the testing period of the routine testing (see Part II, Section E, Item 2.a of the permit).

C. dubia WET reporting and monitoring requirements apply beginning the effective date of the permit, and the first reporting period is ______ to _____. The first report is due on _____.

Effluent Characteristic]	Reporting/Mor Requiremer	iitoring nts ^a
Enfuent Characteristic	7-day	Testing	Sample
	Min	Frequency ^b	Туре
WET Limit <i>Ceriodaphnia dubia</i> (Lowest lethal NOEC _L and/or sublethal NOEC _S) [STORET: 51710]	100%	1 per quarter	24-hour composite

Chronic WET Limit and Monitoring Requirements (Outfall TX1)

^a See Part II, Section E of the permit, WET Limit, for additional monitoring and reporting conditions.

Results of monthly tests conducted pursuant to prior test failure may be substituted for a routine test result if the monthly test coincides within the testing period of the routine testing (See Part II, Section E, Item 2.a of the permit).

WET reporting and monitoring requirements apply beginning the effective date of the permit. Compliance with the WET 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 of the permit.

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.

b. WET Reporting and Monitoring Requirements – Fathead minnows

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 biologically treated municipal wastewater. 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 accredited by DEQ for those parameters.

		Effluent	Characteristic	Rej	porting/Mon Requiremen	itoring ts ^a
Test Critical Dilution ^b Parameter		Parameter	7-day Min	Testing Frequency ^f	Sample Type	
	D: 1 1		Pass/Fail Survival [TLP6C]	Report		
	Pimephales promelas (Fathead		NOECL Survival [TOP6C]	Report		24-hour composite
ting	minnow), 7-day	now), 7-day	% Mortality at Critical Dilution [TJP6C]	Report	1 per	
Test	chronic NOEC	100%	Pass/Fail Reproduction [TGP6C]	Report	quarter ^e	
	static renewal,		NOECS Reproduction [TPP6C]	Report		
	Itestiwatei		% Coeff of Variation [TQP6C]	Report		
sting	Retest #1 [22415]	2		Report	As	24-hour
Rete	Retest #2 [22416]	2		Report	Required ^d	composite

Chronic WET Reporting and Monitoring Requirements (Outfall TX1)

- ^a See Part II, Section F of the permit, WET Testing, for additional monitoring and reporting conditions.
- ^b All chronic WET testing shall use the dilution series specified in Part II, Section F, Item 1 of the permit.
- ^c Apply according to results of test failure triggering monthly retests.
- ^d 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.
- ^e Results of retests conducted pursuant to prior test failure shall <u>not</u> be substituted on DMRs in lieu of routine test results (see Part II, Section F, Item 2.a of the permit).
- ^f See provision for monitoring frequency reduction after the first year (see Part II, Section F, Item 5 of the permit).

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

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 of the permit.

Concurrent Testing Provision for Chronic WET Testing: 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.

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

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

⁴ Two sets of samples for concurrent analyses are required for ammonia and pH. Report <u>only</u> those effluent samples collected for WET testing of the fathead minnow species.

^b 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.

Samples sent directly to a <u>WET testing laboratory</u> 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 <u>table above</u>.

A second concurrent analysis is required for the sample that is sent to the <u>WET testing laboratory</u> and for the <u>table</u> <u>above</u>. Just prior to the first use of each composite sample for <u>WET testing</u> purposes, the biomonitoring laboratory shall take an adequately-sized portion of each composite sample, acidify it in accordance with preservation requirements in 40 CFR Part 136, and have it analyzed for ammonia (NH₃-N) at a <u>State accredited</u> <u>analytical laboratory</u>.

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 <u>State accredited analytical laboratory</u> must be composite samples that are <u>properly</u> <u>preserved</u>. These results may be included in the results for <u>Outfall 001</u>.

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.

D. BACKGROUND MONITORING (MONITORING POINT 999)

Not applicable.

E. COMPLIANCE SCHEDULE

Not applicable to the discharge.

