STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0130371
Owner:	City of Oak Grove
Address:	1300 Broadway, Oak Grove, MO 64075
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Oak Grove Wastewater Treatment Plant
Facility Address:	40298 East Gillespie Road, Oak Grove, MO 64011
Legal Description:	Page 2
UTM Coordinates:	Page 2
Receiving Stream:	Page 2
First Classified Stream and ID:	Page 2
USGS Basin & Sub-watershed No.:	Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

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This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

June 1, 2019
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

March 31, 2024
Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):
Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified "B" Operator.
Influent pump station / one peak flow equalization lagoon (cell #1 of previous treatment lagoon) / mechanical bar screen / grit removal / one extended aeration basin / splitter box / two final clarifiers / UV disinfection / two sludge holding lagoons (cells #2 & #3 of previous treatment lagoon) / sludge removed by contract hauler or stored in sludge holding lagoons / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater.

Design population equivalent is 13,000.
Design flow is 1.3 million gallons per day.
Actual flow is 1.02 million gallons per day.
Design sludge production is 305 dry tons/year.

Legal Description:	Sec. 22, T49N, R29W, Jackson County
UTM Coordinates:	X=404158, Y= 4321304
Receiving Stream:	Tributary to Sni-a-Bar Creek
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No.:	(10300101-0506)

Permitted Feature INF – Influent Monitoring – Headworks building

Legal Description:	Sec. 21, T49N, R29W, Jackson County
UTM Coordinates:	X=403920, Y=4321122

OUTFALL #001	**TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **June 1, 2019** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M						
Flow	MGD	*		*	once/weekday***	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		30	20	once/month	composite**
Total Suspended Solids	mg/L		35	25	once/month	composite**
E. coli (Note 1, Page 4)	#/100mL		1,030	206	once/week	grab
Ammonia as N (Apr 1 – Sep 30) (Oct 1 – Mar 31)	mg/L	 4.8 11.5		 1.3 2.6	once/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JULY 28, 2019. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units****	SU	6.5		9.0	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JULY 28, 2019.

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal (Note 2, Page 4)	%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 2, Page 4)	%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JULY 28, 2019.

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
**** pH is measured in pH units and is not to be averaged.

OUTFALL #001	TABLE A-1 (continued). FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **June 1, 2019** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: Q						
Oil & Grease	mg/L	15		10	once/quarter¥	grab
Cadmium, Total Recoverable	µg/L	*		*	once/quarter¥	composite**
Copper, Total Recoverable	µg/L	23.7		7.8	once/quarter¥	composite**
Selenium, Total Recoverable	µg/L	*		*	once/quarter¥	composite**
Hardness	mg/L	*		*	once/quarter¥	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2019.

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

¥ See table below for quarterly sampling requirements.

Quarterly Minimum Sampling Requirements			
Quarter	**Months**	**Oil & Grease, Metals, Hardness**	**Report is Due**
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

Table A-1 Notes:

Note 1 – Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

Note 2 – Influent sampling is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Percent Removal is calculated by the following formula: [(Average Influent –Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

OUTFALL #001	**TABLE A-2. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **June 1, 2019** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: WA						
Acute Whole Effluent Toxicity (Note 3)	TU_a	*			once/year	composite**
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2019.						
Limit Set: WC						
Chronic Whole Effluent Toxicity (Note 4)	TU_c	*			once/permit cycle	composite**
CHRONIC WET TEST REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE SEPTEMBER 28, 2021.						

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

Table A-2 Notes:
Note 3 – The Acute WET test shall be conducted once per year during the 1st, 3rd, 4th and 5th year of the permit cycle. See Special Condition #18 for additional requirements.

Note 4 – The Chronic WET test shall be conducted during the 2nd year of the permit cycle. See Special Condition #19 for additional requirements.

PERMITTED FEATURE INF	**TABLE B. INFLUENT MONITORING REQUIREMENTS**

The monitoring requirements shall become effective on **June 1, 2019** and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:

PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: IM						
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Ammonia as N	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JULY 28, 2019.						

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and March 1, 2015, and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

1. Electronic Discharge Monitoring Report (eDMR) Submission System.
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
      (1) Collection System Maintenance Annual Reports;
      (2) Sludge/Biosolids Annual Reports;
         i. In addition to the annual Sludge/Biosolids report submitted to the Department, the permittee must submit Sludge/Biosolids Annual Reports electronically using EPA's NPDES Electronic Reporting Tool ("NeT") (https://cdx.epa.gov/).; and
      (3) Any additional report required by the permit excluding bypass reporting.
      After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.
   (c) Other actions. The following shall be submitted electronically after such a system has been made available by the Department:
      (1) Notices of Intent to discharge (NOIs);
      (2) Notices of Termination (NOTs); and
      (3) Bypass reporting, See Special Condition #9 for 24-hr. bypass reporting requirements.
   (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
   (e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
   (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) To incorporate an approved pretreatment program or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.

3. All outfalls must be clearly marked in the field. This does not include instream monitoring locations.

4. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as "no flow" if no stream flow occurs during the report period.

D. SPECIAL CONDITIONS (continued)

5. Reporting of Non-Detects:
   (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
   (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
   (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).
   (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
   (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
   (f) When calculating monthly averages, one-half of the method detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (c).

6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

7. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. To request a modification of the operational control testing requirements listed in 10 CSR 20-9, the permittee shall submit a permit modification application and fee to the Department requesting a deviation from the operational control monitoring requirements. If the request is approved, the Department will modify the permit.

8. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide for Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002) or the Departments' CMOM Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. For additional information regarding the Department's CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm.

   The permittee shall also submit a report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28th, for the previous calendar year. The report shall contain the following information:
   (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
   (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
   (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

9. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2. Bypasses are to be reported to the Kansas City Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: https://dnr.mo.gov/mogem/ or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.

10. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

11. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.

12. An all-weather access road shall be provided to the treatment facility.

D. SPECIAL CONDITIONS (continued)

13. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

14. Sludge treatment storage and disposal practices shall be conducted in accordance with Standard Conditions Part III. The permittee shall receive approval for any sludge treatment, storage, or disposal practices not identified in the facility description of the operating permit.

15. The berms of the flow equalization lagoon cell and the two sludge holding lagoon cells shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.

16. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the equalization lagoon cell and the two sludge holding lagoon cells and to divert stormwater runoff around the equalization lagoon cell and the two sludge holding lagoon cells and protect embankments from erosion.

17. Expanded Effluent Testing:
Permittee must sample and analyze for the pollutants listed in 40 CFR 122.21 Appendix J, Table 2 as well as aluminum and iron. Pursuant to 40 CFR 122.21(j)(4) the permittee shall provide this data with the permit renewal application from a minimum of three samples taken within four and one-half years prior to the date of the permit application. Samples must be representative of the seasonal variation in the discharge from each outfall. Approved and sufficiently sensitive testing methods listed in 40 CFR 136.3 must be utilized to detect pollutant concentrations below the Water Quality Criteria established in 10 CSR 20-7.031.

18. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
    (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
        - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
        - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
    (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
    (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
    (d) The Allowable Effluent Concentration (AEC) is 100%; the dilution series is: 6.25%, 12.5%, 25%, 50%, and 100%.
    (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent (LC_{50}) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.

D. SPECIAL CONDITIONS (continued)

19. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
    (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136).* The permittee shall concurrently conduct 7-day, static, renewal toxicity tests with the following species:
        - The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
        - The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
    (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
    (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
    (d) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
    (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0130371
OAK GROVE WASTEWATER TREATMENT PLANT

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)(A)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Major treatment plant.

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description: Influent pump station / peak flow equalization lagoon (cell #1 of previous treatment lagoon) / mechanical bar screen / grit removal / one extended aeration basin / splitter box / two final clarifiers / UV disinfection / two sludge holding lagoons (cells #2 & #3 of previous treatment lagoon) / sludge removed by contract hauler or stored in sludge holding lagoon.

Have any changes occurred at this facility or in the receiving water body that affects effluent limit derivation?
☒ - No.

Application Date: 12/20/18
Expiration Date: 03/31/19

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	2.015	Secondary	Domestic

Facility Performance History:
This facility was last inspected on January 11-12, 2016. The conditions at the time of the inspections were found to be satisfactory. A review of Discharge Monitoring Report (DMR) data revealed the following observations or exceedances (month/year): Ammonia as N: 5/10; BOD_5: 9/14; Copper, Total Recoverable: 3/17; *E. coli*: 7/18, 6/18; and DMR Non-Receipts: 3/16, 3/14, 3/13 (WET Tests)

Comments:
Changes made while drafting this permit include new Reasonable Potential Analyses for Total Recoverable Copper and Ammonia as N; addition of monthly Speciated Nitrogen and Total Phosphorus monitoring for both the influent and effluent as required by new state regulations for Nutrient Monitoring; sampling type was updated per regulations that state mechanical plants shall be a 24-hour composite; a Chronic Whole Effluent Toxicity (WET) test once per permit cycle; a Cost Analysis for Compliance was provided in the Appendices for new sampling costs; and requirement for Operator Certification Level was adjusted from an A level to B level. See Part VI of the Fact Sheet for further information regarding the addition and removal of effluent parameters. Special conditions were updated to include a requirement for sufficiently sensitive methods for Expanded Effluent Testing; the removal of general criteria as a special condition as the permit writer evaluated each narrative statement in Part VI – Effluent Limits Determination for reasonable potential to cause or contribute to an excursion of the criteria and established numeric effluent limitations where necessary; and the removal of a SWPPP and BMP special conditions because the facility submitted a No Exposure Certification that was approved by the Department.

Part II – Operator Certification Requirements

☒ - This facility is required to have a certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], the permittee shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Owned or operated by or for a

☒ - Municipalities	☐ - State agency
☐ - County	☐ - Public Water Supply Districts
☐ - Public Sewer District	☐ - Private Sewer Company regulated by the Public Service Commission

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200).

This facility currently requires a chief operator with a B Certification Level. Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: Bryan Leighow
Certification Number: 5910
Certification Level: A

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

Part III– Operational Control Testing Requirements

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publically owned treatment works and privately owned facilities regulated by the Public Service Commission to conduct internal operational control monitoring to further ensure proper operation of the facility and to be a safeguard or early warning for potential plant upsets that could affect effluent quality. This requirement is only applicable if the publically owned treatment works and privately owned facilities regulated by the Public Service Commission has a Population Equivalent greater than two hundred (200).

10 CSR 20-9.010(3) allows the Department to modify the monitoring frequency required in the rule based upon the Department' judgement of monitoring needs for process control at the specified facility

☒ - As per [10 CSR 20-9.010(4))], the facility is required to conduct operational monitoring. The facility is a mechanical plant and is required to conduct operational control monitoring as follows:

Operational Monitoring Parameter	Frequency
Precipitation	Daily (M-F)
Flow – Influent or Effluent	Daily (M-F)
pH – Influent	Daily (M-F)
Temperature (Aeration basin)	Daily (M-F)
TSS – Influent	Weekly
TSS – Mixed Liquor	Weekly
Settleability – Mixed Liquor	Daily (M-F)
Dissolved Oxygen – Mixed Liquor	Daily (M-F)

Part IV – Receiving Stream Information

RECEIVING STREAM(S) TABLE: OUTFALL #001

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Sni-a-Bar Creek	NA	NA	General Criteria	10300101-0506	Direct Discharge
Tributary to Sni-a-Bar Creek	C	3960	AQL, WBC-B, SCR, HHP, IRR, LWW		0.02
Sni-a-Bar Creek	P	399	AQL, WBC-B, SCR, HHP, IRR, LWW		0.78

*As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream's beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(C)].

Uses which may be found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:
AQL = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; **CDF** = Cold-water fishery (Current narrative use is cold-water habitat.); **CLF** = Cool-water fishery (Current narrative use is cool-water habitat); EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water
WBC = Whole Body Contact recreation where the entire body is capable of being submerged;
WBC-A = Whole body contact recreation that supports swimming uses and has public access;
WBC-B = Whole body contact recreation that supports swimming;
SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:
HHP (formerly HHF) = Human Health Protection as it relates to the consumption of fish;
IRR = Irrigation for use on crops utilized for human or livestock consumption;
LWW = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);
DWS = Drinking Water Supply;
IND = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)
WSA = Storm- and flood-water storage and attenuation; WHP = Habitat for resident and migratory wildlife species; WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; WHC = Hydrologic cycle maintenance.

10 CSR 20-7.031(6): **GRW** = Groundwater

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Sni-a-Bar Creek	0	0	0

RECEIVING STREAM MONITORING REQUIREMENTS:

Receiving Water Body's Water Quality
No stream survey of the receiving stream has been conducted.

Comments:
The facility does not discharge directly to Sni-a-Bar Creek. However, the first classified stream discharges to Sni-a-Bar Creek, which is on the 303(d) list for Dissolved Oxygen (DO).

Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:
As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

☒ - The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(40)] & [10 CSR 20-7.031(1)(O)] or is an existing facility.

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(o); 40 CFR Part 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ - Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

☒ - Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

- **Ammonia as N**. Effluent limitations were re-calculated for Ammonia based on new information derived from discharge monitoring reports and on the current Missouri Water Quality Standards for Ammonia. The newly established limitations are still protective of water quality.
- **Copper, Total Recoverable**. Effluent limitations were re-calculated for Total Recoverable Copper based on new information derived from discharge monitoring reports and on the current Missouri Water Quality Standards for Copper. The newly established limitations are still protective of water quality.
- **Sampling Frequency**. The previous permit contained twice monthly sampling and reporting frequencies for BOD_5 and TSS. This permit contains once monthly sampling and reporting frequencies due to the low design flow of the facility, consistency amongst effluent data, and compliance with effluent limits. The permit is still protective of water quality.

☒ - The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).

