AUTHORIZATION TO DISCHARGE UNDER
THE OKLAHOMA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT NUMBER: OK0002429
ID NUMBER: I-72000540

In compliance with the Oklahoma Pollutant Discharge Elimination System (OPDES) Act, 27A O.S. §2-6-201 *et seq.*, Oklahoma Uniform Environmental Permitting Act, 27A O.S. §2-14-101 *et seq.*, and the rules of the Oklahoma Department of Environmental Quality promulgated thereunder,

Public Service Company of Oklahoma (PSO)
Riverside Power Station
P.O. Box 201
Tulsa, OK 74102-0201

is authorized to discharge from their facility, located at:

NE¼ of Section 31, W½ of Section 32, and W½, E½ of Section 32
Township 18N, Range 13EIM
Tulsa County, Oklahoma
or at 116th St South & Arkansas River, Jenks, OK 74037

to receiving waters identified as:

- Arkansas River in stream segment 120420 (WBID No. OK120420010010) of the Middle Arkansas River Basin, from:

Outfall 001:
Latitude 35° 59' 32.766" N, Longitude 95° 56' 42.342" W (GPS: NAD83)
SE¼, NW¼, SE¼ of Section 32, Township 18N, Range 13 EIM
Tulsa County, Oklahoma

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

The above-referenced facility is authorized to retain wastewater in one (1) total retention (T01) and one (1) flow-through surface impoundment (F02) as described in the Appendix. Direct discharge of wastewater from impoundment T01 to waters of the State is specifically prohibited. Surface impoundments shall be maintained in accordance with Parts I, II, and IV, hereof.

Issuance of this permit in no way or in any respect affects the permittee's civil or criminal responsibility regarding disposal of wastewater, except with respect to the permittee's legal responsibility under the OPDES Act and DEQ Rules.

This permit replaces and/or supersedes OPDES Permit No. OK0002429 that became effective on July 1, 2016.

This permit shall become effective on , 2020.

This permit and the authorization to discharge shall expire at midnight, on June 30, 2021.

This is to certify that the wastewater discharges set forth in this permit comply with the requirements of Oklahoma's Water Quality Standards, as amended, provided the permittee does not exceed the effluent limitations set forth in this permit.

Issued this _____ day of _____, 2020.

For Oklahoma Department of Environmental Quality,

Carol Paden, P.E., Manager
Industrial Permits Section
Water Quality Division

Shellie Chard, Director
Water Quality Division

PART I
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Effluent Limitations and Monitoring Requirements for Outfall 001

a. Interim Limitations and Monitoring Requirements

Not applicable.

b. Final Limitations and Monitoring Requirements

During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge from Outfall 001. The discharge from Outfall 001 consists of cooling tower blowdown commingled with low volume wastewater (LVW) from internal monitoring point (IMP) 102. Such discharge shall be limited and monitored by the permittee as specified below.

Final Effluent Limitations – Outfall 001

Parameters	Mass Loading Limits (lbs/day unless otherwise specified)		Concentration Limits (mg/l unless otherwise specified)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Flow STORET: 50050	Report (MGD)	Report (MGD)	---	---
Total Residual Chlorine STORET: 50060	---	---	---	ND (1)
Oil and Grease STORET: 00556	391	521	15	20
Total Suspended Solids STORET: 00530	---	---	Report (2)	Report (2)
Turbidity (NTU) STORET: 00070	---	---	Report (2)	Report (2)
pH STORET: 00400	Between 6.0 s.u. – 9.0 s.u.			

(1) "Non-detect" is defined as <0.1 mg/l instantaneous maximum.
(2) Applied as a 303(d) control.

Final Monitoring Requirements – Outfall 001

Parameters	Measurement Frequency (1)	Sample Type
Flow	Continuous	Record
Total Residual Chlorine	1/week	Grab
Oil and Grease	1/quarter	Grab
Total Suspended Solids	1/month	Grab (2)
Turbidity	1/month	Grab (2)
pH	2/month	Grab

(1) When discharging.
(2) Report cycles of concentration from the cooling towers when samples are collected.

NOTE: See Parts II and III for Additional Requirements.

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. Surface waters of the State shall be maintained free from oil and grease and taste and odors.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location:

Outfall 001: at the weir of the outfall structure to the Arkansas River, located in the SE¼, NW¼, SE¼ of Section 32, Township 18N, Range 13 EIM, Tulsa County, Oklahoma, at Latitude N 35° 59' 32.536", Longitude W 95° 56' 43.246" (GPS: NAD83).