VIII. RECLAIMED WATER FOR WATER REUSE

A. GENERAL

The OCWUT is the "supplier" and the OG&E Redbud Energy Plant is the "user" of the reclaimed water. The OCWUT has been assigned the permit to supply reclaimed water number RW19-002. As the supplier of reclaimed water, the OCWUT supplies **Category 3 reclaimed water** from the North Canadian WWTF after complete treatment in accordance with OAC 252:627 and OAC 252:656. The permitted uses of the different categories of reclaimed water are described in OAC 252:627-1-6. As the user of reclaimed water, the OG&E Redbud Energy Plant reuses Category 3 reclaimed water in cooling towers and other closed-loop systems owned and operated by OG&E. The OG&E Redbud Energy Plant has been assigned the reclaimed water user identification number RWID19-004 and has been designated as site R01 in the permit.

The OCWUT also supplies **Category 6 reclaimed water** after complete treatment in accordance with OAC 252:627 for various uses within the WWTF for operation and maintenance purposes only. Irrigation is not an allowable use under the Category 6 use of reclaimed water. Category 6 reclaimed water does not require a permit to supply and thus is included for information purposes only.

The generation and supply of the reclaimed water for reuse by the facility is described in Section II.B.3 of the fact sheet.

B. LOCATION OF DELIVERY AND SAMPLING POINT

	Geneal Location	Legal Description	Latitude	Longitude
Point of Delivery and Sampling Point	At the pump station, south of chlorination/ dechlorination basin	NW¼, SE¼, SW¼ Section 16, Township 13 North, Range 1 West, IM Oklahoma County, Oklahoma	35° 35' 52.102" N (GPS: NAD83 ª)	97° 18' 46.667" W (GPS: NAD83 ª)

Point of Delivery for Reclaimed Water and Sampling Point

The North American Datum of 1983 or NAD83.

C. LIMITATIONS AND MONITORING REQUIREMENTS OF WATER REUSE

1. Authorized Site for Water Reuse

The locations, authorized uses, latitude, and longitude of the entry location of reuse site and related information are described in the following table:

Site ID	User	Legal Description	Method of Storage and Treatment	Authorized Uses	Approx. Entry Location of Reuse Site	
					Latitude	Longitude
R01	OG&E Redbud Energy Plant	SE ¹ /4, NW ¹ /4, SW ¹ /4 of Section 17 Township 14 North Range 1 East, IM Oklahoma County	Storage in an above ground tank followed by chlorine disinfection	Make-up water in cooling towers	35°41'4.668"N (GPS: NAD83)	97°13'29.712"W (GPS: NAD83)
			Coagulation, filtration, and chlorine disinfection	Fire suppression and evaporative cooling		
			Coagulation, filtration, chlorine disinfection secondary filtration, de-chlorination, softening, and reverse osmosis	Steam generation in turbines		

Per information provided by the facility in the application submitted to DEQ on May 6, 2021, and additional information submitted to DEQ on later dates.

2. Limitations and Monitoring Requirements for Reclaimed Water

In accordance with Appendix A of OAC 252:627 and with DEQ's memorandum dated 3/29/19 on policy regarding Appendix A of OAC 252:627, the following limitations and monitoring requirements are established for the water reuse site R01.

Site ID	Parameter	Limitations	Monitoring Frequency	Sample Type	Monitoring Location	
R01	Flow	Record (mgd)	Daily ^a	Totalized		
	Chlorine Disinfection at POE	Free available chlorine (FAC) residual $\geq 0.20 \text{ mg/L}$	Every 12 hours	Grab	At the pump station, south of chlorination/ dechlorination basin ^b	
	E. coli °	Monthly geometric mean: < 126 MPN/100 mL Single sample maximum: < 406 MPN/100 mL	3 per week	Grab		
	BOD ₅ or CBOD ₅	< 20.0 mg/L ^{d, e}	Weekly	Grab		

Limitations and Monitoring Requirements for Water Reuse Site

^a When there is no supply of reclaimed water for the entire day, report "0" in the MOR, and write "No Supply" in the comments column.