- **General Criteria**. The previous permit contained a special condition which described a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4). In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit special condition creates the appearance of backsliding, since this permit establishes numeric limitations where reasonable potential to cause or contribute to an excursion of the general criteria exists the permit maintains sufficient effluent limitations and monitoring requirements in order to protect water quality, this permit is equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit. Please see Part VI – Effluent Limits Determination for more information regarding the reasonable potential determinations for each general criterion related to this facility.

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], for domestic wastewater discharge with new, altered, or expanding discharges, the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the Department prior to establishing, altering, or expanding discharges. See http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm

☒ - No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

For stormwater discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

☒ - The facility does not have stormwater discharges or the stormwater outfalls onsite have no industrial exposure.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:
As per [10 CSR 20-6.010(2)(C)], …An applicant may utilize a lower preference continuing authority by submitting, as part of the application, when a higher level authority is available, must submit information to the department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:
Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works

☒ - Permittee is not authorized to land apply biosolids. Sludge/biosolids are stored in lagoon until removal by contract hauler.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

☒ - The facility is not currently under Water Protection Program enforcement action.

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:
The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. This final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online. In an effort to aid facilities in the reporting of applicable information electronically, the Department has created several new forms including operational control monitoring forms and an I&I location and reduction form. These forms are for optional use and can be found on the Department's website at the following locations:

Operational Monitoring Lagoon: http://dnr.mo.gov/forms/780-2801-f.pdf
Operational Monitoring Mechanical: http://dnr.mo.gov/forms/780-2800-f.pdf
I&I Report: http://dnr.mo.gov/forms/780-2690-f.pdf

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

☒ - The permittee/facility is currently using the eDMR data reporting system.

NUMERIC LAKE NUTRIENT CRITERIA

☒ - This facility does not discharge into a lake watershed where numeric lake nutrient criteria are applicable.

PRETREATMENT PROGRAM:
The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:
- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

☒ - The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL ANALYSIS (RPA):
Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(1)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

☒ - An RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

☒ - Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(12)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

Inflow and Infiltration (I&I) is defined as unwanted intrusion of stormwater or groundwater into a collection system. This can occur from points of direct connection such as sump pumps, roof drain downspouts, foundation drains, and storm drain cross-connections or through cracks, holes, joint failures, faulty line connections, damaged manholes, and other openings in the collection system itself. I&I results from a variety of causes including line breaks, improperly sealed connections, cracks caused by soil erosion/settling, penetration of vegetative roots, and other sewer defects. In addition, excess stormwater and groundwater entering the collection system from line breaks and sewer defects have the potential to negatively impact the treatment facility.

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses and upsets occur. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department

for the previous calendar year that contains a summary of efforts taken by the permittee to locate and eliminate sources of excess I & I, a summary of general maintenance and repairs to the collection system, and a summary of any planned maintenance and repairs to the collection system for the upcoming calendar year.

☒ - At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002) or the Departments' CMOM Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm. The CMOM identifies some of the criteria used to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

SCHEDULE OF COMPLIANCE (SOC):

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit may include interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1), 10 CSR 20-7.031(11), and 10 CSR 20-7.015(9), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, an SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

An SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. An SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study that may result in site-specific criteria or alternative effluent limits. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance to Permit Writers in developing SOCs, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOCs. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as a Cost Analysis for Compliance.

☒ - This permit does not contain an SOC.

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:

In accordance with [10 CSR 20-6.010(6)(A)], the Department may grant approval of a permittee's Sewer Extension Authority Supervised Program. These approved permittees regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility. The permittee shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. See http://dnr.mo.gov/env/wpp/permits/sewer-extension.htm.

☒ - The permittee does not have a Department approved Sewer Extension Authority Supervised Program.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. For further guidance, consult the antidegradation implementation procedure (http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf).

Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs that are reasonable and cost effective. The AA evaluation should include practices that are designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why "no discharge" or "no exposure" is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the Department to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification; the application is found at: http://dnr.mo.gov/forms/index.html.

☒ - 10 CSR 20-6.200 and 40 CFR 122.26 includes treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of the facility, with a design flow of 1.0 mgd or more, or are required to have an approved pretreatment program under 40 CFR part 403, as an industrial activity in which permit coverage is required.

In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). A facility can apply for conditional exclusion for "no exposure" of industrial activities and materials to stormwater by submitting a permit modification via Form B2 (http://dnr.mo.gov/forms/780-1805-f.pdf) appropriate application filing fees and a completed No Exposure Certification for Exclusion from NPDES Stormwater Permitting under Missouri Clean Water Law (https://dnr.mo.gov/forms/780-2828-f.pdf) to the Department's Water Protection Program, Operating Permits Section. Upon approval of the No Exposure Certification, the permit will be modified and the Special Condition to develop and implement a SWPPP will be removed. This information will be reevaluated at the time of renewal.

The City of Oak Grove submitted a No Exposure Certification for Exclusion from NPDES Stormwater Permitting, which was approved by the Department on March 25, 2019. This exclusion will be reevaluated at the time of renewal.

VARIANCE:
As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

☒ - This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(86)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

☒ - Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$Ce = \frac{(Qe + Qs)C - (Qs \times Cs)}{(Qe)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration Ce = effluent concentration
Cs = upstream concentration Qe = effluent flow
Qs = upstream flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":
Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

WLA MODELING:
There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

☒ - A WLA study including modeling was submitted to the Department. The City of Oak Grove contracted with MEC Water Resources to conduct a water quality study, develop a water quality model, and submit recommended effluent limitations to the Department. The Water Quality Review Sheet that contains the WLA modeling can be found attached in the appendices of this permit.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(4)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

☒ - The permittee is required to conduct WET test for this facility.

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A) and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(J)2.A & B are being met. Under [10 CSR 20-6.010(8)(B)], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc…); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- ☒ Facility is a designated Major.
- ☐ Facility continuously or routinely exceeds its design flow.
- ☐ Facility that exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
- ☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
- ☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☒ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH_3)
- ☒ Facility is a municipality with a Design Flow ≥ 22,500 gpd.
- ☐ Other – please justify.

40 CFR 122.41(M) - BYPASSES:
The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from "bypassing" untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-7.015(9)(G) states a bypass means the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending, to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri's Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

☒ - This facility does not anticipate bypassing.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

☒ - This facility discharges to a tributary 0.78 miles upstream of a Sni-a-Bar Creek (399), which is on the 2016 303(d) list for low Dissolved Oxygen. It is unknown at this time if the facility is considered to contribute to the impairment of Sni-a-Bar Creek. Due to the findings of a WLA study and QUAL2E model that established BOD_5 effluent limits, which protects the instream dissolved oxygen water quality criteria, no Dissolved Oxygen has been included in this permit.