2. Effluent Limitations and Monitoring Requirements for IMP 101

a. Interim Limitations and Monitoring Requirements

Not applicable.

b. Final Limitations and Monitoring Requirements

During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge from IMP 101. The discharge will consist of cooling tower blowdown. IMP 101 is the point of compliance for technology based limitations for cooling tower blowdown. Such discharge shall be limited and monitored by the permittee as specified below.

Final Effluent Limitations – IMP 101

Parameters	Mass Loading Limits (lbs/day unless otherwise specified)		Concentration Limits (mg/l unless otherwise specified)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Flow STORET: 50050	Report (MGD)	Report (MGD)	---	---
Free Available Chlorine [1] STORET: 50064	5.10	12.75	0.2	0.5
pH STORET: 00400	Between 6.0 s.u. – 9.0 s.u.			

Final Monitoring Requirements – IMP 101

Parameters	Measurement Frequency [1]	Sample Type
Flow	Continuous	Record
Free Available Chlorine	1/year	Grab
pH	2/month	Grab

[1] When discharging.

3. Effluent Limitations and Monitoring Requirements for IMP 102

a. Interim Limitations and Monitoring Requirements

Not applicable.

b. Final Limitations and Monitoring Requirements

During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge from IMP 102. The discharge consists of low volume wastewater and a minor amount of incidental rainfall from the combustion turbine area. IMP 102 is the point of compliance for technology based limitations for low volume waste. Such discharge shall be limited and monitored by the permittee as specified below.

Final Effluent Limitations – IMP 102

Parameters	Mass Loading Limits (lbs/day unless otherwise specified)		Concentration Limits (mg/l unless otherwise specified)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Flow STORET: 50050	Report (MGD)	Report (MGD)	---	---
Total Suspended Solids STORET: 00530	---	---	30	100
Oil and Grease STORET: 00556	---	---	15	20
pH STORET: 00400	Between 6.0 s.u. – 9.0 s.u.			

Final Monitoring Requirements – IMP 102

Parameters	Measurement Frequency [1]	Sample Type
Flow	Continuous	Estimate
Total Suspended Solids	2/month	Grab
Oil and Grease	1/quarter	Grab
pH	1/week	Grab

[1] When discharging.

4. Effluent Limitations and Monitoring Requirements for IMP 103

a. Interim Limitations and Monitoring Requirements

Not applicable.

b. Final Limitations and Monitoring Requirements

During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge from IMP 103. The discharge consists of low volume wastewater and a minor amount of incidental rainfall from the combustion turbine area. IMP 103 is the point of compliance for technology based limitations for low volume waste. Such discharge shall be limited and monitored by the permittee as specified below.

Final Effluent Limitations – IMP 103

Parameters	Mass Loading Limits (lbs/day unless otherwise specified)		Concentration Limits (mg/l unless otherwise specified)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Flow STORET: 50050	Report (MGD)	Report (MGD)	---	---
Total Suspended Solids STORET: 00530	---	---	30	100
Oil and Grease STORET: 00552	---	---	15	20
Copper, total STORET: 01042	---	---	1.0	1.0
Iron, total STORET: 01045	---	---	1.0	1.0

Final Monitoring Requirements – IMP 103

Parameters	Measurement Frequency (1)	Sample Type
Flow	Continuous	Estimate
Total Suspended Solids	1/month	Grab
Oil and Grease	1/month	Grab
Copper, total	1/month	Grab
Iron, total	1/month	Grab

(1) When discharging.

5. Biomonitoring Requirements for Outfall TX1

Outfall TX1

a. Whole effluent toxicity reporting and monitoring requirements – 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 cooling tower blowdown commingled with low volume wastewater (LVW). Such discharge shall be limited and monitored by the permittee as specified below.