^b The reclaimed water pump station is located at the North Canadian WWTF.

^c The facility has *E. coli* limits at Outfall 001, reported in MPN/100 mL, measured 1 per week October through April and 2 per week May through September. *E. coli* limits shall be used for the Permit to Supply.

^d The facility currently has a BOD₅ limit at Outfall 001. Results from BOD₅ analysis for Outfall 001 may be used in the fulfillment of BOD₅ monitoring requirements for the permit to supply unless the facility requests CBOD₅ instead.

^e BOD₅ (or CBOD₅, if the facility requests to use it instead) limit is the monthly average analyzed weekly from a grab sample. There is no daily maximum or weekly average limit.

Pursuant to OAC 252:656-27-2(c) and OAC 252:627-3-1(f), the facility shall provide flow measuring devices to measure the amount of reclaimed water being generated and distributed. Flow measurement

devices shall have recording, totalizing, and instantaneous indicating capabilities. Suppliers shall maintain flow measuring devices in proper working order. In accordance with OAC 252:656-25-2(h), flow measurement, in mgd, for each site shall be accomplished by flow meters, or the calibration of pumps and installation of run-time meters.

The facility has been using magnetic flow meter, constructed in accordance with the previously approved Engineering Report, at the pump station to record flows.

3. Reporting Requirements and Record Keeping

a. Monthly Operation Reports (MORs)

Suppliers shall complete DEQ Form 627-001 "Water Reuse System Monthly Operation Report" (MOR) for each month for each reuse site in accordance with OAC 252:627-5-1(b).

Suppliers shall retain copies of all MORs on-site for 3 years, as well as all records, including all maintenance records, and make them available for review by DEQ upon request in accordance with OAC 252:627-5-1(d) and (e).

b. Record Keeping Requirements for Commercial Fertilizer

Not applicable.

D. RESTRICTIONS FOR CATEGORY 3 RECLAIMED WATER

In accordance with OAC 252:627-3-3(b), OCWUT shall ensure that Category 3 reclaimed water is not used from a lagoon cell that receives raw sewage.

The OCWUT shall ensure that Category 3 reclaimed water is only supplied to the OG&E Redbud Plant. The OCWUT must obtain a permit to construct and a permit to supply reclaimed water from DEQ before supplying reclaimed water to any user(s) or sites not authorized in this permit, including sites owned and/or operated by the City, and must provide information to DEQ on the intended use of the reclaimed water by the new user(s), and if applicable, information on specific reuse site(s) demonstrating that the requirements of OAC 252:627-3-4 for the proposed category of reclaimed water are met.

E. SIGNAGE REQUIREMENTS FOR WATER REUSE SITES

Pursuant to OAC 252:656-27-4(a), the OCWUT shall ensure that all reclaimed water piping in the distribution system up to the point of transfer to OG&E's control shall be embossed or integrally stamped on opposite sides every 3 feet with a warning that includes the following language: "CAUTION: RECLAIMED WATER – DO NOT DRINK."

F. OPERATION AND MAINTENANCE OF THE DISTRIBUTION SYSTEMS

- 1. The permittee/supplier shall maintain the structural integrity of all parts of the treated wastewater (reclaimed water) distribution system up to the point of transfer to OG&E's control and maintain it in good working condition.
- 2. The permittee/supplier shall ensure that pump stations up to the point of transfer to OG&E's control are properly maintained and operated by doing the followings:
 - a. Securing pump station(s) to prevent unauthorized access.
 - b. Maintaining pump(s) in working condition.