Part VI – Effluent Limits Determination

CATEGORIES OF WATERS OF THE STATE:
As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

- ☐ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ☐ Lakes or Reservoirs [10 CSR 20-7.015(3)]
- ☐ Losing Streams [10 CSR 20-7.015(4)]
- ☐ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
- ☐ Special Streams [10 CSR 20-7.015(6)]
- ☐ Subsurface Waters [10 CSR 20-7.015(7)]
- ☒ All Other Waters [10 CSR 20-7.015(8)]

OUTFALL #001 – MAIN FACILITY OUTFALL

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	*/*	1/week-days	monthly	T
BOD_5	mg/L	1		30	20	30/20	1/month	monthly	C
TSS	mg/L	1		35	25	35/25	1/month	monthly	C
*Escherichia coli***	#/100mL	1, 3		1,030	206	1,030/ 206	1/week	monthly	G
Ammonia as N (Apr 1 –Sep 30)	mg/L	2, 3	4.8		1.3	4.5/1.3	1/month	monthly	C
Ammonia as N (Oct 1 – Mar 31)	mg/L	2, 3	11.5		2.6	11.4/2.6	1/month	monthly	C
Oil & Grease	mg/L	1, 3	15		10	15/10	1/quarter	quarterly	G
Total Phosphorus	mg/L	1	*		*	*	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1	*		*	*	1/month	monthly	C
Nitrite+Nitrate	mg/L	1	*		*	*	1/month	monthly	C
Cadmium, total Recoverable	µg/L	7	*		*	*/*	1/quarter	quarterly	C
Copper, Total Recoverable	µg/L	2, 3	23.7		7.8	22.1/7.5	1/quarter	quarterly	C
Selenium, Total Recoverable	µg/L	7	*		*	*/*	1/quarter	quarterly	C
Hardness	mg/L	7	*		*	*/*	1/quarter	quarterly	G
Acute Whole Effluent Toxicity	TUa	1, 9	*			Pass/ Fail	1/year	annually	C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			Pass/ Fail	1/permit cycle	1/permit cycle	C

PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.5		9.0	6.5-9.0	1/month	monthly	G

PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD_5 Percent Removal	%	1			85	85	1/month	monthly	M
TSS Percent Removal	%	1			85	85	1/month	monthly	M

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
G = Grab
T = 24-hr. total
E = 24-hr. estimate
M = Measured/calculated

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy
10. Multiple Discharger Variance
11. Nutrient Criteria Implementation Plan

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD_5).** Operating permit retains 30 mg/L as a Weekly Average and 20 mg/L as a Monthly Average from the previous permit. This limit was initially established in a Water Quality Review Sheet developed in 2004 with consideration of a WLA study and QUAL2E model submitted to the Department by MEC Water Resources. For a detailed explanation of this limit, please see Appendix – Water Quality Review Sheet.

- **Total Suspended Solids (TSS).** Operating permit retains 35 mg/L as a Weekly Average and 25 mg/L as a Monthly Average from the previous permit. This limit was initially established in a Water Quality Review Sheet developed in 2004 with consideration of a WLA study and QUAL2E model submitted to the Department by MEC Water Resources. For a detailed explanation of this limit, please see Appendix – Water Quality Review Sheet.

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1,030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5^{th} root of (1)(4)(6)(10)(5) = 5^{th} root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Season	Temp (˚C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30
Chronic WLA: $C_e = ((2.015 + 0.0)1.5 – (0.0 * 0.01))/2.015$
$C_e = 1.5$ mg/L

Acute WLA: $C_e = ((2.015 + 0.0)12.1 – (0.0 * 0.01))/2.015$
$C_e = 12.1$ mg/L

$LTA_c = 1.5$ mg/L (0.6736) = 1.01 mg/L [CV = 0.97, 99th Percentile, 30 day avg.]
$LTA_a = 12.1$ mg/L (0.209) = 2.52 mg/L [CV = 0.97, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.01 mg/L (4.7926) = **4.8** mg/L [CV = 0.97, 99th Percentile]
AML = 1.01 mg/L (1.32) = **1.3** mg/L [CV = 0.97, 95th Percentile, n =30]

Winter: October 1 – March 31
Chronic WLA: $C_e = ((2.015 + 0.0)3.1 – (0.0 * 0.01))/2.015$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((2.015 + 0.0)12.1 – (0.0 * 0.01))/2.015$
$C_e = 12.1$ mg/L

$LTA_c = 3.1$ mg/L (0.586) = 1.82 mg/L [CV = 1.35, 99th Percentile, 30 day avg.]
$LTA_a = 12.1$ mg/L (0.1575) = 1.91 mg/L [CV = 1.35, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.82 mg/L (6.35) = **11.5** mg/L [CV = 1.35, 99th Percentile]
AML = 1.82 mg/L (1.45) = **2.6** mg/L [CV = 1.35, 95th Percentile, n =30]

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Total Phosphorus and Total Nitrogen (Speciated)**. Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate required per 10 CSR 20-7.015(9)(D)8.

- **pH**. 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU.

- **Biochemical Oxygen Demand (BOD_5) Percent Removal**. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD_5.

- **Total Suspended Solids (TSS) Percent Removal**. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the "Technical Support Document for Water Quality-based Toxic Controls" (EPA/505/2-90-001) and "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 174.75 mg/L is used in the conversion below.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.960	0.960

Conversion factors for Cu are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 174.75 mg/L.

- **Copper, Total Recoverable**

  Acute Dissolved WQS: e(0.9422 x ln 174.75 - 1.700300) x 0.960 = 22.7 µg/L
  Chronic Dissolved WQS: e(0.8545 x ln 174.75 - 1.702) x 0.960 = 14.4 µg/L

  Acute Dissolved to Total Recoverable Copper Conversion Factor: 0.960
  Chronic Dissolved to Total Recoverable Copper Conversion Factor: 0.960

  Acute Total Recoverable WQS: Acute Dissolved WQS/Acute Conversion Factor
  Acute Total Recoverable WQS: 22.7 µg/L/0.96 = 23.68 µg/L

  Chronic Total Recoverable WQS: Chronic Dissolved WQS/Chronic Conversion Factor
  Chronic Total Recoverable WQS: 14.4 µg/L/0.96 = 15.03 µg/L

  Acute WLA: $C_e = ((2.015 + 0.0)23.68 – (0.0 * 0.0))/2.015 = 23.68$ µg/L
  Chronic WLA: $C_e = ((2.015 + 0.0)15.03 – (0.0 * 0.0))/2.015 = 15.03$ µg/L

  LTA_a: 23.68 (0.125) = 2.96 µg/L [CV = 0.6, 99th Percentile]
  LTA_c: 15.03 (0.222) = 3.33 µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_a or LTA_c.

  MDL: 2.96 (8.00) = **23.7** µg/L [CV = 0.6, 99th Percentile]
  AML: 2.96 (2.65) = **7.8** µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Cadmium, Total Recoverable**. Monitoring only. The sampling data provided for this parameter was not sufficiently sensitive to assume no reasonable potential exists in the effluent to exceed Water Quality Standards. This determination will be reassessed at the time of renewal.

- **Selenium, Total Recoverable**. Monitoring only. The sampling data provided for this parameter was not sufficiently sensitive to assume no reasonable potential exists in the effluent to exceed Water Quality Standards. This determination will be reassessed at the time of renewal.