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

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

Whole Effluent Toxicity Reporting and Monitoring Requirements (Outfall TX1)

Effluent Characteristic				Reporting/Monitoring Requirements [a]		
	Test	Critical Dilution [d]	Parameter	48-hour Min	Testing Frequency [f]	Sample Type
Routine Testing	*Daphnia pulex*,48-hour acute LC_{50} static renewal, freshwater	100%	Pass/Fail Survival [TIM3D]	Report	1/quarter [e]	24-hr comp
			LC_{50} Effluent Conc [TAM3D]	Report		
			% Mortality at 100% Effluent [TJM3D]	Report		
	Pimephales promelas (Fathead minnow), 48-hour acute LC_{50} static renewal, freshwater	100%	Pass/Fail Survival [TIM6C]	Report	1/quarter [e]	24-hr comp
			LC_{50} Effluent Conc [TAM6C]	Report		
			% Mortality at 100% Effluent [TJM6C]	Report		
Retesting	Retest #1 [22415] [b]			Report	As Required [c]	24-hr comp
	Retest #2 [22416] [b]			Report		

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

D. pulex whole effluent toxicity reporting and monitoring requirements apply beginning July 1, 2016, and the first reporting period is July 1, 2016 to September 30, 2016.

P. promelas (Fathead minnow) whole effluent toxicity reporting and monitoring requirements apply beginning July 1, 2016, and the first reporting period is July 1, 2016 to September 30, 2016.

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 H, Item 4.

b. Concurrent testing provision for acute WET testing – Concurrent analyses of TDS and constituent ion species are required for each individual effluent sample collected for *Daphnia pulex* WET testing or retesting. TDS constituent ion species are: K^+ (potassium), Na^+ (sodium), Ca^{+2} (calcium), Mg^{+2} (magnesium), Cl^- (chloride), HCO_3^- (bicarbonate) and SO_4^{-2} (sulfate). Reporting of concurrent testing results shall be in accordance with the following requirements. Results shall also be submitted in or concurrently with each WET test report.

Concurrent Effluent Testing for Acute WET Tests – Reporting Requirements Outfall TX1

Effluent Characteristic	Concentration			Monitoring Requirements	
	Daily Min	Monthly Avg	Daily Max	Monitoring Frequency [a]	Sample Type
Total Dissolved Solids (mg/l) [b] [STORET 70300]	Report	Report	Report	1/quarter	24 hr comp

[a] See provision for WET tesing monitoring frequency reduction after the first two years (Part II, Section H, Item 5).
[b] Report only those effluent samples collected for WET testing of the *Daphnia pulex* 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.

Concurrent analyses required for TDS:

The concurrent TDS sample is taken at the beginning of the biomonitoring test. Only one sample is necessary and it must be sent directly to a laboratory certified by the state for the TDS analyses. The analyses must include the constituents listed for TDS above the concurrent table.

It must be a composite sample that is properly preserved and refrigerated to maintain a temperature at or below 6° C but not frozen. This result may be included in the results for Outfall 001, if required.

c. 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.

SECTION B. BACKGROUND MONITORING REQUIREMENTS – MONITORING DESIGNATION 999 (UPSTREAM)

Not applicable.

SECTION C. SCHEDULE OF COMPLIANCE

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

Type of Action Required [1]	Compliance Date
Submit proposal showing plan and timeline to collect the following information required by 40 CFR 122.21(r) so that this information can be submitted with the next permit application: 122.21(r)(2) Source Water Physical Data 122.21(r)(3) Cooling Water Intake Structure Data 122.21(r)(4) Source Water Baseline Biological Characterization Data 122.21(r)(5) Cooling Water System Data 122.21(r)(7) Existing Entrainment Performance Studies 122.21(r)(8) Operational Status	12 Months After Permit Effective Date
Submit annual reports on progress made towards collecting the required 40 CFR 122.21(r) information	Annually Beginning 2 Years After Permit Effective Date
Identify and submit intended method of compliance with impingement performance standard and begin any monitoring associated with the intended method of compliance	August 1, 2019
Submit available monitoring results associated with intended method of compliance with impingement performance standard	Annually Beginning 4 Years After Permit Effective Date
Submit all required 40 CFR 122.21(r) information and permit renewal application	180 Days Before Permit Expiration Date

[1] The above schedule of compliance along with Best Management Practices (BMPs) for cooling water intake structures can be found in Part II Section I of the permit.

SECTION D. REPORTING OF MONITORING RESULTS

Monitoring results shall be reported in accordance with the provisions of Part III.E.4 of the permit. Monitoring results obtained during the previous month shall be summarized and reported on a Discharge Monitoring Report (DMR) form due to the Oklahoma Department of Environmental Quality, Water Quality Division, Wastewater Compliance Tracking Section postmarked or received no later than the 15th day of the month following the completed monthly test. If no discharge occurs during the reporting period, a DMR form stating "No Discharge" shall be submitted according to the above schedule.