- c. Keeping screen(s) free of debris to prevent clogging.
- d. Maintaining the required alarms in working order.
- e. Maintaining the required back-up generators and/or portable engine driven pumps in working order.
- f. Maintaining a complete set of operational instructions, emergency procedures and maintenance schedules.
- 3. The permittee/supplier shall provide flow measuring devices to measure the amount of treated wastewater being distributed to each user. Flow measurement devices shall have recording, totalizing and instantaneous indicating capabilities.
- 4. Cross connections between treated wastewater/RW distribution lines and the public water supply lines are prohibited. The supplier and the user shall follow the requirements of OAC 252:626-5-15 and OAC 252:656-9-2.

G. RE-OPENER CLAUSE

A re-opener clause is included in the permit to allow for modification and/or reissuance to require additional or more frequent monitoring, additional or more stringent limits, additional operational controls, or additional reporting and recordkeeping requirements where actual or potential threats to public health or the environment are determined to be the result of the permittee's operation of the water reuse system or where the water reuse system is not being properly operated and maintained in accordance with OAC 252:627. Modification and/or reissuance of the permit shall follow regulations listed at OAC 252:004.

H. COMPLIANCE SCHEDULE

Not applicable.

IX. CATEGORY 6 RECLAIMED WATER FOR WATER REUSE

The OCWUT also supplies and reuses category 6 reclaimed water for various uses within the WWTF. In accordance with OAC 252:627-1-3(b) and OAC 252:627-1-6(6), the use of Category 6 within the WWTF does not require a permit to supply.

Pursuant to OAC 252:627-5-1(a), category 6 reclaimed water does not require separate sampling but shall meet effluent limits pursuant to the permit of the WWTF and must implement "Operation and Maintenance Manual" for water reuse prepared pursuant to OAC 252:656-3-10.

X. SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The following changes were made in the draft permit relative to the previous OPDES Permit and Permit to Supply Reclaimed Water:

• Sulfate monitoring requirements have been included in the draft permit.

XI. ENVIRONMENTAL JUSTICE REVIEW

This permit action has undergone Environmental Justice (EJ) Review in accordance with EPA EJ Action Plan 2020 and DEQ's Internal Policy 2022. It has been found that an EJ community is likely to be impacted by a potentially significant permitting action. The Water Quality Division of DEQ has developed the following meaningful public participation plan (MP3):
Fact Sheet

Factsheets/information sheets: DEQ has developed flyers/information sheets to inform the public of the proposed permitting action, and how they can review the draft permit and submit comments. When the draft permit is ready for public notice, these flyers will be distributed at local public places which receive significant foot traffic, such as libraries, post offices, city/county clerk's offices, or grocery stores.

XII. 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. OK0036978 (Form 2M1), received May 6, 2021.

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

- OPDES Act, 27A OS § 2-6-201, *et seq*.
- OAC 252:606, Discharge Standards (DEQ).
- OAC 252:690, Water Quality Standards Implementation (DEQ).
- OAC 252:730, Oklahoma Water Quality Standards (DEQ).
- OAC 252:740, OWQS Implementation (DEQ).
- Oklahoma Continuing Planning Process (CPP) Document (DEQ).

E. MISCELLANEOUS

- Category 5 303(d) list, in the Appendix C of the 2022 Integrated Report.
- 2017 Beneficial Use Monitoring Program (BUMP) Report (OWRB).
- Permit file, OPDES Permit No. OK0036978, including selected biomonitoring laboratory reports.
- Integrated Compliance Information System (ICIS-OPDES), January 2018 through February 2023.
- EPA Region 6 revision to Post Third Round Biomonitoring Policy, dated June 30, 2000.
- USGS publication, <u>Statistical Summaries of Streamflow in and near Oklahoma Through 2007</u> by John M. Lewis and Rachel A. Esralew (<u>http://pubs.usgs.gov/sir/2009/5135/</u>).
- Part III and IV of OPDES.

XIII. REVIEW BY OTHER AGENCIES AND FINAL DETERMINATION

A public notice which includes a link to the DEQ's webpage where the draft permit may be viewed will be sent to various Federal and State agencies upon posting the draft permit in the DEQ's webpage. If comments are reviewed 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.