Whole Effluent Toxicity

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards. Where no mixing is allowed, the acute criterion must be met at the end of the pipe. However, when using an LC50 as the test endpoint, the acute toxicity test has an upper sensitivity level of 100% effluent, or 1.0 TUa. If less than 50% of the test organisms die at 100% effluent, the true LC50 value for the effluent cannot be measured, effectively acting as a detection limit. Therefore, when the allowable effluent concentration is 100% a limit of 1.0 TUa will apply. If more than 50% of the organisms survive at 100% effluent, the permittee should report TUa <1.

  Acute Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C are 100%, 50%, 25%, 12.5%, & 6.25%.

- **Chronic Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.

  Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C are 100%, 50%, 25%, 12.5%, & 6.25%.

Sampling Frequency Justification: BOD_5 and TSS which were reduced from twice monthly to monthly while Total Nitrogen (now Speciated) and Total Phosphorus were changed from quarterly to monthly as part of Nutrient Monitoring. Sampling and Reporting Frequency was retained from previous permit for Flow an Ammonia as N for Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

WET Test Sampling Frequency Justification. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.

Acute Whole Effluent Toxicity

☒ - No less than **ONCE/YEAR:**
- ☒ -Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- ☒ -Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

Chronic Whole Effluent Toxicity

☒ -No less than **ONCE/PERMIT CYCLE:**
- ☒ -POTW facilities with a design flow of greater than 1.0 million gallons per day, but less than 10 million gallons per day, shall conduct and submit to the Department a chronic WET test no less than once per five years. These minimum testing frequencies may be increased based on toxic parameters present in a facility's in the effluent, demonstrated toxicity in previous WET tests, or based on impacts to the receiving stream

Sampling Type Justification: As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, *E. coli*, and Oil & Grease in accordance with recommended analytical methods. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

PERMITTED FEATURE INF – INFLUENT MONITORING

The monitoring requirements established in the below Monitoring Requirements Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including the monitoring requirements listed in this table.

INFLUENT MONITORING TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Ammonia as N	mg/L	1	*		*	***	1/month	monthly	C
Total Phosphorus	mg/L	1	*		*	***	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1	*		*	***	1/month	monthly	C
Nitrite + Nitrate	mg/L	1	*		*	***	1/month	monthly	C

* - Monitoring requirement only.
** - Parameter not previously established in previous state operating permit.
**** - C = Grab

Basis for Limitations Codes:
1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy
10. Multiple Discharger Variance
11. Nutrient Criteria Implementation Plan

Influent Parameters

- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia**. Influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia required per 10 CSR 20-7.015(9)(D)8.

Sampling Frequency Justification: Nutrient influent monitoring frequencies established per 10 CSR 20-7.015(9)(D)8.

Sampling Type Justification: Sample types for Total Phosphorus and Nitrogen parameters align with other influent parameters. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the recent Report of Compliance Inspection for the inspection conducted on January 11-12, 2016 no evidence of an excursion of this criterion has been observed by the Department. The facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with effluent limitations that are more stringent than the secondary treatment technology based effluent limits established in 40 CFR 133. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to an excursion of this criterion.

(B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit contains final effluent limitations which are protective of both acute and chronic toxicity for various pollutants that are either expected to be discharged by domestic wastewater facilities or that were disclosed by this facility on the application for permit coverage. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.

(E) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.

(F) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.

(G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (A) above as justification is the same.

(H) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

Part VII – Cost Analysis for Compliance

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

☒ - The Department is required to determine "findings of affordability" because the permit applies to a combined or separate sanitary sewer system for a publically-owned treatment works.

Cost Analysis for Compliance - The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3.

The following table summarizes the results of the cost analysis. See **Appendix – Cost Analysis for Compliance** for detailed information.

Summary Table. Cost Analysis for Compliance Summary for the City of Oak Grove

New Permit Requirements			
The permit requires compliance with new monthly monitoring for influent and effluent Total Phosphorus and Total Nitrogen (speciated).			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
$2,180	$51,757	$45.45	1.05%

Part VIII – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

WATER QUALITY STANDARD REVISION:
In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.

☒ - This operating permit does not contain requirements for a water quality standard that has changed twenty-five percent or more since the previous operating permit.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

PUBLIC NOTICE:
The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing. The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ - The Public Notice period for this operating permit was from March 30, 2019 through April, 30 2019. No comments received.

DATE OF FACT SHEET: FEBRUARY 27, 2019

COMPLETED BY:

KYLE WILLENBURG, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
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Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	1
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	2 (peak)
EFFLUENT DISCHARGE		
Missouri or Mississippi River	0	-
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	-
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	-
Discharge to losing stream, lake or reservoir area supporting whole body contact recreation	3	3
Direct reuse or recycle of effluent	6	-
PRELIMINARY TREATMENT – Headworks		
STEP systems (Operated by permittee)	3	-
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	3
Flow equalization	5	5
PRIMARY TREATMENT		
Primary clarifiers	5	-
Chemical addition (except chlorine, enzymes)	4	-
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Labwork done outside the plant	0	-
Push – button or visual methods for simple test such as pH, Settleable solids	3	-
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	-
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	-
LAND APPLICATION/IRRIGATION		
Drip Irrigation	3	-
Land Application/irrigation	5	-
Overland flow	4	-
Total from page **ONE (1)**	----	27

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only)		
Variation do not exceed those normally or typically expected	0	-
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	2
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	-
Department-approved pretreatment program	6	-
SECONDARY TREATMENT		
Trickling filter and other fixed film media with or without secondary clarifiers	10	-
Activated sludge (including extended aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors and contact stabilization)	15	15
Stabilization ponds without aeration	5	-
Aerated lagoon	8	-
Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film	10	-
Biological, physical or chemical	12	-
Carbon regeneration	4	-
DISINFECTION		
Chlorination or comparable	5	-
On-site generation of disinfectant (except UV light)	5	-
Dechlorination	2	-
UV light	4	4
SOLIDS HANDLING – SLUDGE		
Sludge holding	5	5
Anaerobic digestion	10	-
Aerobic digestion	6	-
Evaporative sludge drying	2	-
Mechanical dewatering	8	-
Solids reduction (incineration, wet oxidation)	12	-
Land application	6	-
Total from page **TWO (2)**	----	26
Total from page **ONE (1)**	---	27
Grand Total	---	53

☐ - A: 71 points and greater
☒ - B: 51 points – 70 points
☐ - C: 26 points – 50 points
☐ - D: 0 points – 25 points

APPENDIX – RPA RESULTS:

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	8.27	1.5	8.27	73	4.37/0.02	0.97	1.89	YES
Total Ammonia as Nitrogen (Winter) mg/L	12.1	18.77	3.1	18.77	75	8.6/0.08	1.35	2.18	YES
Copper, Total Recoverable	23.7	217.44	15.0	217.44	29	71.2/1	1.8	3.05	YES

N/A – Not Applicable
* - Units are (µg/L) unless otherwise noted.
** - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.
*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.
RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).
n – Is the number of samples.
MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.
RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

APPENDIX – WATER QUALITY REVIEW SHEET

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet
Determination of Effluent Limits

Facility Information

FACILITY NAME: Oak Grove WWTP (Proposed) NPDES #: N/A

FACILITY TYPE/DESCRIPTION: Proposed 1.3 MGD mechanical plant will eliminate the Oak Grove North WWTF (MO-0040886) and Oak Grove South WWTP (MO-0106259) lagoons.