The first report is due on August 15, 2016.

PART II
OTHER PERMIT REQUIREMENTS

A. REGULATORY NOTICE

The permittee is hereby given notice that this permit is in all respects subject to compliance with and actions under any and all applicable and relevant terms, conditions, provisions and requirements and any and all amendments of the laws of the State of Oklahoma, the rules of the Oklahoma Department of Environmental Quality, and Oklahoma's Water Quality Standards. The absence of any express reference within this permit of any particular statutory requirement, rule(s), regulation(s), or standard(s) shall in no respect be deemed or construed to exempt or preclude the application of such requirement, rule(s), regulation(s), or standard(s) to this permit or the permittee. By the Director's approval, grant and issuance of this permit, permittee acknowledges receipt of true, correct and current copies of Oklahoma's Water Quality Standards, and the rules of the Oklahoma Department of Environmental Quality, provided, however, that permittee further acknowledges that any and all amendments thereto shall become part of this 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 Total Maximum Daily Load is established for the receiving stream(s), or when required as technology advances. The permit may also be reopened to require modifications of the facility's cooling water intake structure as needed to meet the requirements of the 316(b) rules of the Clean Water Act. Modification or revocation and reissuance of the permit shall follow regulations listed at 40 CFR 124.5.

C. LABORATORY CERTIFICATION

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

D. ANALYTICAL REQUIREMENTS

Unless otherwise specified in this permit, effluent and/or upstream monitoring shall be conducted according to analytical, apparatus and materials, sample collection, preservation, handling, etc., procedures listed at 40 CFR Part 136 in effect on the effective date of this permit. Appendices A, B, and C to 40 CFR Part 136 are specifically referenced as part of this requirement. Amendments to 40 CFR Part 136 promulgated and incorporated by reference into OAC 252:606 after the effective date of this permit shall supersede these requirements as applicable.

E. MINIMUM QUANTIFICATION LEVEL (MQL)

Detection limits for the following pollutants must be less than or equal to the MQL from OAC 252:690 Appendix B shown below. If any individual analytical test result is less than the minimum quantification level listed below, a value of zero (0) may be used for that individual result for the DMR calculations and reporting requirements, provided the detection limit for such analysis is reflected in the Comments section of the DMR.

POLLUTANT	MQL
Oil and grease	5 mg/L

The permittee may develop an effluent and/or upstream specific method detection limit (MDL) in accordance with Appendix B to 40 CFR Part 136. For any pollutant for which the permittee determines an effluent and/or upstream specific MDL, the permittee shall send to DEQ, Water Quality Division, Industrial Permits Section, a report containing QA/QC documentation, analytical results, and calculations necessary to demonstrate that the effluent and/or upstream specific MDL was correctly calculated. An effluent and/or upstream specific minimum quantification level (MQL) shall be determined in accordance with the following calculation:

$$MQL = 3.3 \times MDL$$

Upon written approval by the Industrial Permits Section, the effluent and/or upstream specific MQL may be utilized by the permittee for all future DMR calculations and reporting requirements.

F. Limits on Discharge of Chlorinated Wastewater

Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available chlorine or total residual chlorine at any one time unless the permittee can demonstrate to the permitting agency that the units in a particular location cannot operate at or below this level of chlorination.

G. Priority Pollutants in Cooling Tower Blowdown

The permittee shall provide written notification to the Department at least thirty (30) days prior to commencing the use of new cooling water treatment chemical(s). Material Safety Data Sheets (MSDS's) for all such newly proposed cooling tower maintenance/treatment chemicals shall be furnished with the notification. If proposed new cooling water treatment chemicals contain any of the priority pollutants listed in 40 CFR 423, Appendix A, the permittee shall also provide engineering calculations for the expected level of the pollutant in the cooling tower blowdown from each affected outfall or internal monitoring point, as appropriate.