ECOREGION: Central Irregular Plains (Central Irregular Plains, Mississippi Alluvial Plains, Osage Plains, Ozark Highlands) 8-DIGIT HUC: 10300101 COUNTY: Lafayette

LEGAL DESCRIPTION: SW SW Sec.22, T49N, R29W LATITUDE/LONGITUDE: +39.03352/-94.10656

WATER QUALITY HISTORY:
Horseshoe Creek, the receiving stream for the Oak Grove North and South lagoons, has been placed on the 2002 303(d) list for BOD and ammonia from these facilities. The proposed WWTF will eliminate the lagoon discharges to Horseshoe Creek and improvements in water quality are expected. The City of Oak Grove contracted with MEC Water Resources to conduct a water quality study, develop a water quality model, and submit recommended effluent limitations to the department for review and consideration.

Outfall Characteristics

OUTFALL	FACILITY	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY
001	Oak Grove WWTF	2.02	Mechanical	Unnamed Tributary to Sni-A-Bar Creek

Receiving Waterbody Information

WATERBODY	CLASS	7Q10(CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
Unnamed Tributary to Sni-A-Bar Creek	U	0.0	N/A	~0.7 mi to Sni-A-Bar Cr.
Sni-A-Bar Creek	P	0.1	LWW, AQL, BTG	WBID: 0399

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS:
Updated WQRS and associated water quality based effluent limits (WQBELs) developed to reflect new receiving stream information and consideration of submitted results from the MEC Water Resources water quality study and QUAL2E model.

MIXING CONSIDERATIONS:

Mixing Zone (MZ). Unnamed tributary to Sni-A-Bar Creek is unclassified, therefore no mixing zone is allowed. Acute criteria apply per 10 CSR 20-7.031(3)(I)1. and chronic criteria must be met immediately downstream of the confluence with Sni-A-Bar Creek.

Zone of Initial Dilution (ZID). Not allowed. Unnamed tributary to Sni-A-Bar Creek is unclassified and acute criteria must be met end-of-pipe.

Permit Limits and Information

TMDL WATERSHED: (Y OR N)	W.L.A. STUDY CONDUCTED: (Y OR N)	DISINFECTION REQUIRED: (Y OR N)	DISINFECTION WAIVER: (Y, N, NA)
Y	Y	Y	N	NA

OUTFALL# 001

WET TEST (Y OR N): Y FREQUENCY: ONCE/YEAR A.E.C. 100% LIMIT: NO SIGNIFICANT MORTALITY

PARAMETER	UNITS	MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY	SAMPLE TYPE
FLOW		*		*	DAILY	24 hour total
BIOCHEMICAL OXYGEN DEMAND (BOD_5)	MG/L		30	20	ONCE/WEEK	Composite
TOTAL SUSPENDED SOLIDS	MG/L		35	25	ONCE/WEEK	Composite
PH	SU	6 – 9		6 – 9	ONCE/WEEK	Grab
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2.8		1.4	ONCE/WEEK	Composite
AMMONIA AS N (NOV 1 – APR 30)	MG/L	4.7		2.3	ONCE/WEEK	Composite
TEMPERATURE	°C	*		*	ONCE/WEEK	grab
DISSOLVED OXYGEN	MG/L	*		*	ONCE/WEEK	grab
TOTAL NITROGEN	MG/L	*		*	ONCE/MONTH	grab
NITRATE + NITRITE	MG/L	*		*	ONCE/MONTH	grab

* - Monitoring Requirement Only

Receiving Water Monitoring Requirements

Site S1.

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen**	Once/month	Grab	Immediately upstream of confluence with Sni-A-Bar Creek
Temperature	Once/month	Grab	
pH	Once/month	Grab	
Ammonia as Nitrogen	Once/month	Grab	
Total Suspended Solids	Once/month	Grab	

The upstream sampling location (S1) must be located such that samples are uninfluenced by WWTF effluent.

Site S2.

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen**	Once/month	Grab	Immediately downstream of confluence with Sni-A-Bar Creek
Temperature	Once/month	Grab	
pH	Once/month	Grab	
Ammonia as Nitrogen	Once/month	Grab	
Total Suspended Solids	Once/month	Grab	

**Dissolved oxygen samples must be taken during the period from one hour before to one hour after sunrise.

Derivation and Discussion of Limits

Wasteload allocations were calculated using water quality criteria and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow (cfs)
C_e = effluent concentration
Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

- **Biochemical Oxygen Demand (BOD_5)**. Preliminary modeling by department staff indicated that $CBOD_5$ levels above 5 mg/L (or BOD_5 = 10 mg/L) may cause dissolved oxygen depressions harmful to aquatic life during low flow periods for a discharge directly to Horseshoe Creek. These limits were presented in a previous WQRS dated 04/18/02 and revised 01/28/03.

  The City of Oak Grove has proposed to discharge to an unclassified tributary to Sni-A-Bar Creek and has contracted with MEC Water Resources to conduct a water quality study and submit recommended effluent limits to the department for review and consideration. The results of the water quality study and QUAL2E modeling indicate a $CBOD_5$ wasteload allocation (WLA) of 20 mg/L, along with an ammonia as nitrogen WLA of 2.9 mg/L, is expected to prevent dissolved oxygen excursions below applicable criteria during the summer. No recommended $CBOD_5$ WLA was submitted for the winter.

  In determining compliance of the water quality model with the dissolved oxygen minimum criteria (5.0 mg/L), MEC Water Resources applied an older departmental interpretation of the mixing zone regulations. The old interpretation allowed for compliance with water quality criteria 0.25 miles downstream of the confluence of an unclassified receiving stream and a classified waterbody. Current P&E and WQMA staff feel that this interpretation is not protective or justifiable. Acute water quality criteria apply in the unclassified receiving stream and chronic criteria must be met at, or immediately downstream of, the confluence with the classified waterbody. Using the MEC Water Resources QUAL2E stream reach configuration, the dissolved oxygen minimum criteria (5.0 mg/L) must be met in Reach 4, Cell 1. The Oak Grove QUAL2E water quality model predicts a dissolved oxygen concentration of 4.8 mg/L for this location.

  Due to the excursion from dissolved oxygen minimum criteria in Sni-A-Bar Creek predicted by the model and to account for the uncertainty involved in using an uncalibrated water quality model, staff recommend $CBOD_5$ = 15 mg/L (or BOD_5 = 20 mg/L) monthly average and $CBOD_5$ = 25 mg/L (or BOD_5 = 30 mg/L) weekly average limits.