H. Whole Effluent Toxicity Testing

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

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

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

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

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

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

APPLICABLE TO OUTFALL(S): 001

REPORTED ON DMR AS OUTFALL(S): TX1

CRITICAL DILUTION: 100%

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

Daphnia pulex acute static renewal 48-hour definitive toxicity test, Method 2021.0, EPA-821-R-02-012 (October 2002), or latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

Pimephales promelas (Fathead minnow) acute static renewal 48-hour definitive toxicity test, Method 2000.0, EPA-821-R-02-012 (October 2002), or latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

b. Acute test failure – Acute test failure (LC_{50} test) is defined as 50% or more toxicity at 48 hours to test organisms at any effluent concentration. The 48-hour LC_{50} effluent value must be >100% to indicate a passing test. Any 48-hour LC_{50} effluent value of 100% or less will constitute a test failure.

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

2. Testing Requirements due to Test Failure

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

a. Whenever there is a test failure for *Daphnia pulex* or *Pimephales promelas* during routine testing, the frequency of testing for the affected species shall automatically increase to, or continue at, as appropriate, the WET testing frequency prescribed in Part I for the remaining life of the permit. In addition, two (2) additional monthly tests (retests) of the affected species 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 LC_{50} value less than or equal to 100%, persistent toxicity is exhibited. Then the permittee shall initiate a Toxicity Reduction Evaluation (TRE) as specified in Item 6 of this section. The TRE initiation date will be the test completion date of the second 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 LC_{50} value of greater than 100%, persistent toxicity is not exhibited. However, if any routine test failure occurs within 18 months of a prior test failure, intermittent toxicity is exhibited, and the permittee may be required by DEQ to initiate a TRE, as described in Item 6 of this section, based on the severity and pattern of such toxic 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 90%.

(2) The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for the *Daphnia pulex* and Fathead minnow survival tests.

(3) The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant toxicity is exhibited in the *Daphnia pulex* and Fathead minnow survival tests.

If the above criteria or criteria listed in Item 1.a is not met the test will be considered invalid. Test failure may not be construed or reported as invalid due to a coefficient of variation value 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:

The statistical analyses in the *Daphnia pulex* survival test and the Fathead minnow survival test, used to determine the LC_{50} shall be in accordance with the methods described in EPA-821-R-02-012, or the most recent update thereof.

c. The permittee shall use dilution water that meets the following standards:

(1) Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness and alkalinity to the closest downstream perennial water where the toxicity test is conducted on an effluent discharge to a receiving stream classified as intermittent or to a receiving stream with no flow due to zero flow conditions.

(2) If the receiving water is unsatisfactory as a result of instream toxicity (fails to meet the test acceptance criteria in Item 3.a), the permittee must submit the test results exhibiting receiving water toxicity with the full test report required in Item 4 below and may thereafter substitute synthetic dilution water for the receiving water in all subsequent tests, provided the unacceptable receiving water test met the following stipulations:

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

(b) the test indicating receiving water toxicity was carried out to completion (i.e., 48 hours); and

(c) the synthetic dilution water had a pH, hardness and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. The permittee shall collect samples that are representative of their effluent by following the criteria listed below:

(1) Unless grab sampling is specifically authorized in Part I of the permit, the permittee shall collect two flow-weighted 24-hour composite samples representative of the flows during normal operation from the outfall(s) listed at Item 1.a above. If grab sampling is authorized, all the requirements listed below for composite sampling also pertain to grab sampling. In such cases, collection of the grab sample is

considered equivalent to collection of the last portion of a composite sample. Unless otherwise specified in Part I of the permit, a 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportional to flow or a sample continuously collected proportional to flow over a 24-hour operating day.

(2) The second composite effluent sample shall be used to initiate each test. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the second composite sample. Samples shall be chilled to maintain a temperature at or below 6° C but not frozen during collection, shipping, and/or storage.

(3) The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

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

4. Reporting

a. The permittee shall provide a full laboratory report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA-821-R-02-012 for every valid or invalid toxicity test initiated, whether carried to completion or not, including any test which is considered invalid, is terminated early for any reason, or which indicates receiving water toxicity. The permittee shall retain each full report pursuant to the records retention provisions of Part III of this permit. The permittee shall submit to DEQ full laboratory test reports for all tests initiated, regardless of whether the tests are carried to completion. The reports shall be postmarked or received no later than the 15th day of the month following completion of the test.