- **Total Suspended Solids (TSS)**. The previous WQRS dated 04/18/02 and revised 01/28/03 recommended TSS effluent limits of 15 mg/L and 20 mg/L as monthly and weekly averages, respectively. Given the change in receiving stream from Horseshoe Creek to an unnamed tributary to Sni-A-Bar Creek, staff feel these effluent limits are overly stringent. However, direct application of technology-based limitations may not be protective of the receiving stream. Based on discussions with MEC Water Resources and best professional judgement, staff recommend TSS effluent limits 5 mg/L greater than the proposed BOD_5 limitations. Therefore, TSS effluent limits of 25 mg/L monthly average and 35 mg/L weekly average are recommended.

- **pH**. pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)2.].

- **Ammonia as Nitrogen**. Ammonia criteria for waters designated as limited warm-water fisheries apply [10 CSR 20-7.031, Table B]. Background ammonia as nitrogen for the unclassified tributary to Sni-A-Bar Creek = 0.01 mg/L.

Season	Temp (ºC)	pH (SU)	Total Ammonia CCC (mg/L)	Total Ammonia CMC (mg/L)
Summer	26	7.8	2.0	22.4
Winter	6	7.8	3.3	26.4

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C – (Q_s * C_s))/Q_e$

Summer

Ammonia as Nitrogen CCC = 2.0/1.2 = 1.7 mg/L
Ammonia as Nitrogen CMC = 22.4/1.2 = 18.7 mg/L

Chronic WLA: $C_e = ((2.02 + 0.0)1.7 – (0.0 * 0.01))/2.02$
C_e = 1.7 mg/L

Acute WLA: $C_e = ((2.02 + 0.0)18.7 – (0.0 * 0.01))/2.02$
C_e = 18.7 mg/L

LTA_c = 1.7 mg/L (0.527) = 0.9 [CV = 0.6, 99th Percentile]

MDL = 0.9 * 3.11 = 2.8 mg/L [CV = 0.6, 99th Percentile]
AML = 0.9 * 1.55 = 1.4 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

Ammonia as Nitrogen CCC = 3.3/1.2 = 2.8 mg/L
Ammonia as Nitrogen CMC = 26.4/1.2 = 22.0 mg/L

Chronic WLA: $C_e = ((2.02 + 0.0)2.8 – (0.0 * 0.01))/2.02$
C_e = **2.8 mg/L**

Acute WLA: $C_e = ((2.02 + 0.0)22.0 – (0.0 * 0.01))/2.02$
C_e = 22.0 mg/L

LTA_a = 2.8 mg/L (0.527) = 1.5 [CV = 0.6, 99th Percentile]

MDL = 1.5 * 3.11 = 4.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.5 * 1.55 = 2.3 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	2.8	1.4
Winter	4.7	2.3

Reviewer: John Hoke
Date: 5/17/04
Unit Chief: Richard J. Laux

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.

APPENDIX – COST ANALYSIS FOR COMPLIANCE:

Missouri Department of Natural Resources
Water Protection Program
Cost Analysis for Compliance
(In accordance with RSMo 644.145)

Oak Grove Wastewater Treatment Plant, Permit Renewal
City of Oak Grove
Missouri State Operating Permit #MO-0130371

Section 644.145 RSMo requires the Department of Natural Resources (Department) to make a "finding of affordability" when "issuing permits under" or "enforcing provisions of" state or federal clean water laws "pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works." This cost analysis does not dictate how the permittee will comply with new permit requirements.

New Permit Requirements

The permit requires compliance with new monthly monitoring for influent and effluent Total Phosphorus and Speciated Nitrogen.

Connections

The number of connections was reported by the permittee on the permit renewal application.

Connection Type	Number
Residential	2,879
Commercial	193
Industrial	0
Total	**3,072**

Data Collection for this Analysis

This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City of Oak Grove's financial and socioeconomic situation. The financial questionnaire available to permittees on the Department's website (http://dnr.mo.gov/forms/780-2511-f.pdf) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the Department sends a request to complete the form with the welcome correspondence. If certain data was not provided by the permittee to the Department and the data is not obtainable through readily available sources, this analysis will state that the information is "unknown".

Eight Criteria of 644.145 RSMo

The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

(1) A community's financial capability and ability to raise or secure necessary funding;

Criterion 1 Table. Current Financial Information for the City of Oak Grove	
Current Monthly User Rates per 5,000 gallons*	$45.39
Median Household Income (MHI)[1]	$51,757
Current Annual Operating Costs (excludes depreciation)	$810,663

*User Rates were reported by the permittee on the Financial Questionnaire.

(2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;

The following tables outline the estimated costs of the new permit requirements:

Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
Effluent Total Phosphorus Sampling	Monthly	$24	$192
Effluent Total Kjeldal Nitrogen Sampling	Monthly	$33	$264
Effluent Nitrate + Nitrite Sampling	Monthly	$40	$320
Influent Ammonia	Monthly	$20	$240
Influent Total Phosphorus Sampling	Monthly	$24	$288
Influent Total Kjeldal Nitrogen Sampling	Monthly	$33	$396
Influent Nitrate + Nitrite Sampling	Monthly	$40	$480
Total Estimated Annual Cost of New Permit Requirements			$2,180

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	$2,180
(2)	Estimated Monthly User Cost for New Requirements[2]	$0.06
	Estimated Monthly User Cost for New Requirements as a Percent of MHI[3]	0.001%
(3)	Total Monthly User Cost*	$45.45
	Total Monthly User Cost as a Percent of MHI[4]	1.054%

* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

Due to the minimal cost associated with new permit requirements, the Department anticipates an extremely low to no rate increase will be necessary, which could impact individuals or households of this community.

(3) An evaluation of the overall costs and environmental benefits of the control technologies;

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream's aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri's water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

Nutrient Monitoring
Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, nitrogen and phosphorus are generally not readily available and limit growth of organisms. Excess nitrogen and phosphorus will cause a shift in the ecosystem's food web. Once excess nitrogen and phosphorous are introduced into a waterbody, some species' populations will dramatically increase, while other populations will not be able to sustain life. Competition and productivity are two factors in which nutrients can alter aquatic ecosystems and the designated uses of a waterbody. For example, designated uses, such as drinking water sources and recreational uses, become impaired when algal blooms take over a waterbody. These blooms can cause foul tastes and odors in the drinking water, unsightly appearance, and fish mortality in the waterbody. Some algae also produce toxins that may cause serious adverse health conditions such as liver damage, tumor promotion, paralysis, and kidney damage. The monitoring requirements for nitrogen and phosphorus have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

(4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:

The community reported that their outstanding debt for their current wastewater collection and treatment systems is $8,465,380. The community reported that each user pays $45.39 monthly, of which, $16.55 is used toward payments on the current outstanding debt.