b. A valid test must be reported on the DMR for each reporting period specified in Part I of this permit, unless the permittee is performing a TRE, which may increase the frequency of testing and reporting. A DMR must be postmarked or received by the 15th day of the month following completion of any valid test to DEQ. The full report for the test (see Item 4.a above) shall be submitted along with the DMR. If toxicity is experienced, at least two copies of the blank DMR for the applicable reporting period shall be made in advance of completing and submitting the DMR so that the DMR copies may be used to report results of the required retests (22415, 22416). Under no circumstances shall the monitoring/reporting period dates at the top of the DMR form be altered.

c. If any test results in anomalous LC_{50} findings (i.e., it indicates an interrupted dose response across the dilution series), DEQ recommends that the permittee contact its DEQ biomonitoring coordinator for a technical review of the test results prior to submitting the full test report and DMR. A summary of all tests initiated during the reporting period, including invalid tests, repeat tests and retests, shall be attached to the reporting period DMR for DEQ review.

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

(1) The reporting period test summary attached to the DMR shall be organized as follows:

(a) Invalid tests (basis for test invalidity must be described)

(b) Valid tests (other than retests) initiated during current reporting period

(c) Valid retests for tests failed during previous reporting period (if not submitted in the previous reporting period test summary)

(d) Valid retests for tests failed during current reporting period.

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

(a) Test species

(b) Date of test initiation at laboratory

(c) Results of all concurrent effluent analyses specified in Part I of this permit

(d) All test result parameters for the test species specified in Item 4.c below.

d. The permittee shall report the following results for all VALID routine 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.

Daphnia pulex

(1) Parameter TIM3D: If the *Daphnia pulex* 48-hour LC_{50} for survival is equal to or less than 100%, report a "1"; otherwise, report a "0".

(2) Parameter TAM3D: Report the *Daphnia pulex* 48-hour LC_{50} value for survival.

(3) Parameter TJM3D: Report the *Daphnia pulex* 48-hour percent mortality in the 100% effluent concentration.

Pimephales promelas (Fathead Minnow)

(1) Parameter TIM6C: If the Fathead minnow 48-hour LC_{50} for survival is equal to or less than 100%, report a "1"; otherwise, report a "0".

(2) Parameter TAM6C: Report the Fathead minnow 48-hour LC_{50} value for survival.

(3) Parameter TJM6C: Report the Fathead minnow 48-hour percent mortality in the 100% effluent concentration.

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

(1) Retest #1 (STORET 22415): If the second monthly retest following failure of a routine test for either test species results in a 48-hour LC_{50} for survival equal to or less than 100%, report a "1"; otherwise, report a "0".

(2) Retest #2 (STORET 22416): If the second monthly retest following failure of a routine test for either test species results in a 48-hour LC_{50} for survival equal to or less than 100%, report a "1"; otherwise, report a "0".

Results of all retests shall be reported on a copy of the DMR for the reporting period (see Item 4.b above) in which the triggering routine test failure is experienced. Such retest results (using STORET codes 22415 and 22416 only) shall be postmarked or received no later than the 15th day of the month following completion of the retest. The full report for the retest (see Item 4.a above) shall be submitted along with the retest DMR. Even if a retest cannot be conducted before the end of the reporting period for which it is required (due to test initiation interval requirements), the retest results shall still be reported for the reporting period in which the triggering test failure is experienced. Under no circumstance shall the monitoring/reporting period dates for a supplemental retest DMR ever be modified. The permittee shall indicate the retest date in the comments section of the supplemental DMR and insert the date the DMR is submitted in the lower right hand corner. In this manner, both retests are reported for the same reporting period as the failed routine test triggering the retests. If retesting is not required during a given reporting period, the permittee shall leave the DMR retest fields blank.

5. Monitoring Frequency Reduction

a. The permittee may apply for a testing frequency reduction upon the successful completion of the second year of testing for one or both test species with no toxic effects demonstrated in any of the effluent dilutions. Certification in accordance with Item 5.b of this section shall be submitted with the time of such application for monitoring frequency reduction. If granted, the monitoring frequency may be reduced to a minimum of once per 6 months (once each during the periods June 1 through September 30 and December 1 through March 31).

b. Certification – The permittee must certify in writing that no 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, test acceptability parameters, LC_{50} concentrations, percent mortality at the 100% effluent dilution, and coefficients of variation for the control and 100% effluent dilution. 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 unit to update the permit reporting requirements. DEQ may refuse to approve the certification if it determines that, during the period for which the certification is submitted, there were errors in meeting test acceptability requirements, errors in statistical interpretation affecting test results reported on DMRs, late submissions of test reports or submissions of substantively incomplete test reports. If the certification is not approved, the permittee shall continue biomonitoring at a frequency of once per quarter until the permit is reissued.

c. Survival failures after a monitoring frequency reduction – If any survival endpoint test is failed at any time after the granting of a monitoring frequency reduction, two monthly retests are required in accordance with Item 2 above and the monitoring frequency for the affected test species shall be increased to the WET testing frequency prescribed in Part I until the permit is reissued. If the permittee is performing a TRE this section does not apply.

6. Toxicity Reduction Evaluation (TRE)

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

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

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

The documents referenced above may be available through the

National Technical Information Service (NTIS)

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

National Service Center for Environmental Publications (NSCEP)

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

E-mail: nscep@bps-lmit.com

(2) Sampling Plan (e.g., locations, methods, holding times, chain of custody, preservation, etc.). The effluent sample volume collected for all tests shall be adequate to perform the toxicity test, toxicity characterization, identification and confirmation procedures, and conduct chemical specific analyses when a probable toxicant has been identified. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity. Where toxicity was demonstrated within 48 hours of test initiation, each composite sample shall be analyzed independently. Otherwise, the permittee may substitute a composite sample, comprised of equal portions of the individual composite samples, for the chemical specific analysis.

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

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

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

c. The permittee shall submit to DEQ a quarterly TRE Activities Report with the Discharge Monitoring Report in months to be specified in their TRE plan, containing the following information:

(1) all data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

(2) all studies/evaluations and results on the treatability of the facility's effluent toxicity; and

(3) all data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant toxicity at any dilution.

d. The permittee shall submit to DEQ a Final Report on Toxicity Reduction Evaluation Activities no later than twenty-eight (28) months after confirming toxicity in the retests. The final report shall provide information pertaining to the specific control mechanism selected that will, when implemented, result in reduction of effluent toxicity to a 48-hour LC_{50} effluent value of greater than 100%. The final report will also provide a schedule for implementing the selected control mechanism.

e. Quarterly testing during the TRE is the minimum monitoring requirement. DEQ recommends that permittees performing a TRE not rely on quarterly testing alone. Failure to identify the specific chemical compound causing toxicity test failure will normally result in a permit limit for whole effluent toxicity per federal regulations at 40 CFR 122.44(d)(1)(v).

I. COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS

1. The facility shall begin collecting the required 40 CFR 122.21(r) permit application information and submit periodic progress reports according to the following schedule:

Type of Action Required [1]	Compliance Date
Submit proposal showing plan and timeline to collect the following information required by 40 CFR 122.21(r) so that this information can be submitted with the next permit application: 122.21(r)(2) Source Water Physical Data 122.21(r)(3) Cooling Water Intake Structure Data 122.21(r)(4) Source Water Baseline Biological Characterization Data 122.21(r)(5) Cooling Water System Data 122.21(r)(7) Existing Entrainment Performance Studies 122.21(r)(8) Operational Status	12 Months After Permit Effective Date
Submit annual reports on progress made towards collecting the required 40 CFR 122.21(r) information	Annually Beginning 2 Years After Permit Effective Date
Identify and submit intended method of compliance with impingement performance standard and begin any monitoring associated with the intended method of compliance	August 1, 2019
Submit available monitoring results associated with intended method of compliance with impingement performance standard	Annually Beginning 4 Years After Permit Effective Date
Submit all required 40 CFR 122.21(r) information and permit renewal application	180 Days Before Permit Expiration Date

[1] The above schedule of compliance can also be found in Part 1 Section C of the permit.

2. The facility shall conduct the following inspection, operational and maintenance measures on the cooling water intake structure (CWIS) on the Arkansas River, when the structure is in operation:

a) Bar grills shall be cleaned, as needed, but no less frequently than once per year.
b) Screens shall be visually inspected weekly.
c) Screens shall be in proper operating condition whenever the intake pumps are withdrawing water.

d) Screens shall be removed and cleaned on an as-needed basis, based upon the volume of debris visually observed on the screens or indicated by the pressure differential of the pump discharge. The debris shall be disposed of appropriately.
e) Routine preventative maintenance shall be conducted to maintain proper operating condition of the screens.
f) Records documenting the inspection, operation and maintenance described above shall be kept for a minimum of three (3) years, and made available to ODEQ upon request.

3. Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.

J. Surface Impoundment Requirements

1. A minimum freeboard of two (2) feet shall be maintained for surface impoundment F02. A minimum freeboard of two (2) feet shall be maintained for surface impoundment T01.

2. The permit may be reopened to implement and/or require impoundment modifications, additions, extensions, and/or operational changes; monitoring and reporting; reclassification of wastes; sludge management plans; best management practices; closure plans; and/or other appropriate actions.

3. At such time as any of the impoundments (F02 and T01) are to be permanently taken out of service or at such time as the contents of any of the impoundments (F02 and T01) pose a risk to the environment or waters of the state, the owner or operator of the facility shall be required to follow all closure requirements contained in OAC 252:616-13.

4. The facility shall maintain a written IMOP that discusses maintenance, operational, and monitoring procedures as specified in OAC 252:616-5-2 for impoundment T01 that contain Class II wastewater. The IMOP shall be kept on site and made available to the DEQ upon request. The IMOP must be followed and updated annually, if necessary. The following shall be addressed in the IMOP.

    a. Maintenance procedures including methods to protect impoundments and liner integrity
    b. Operation procedures used to protect surface impoundments and liner integrity
    c. The name and telephone number of personnel responsible for maintenance, operation and monitoring

5. In all other respects, surface impoundments F02 and T01 shall be subject to standard conditions for surface impoundments contained in OAC 252:616, Subchapters 5, 7, and 13, including but not limited to requirements for construction, operation, maintenance, monitoring and closure.

K. Other Disposal Methods

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewater shall be disposed of in a State-approved industrial waste disposal site or to a company for recycling. Disposal of any waste or wastewater shall be in a manner such as to prevent any pollutant from such materials from entering waters of the State or waters of the United States.

If any such industrial wastes are removed from the facility, the permittee shall keep accurate records which include the following information:

1. Name and address of company hauling waste.
2. The type and amount of waste hauled.
3. The final disposal site of waste hauled.

The permittee shall retain the above records for a period of at least five (5) years. Upon request, the above records shall be made available to the staff of the Department for inspection, review, and copying.

L. DEFINITIONS

1. The term "low volume waste sources" means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in 40 CFR Part 423. Low volume waste sources include, but are not limited to wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

2. The term "once through cooling water" means water passed through the main cooling condensers in one or two passes for the purpose of removing waste heat.

3. The term "free available chlorine" (or "free available oxidants" for intake water with bromides) shall mean the value obtained using any of the "chlorine—free available" methods in Table IB in 40 CFR 136.3(a) where the method has the capability of measuring free available chlorine, or other methods approved by the permitting authority.

4. The term "total residual chlorine" (or "total residual oxidants" for intake water with bromides) means the value obtained using any of the "chlorine—total residual" methods in Table IB in 40 CFR 136.3(a), or other methods approved by the permitting authority.

APPENDIX

DESCRIPTION OF WASTEWATER TREATMENT/DISPOSAL SURFACE IMPOUNDMENTS (S.I.)

S.I. [1]	Impoundment Description and Wastewater Classification OAC 252:616-1-2	Liner Description	Holding Capacity [2] OAC 252:616-7-1(6)	Wastewater Destination
F02	**Low Volume Waste Settling basin**: all low volume waste sources generated at the facility and stormwater runoff – Class III	Compacted clay	Approximately 2.5 million gallons	Outfall 001
T01	**Emergency Low Volume Waste Pond**: Chemical metal cleaning wastes from boilers – Class II	30-mil PVC membrane liner	Approximately 2.4 million gallons	Total retention, evaporation or to F02 as needed

(1) Designation T refers to total retention surface impoundment.
Designation F refers to flow-through surface impoundment.
(2) Based on information provided in the application.

LOCATION OF SURFACE IMPOUNDMENTS

S.I.	Legal Location	General Location and Description
F02	SE¼, SW¼, NW¼ Section 32, Township 18N, Range 13 EIM Tulsa County, Oklahoma	Immediately southeast of the generating station, west of T01
T01	NW¼, SE¼ and NE¼, SW¼, NW¼ Section 32, Township 18N, Range 13 EIM Tulsa County, Oklahoma	Immediately southeast of the cooling tower complex, east of F02