(5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

(a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
(b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

Criterion 5 Table. Socioeconomic Data [1, 5-9] for the City of Oak Grove

No.	Administrative Unit	Oak Grove City	Missouri State	United States
1	Population (2016)	7,844	6,059,651	318,558,176
2	Percent Change in Population (2000-2016)	41.7%	8.3%	13.2%
3	2016 Median Household Income (in 2017 Dollars)	$51,757	$50,417	$56,501
4	Percent Change in Median Household Income (2000-2016)	-18.5%	-5.9%	-8.6%
5	Median Age (2016)	33.5	38.3	37.7
6	Change in Median Age in Years (2000-2016)	2.7	2.2	2.4
7	Unemployment Rate (2016)	3.2%	6.6%	7.4%
8	Percent of Population Below Poverty Level (2016)	7.9%	15.3%	15.1%
9	Percent of Household Received Food Stamps (2016)	11.7%	13.0%	13.0%
10	(Primary) County Where the Community Is Located	Jackson County		

(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;

In 2015, the city completed a wastewater master plan that identified approximately $1,000,000.00 in system improvements needed in the next 5 years. In addition, the City spends approximately $100,000.00 per year in collection system inflow and infiltration improvements.

(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;

The new requirements associated with this permit will not impose a financial burden on the community, nor will they require the City of Oak Grove to seek funding from an outside source.

(8) An assessment of any other relevant local community economic conditions.

Oak Grove has seen a steady increase in population and business growth over the last several years, which helps contribute to the ability to afford new permit requirements.

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score. The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri.

Based on the assessment tool, the City of Oak Grove has been determined to be a category 2 community. This means that the City of Oak Grove could potentially face more challenging socioeconomic circumstances over time and may have significant declines in population in the future. The Department has determined an adequate schedule of compliance that will alleviate the potential financial burdens that the City of Oak Grove may face due to the necessary upgrades required to meet the new permit requirements. If this community experiences a decline in population, which results in the inability to secure the necessary funding for an upgrade to meet the new requirements within this permit, a modification to the schedule of compliance may be necessary. The community may contact the Department and send an application for a modification to the schedule of compliance with justification for the time necessary to comply with this permit.

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2016 MHI in 2016 Dollar: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2016 Inflation-Adjusted Dollars). http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B19013&prodType=table.
   (B) 2000 MHI in 1999 Dollar: U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) 2017 CPI, 2016 CPI and 1999 CPI: For United States, United States Bureau of Labor Statistics (2017) Consumer Price Index - All Urban Consumers, United States City Average. All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable. For Missouri State: United States Bureau of Labor Statistics (2017) Consumer Price Index - All Urban Consumers, Midwest Urban Areas, All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0200SA0?data_tool=Xgtable.
   (D) 2016 MHI in 2017 Dollar: 2016 MHI in 2016 Dollar x 2017 CPI /2016 CPI; 2000 MHI in 2017 Dollar: 2000 MHI in 1999 Dollar x 2017 CPI /1999 CPI.
   (E) Percent Change in Median Household Income (2000-2016) = (2016 MHI in 2017 Dollar - 2000 MHI in 2017 Dollar) / (2000 MHI in 2017 Dollars).
2. ($2,180/3,072)/12 = $0.06 (Estimated Monthly User Cost for New Requirements)
3. ($0.06/($51,757/12))100% = 0.001% (New Sampling Only)
4. ($45.45/($51,757/12))100% = 1.054% (Total User Cost)
5. (A) Total Population in 2016: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B01003&prodType=table.
   (B) Total Population in 2000: U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Percent Change in Population (2000-2016) = (Total Population in 2016 - Total Population in 2000) / (Total Population in 2000).
6. (A) Median Age in 2016: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B01002&prodType=table.
   (B) Median Age in 2000: For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf. For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Change in Median Age in Years (2000-2016) = (Median Age in 2016 - Median Age in 2000).
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8. United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1701&prodType=table.
9. United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B22003: Receipt of Food Stamps/SNAP in the Past 12 Months by Poverty Status in the Past 12 Months for Households - Universe: Households. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B22003&prodType=table.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions
Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
   a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
   b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Non-compliance Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

3. **Anticipated Noncompliance**. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.

4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.

5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

6. **Other Information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

7. **Discharge Monitoring Reports.**
   a. Monitoring results shall be reported at the intervals specified in the permit.
   b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
   c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
   a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
   b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
   c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. **Bypass Requirements.**
   a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
   b. Notice.
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
   c. Prohibition of bypass.
      i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
         1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
         2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
         3. The permittee submitted notices as required under paragraph 2. b. of this section.
      ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.

3. **Upset Requirements.**
   a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
   b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated; and
      iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
   c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
   a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
   b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement

imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed $10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

2. **Duty to Reapply.**
   a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
   b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
   c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. **Proper Operation and Maintenance**. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

6. **Permit Actions.**
   a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
      i. Violations of any terms or conditions of this permit or the law;
      ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
      iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
      iv. Any reason set forth in the Law or Regulations.
   b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7. **Permit Transfer.**
   a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
   b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
   c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.

8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
    a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
    d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

12. **Closure of Treatment Facilities.**
    a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
    b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.

13. **Signatory Requirement.**
    a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
    b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
    c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

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

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
MAY 1, 2013

PART II - SPECIAL CONDITIONS – PUBLICLY OWNED TREATMENT WORKS
SECTION A – INDUSTRIAL USERS

1. Definitions

Definitions as set forth in the Missouri Clean Water Laws and approved by the Missouri Clean Water Commission shall apply to terms used herein.

Significant Industrial User (SIU). Except as provided in the *General Pretreatment Regulation* 10 CSR 20-6.100, the term Significant Industrial User means:

1. All Industrial Users subject to Categorical Pretreatment Standards; and
2. Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process wastewater to the Publicly-Owned Treatment Works (POTW) (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's or for violating any Pretreatment Standard or requirement.

Clean Water Act (CWA) is the the federal Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002).

2. Identification of Industrial Discharges

Pursuant to 40 CFR 122.44(j)(1), all POTWs shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging to the POTW subject to Pretreatment Standards under section 307(b) of the CWA and 40 CFR 403.

3. Application Information

Applications for renewal or modification of this permit must contain the information about industrial discharges to the POTW pursuant to 40 CFR 122.21(j)(6)

4. Notice to the Department

Pursuant to 40 CFR 122.42(b), all POTWs must provide adequate notice of the following:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging these pollutants; and
2. Any substantial change into the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For purposes of this paragraph, adequate notice shall include information on:
   i. the quality and quantity of effluent introduced into the POTW, and
   ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

For POTWs without an approved pretreatment program, the notice of industrial discharges which was not included in the permit application shall be made as soon as practicable. For POTWs with an approved pretreatment program, notice is to be included in the annual pretreatment report required in the special conditions of this permit. Notice may be sent to:

Missouri Department of Natural Resources
Water Protection Program
Attn: Pretreatment Coordinator
P.O. Box 176
Jefferson City, MO 65102

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
March 1, 2015

PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address the federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
    a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
4. Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Actor under Chapter 644 RSMo.
8. In addition to STANDARD CONDITIONS, the Department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.
   Where deemed appropriate, the Department may require an individual site specific permit in order to authorize alternate limitations:
    a. A site specific permit must be obtained for each operating location, including application sites.
    b. To request a site specific permit, an individual permit application, permit fee, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department will prepare a permit modification and follow permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owner of the property located adjacent to each land application site, where appropriate.
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.

SECTION B – DEFINITIONS

1. Best Management Practices include agronomic loading rates, soil conservation practices and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
12. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR CONTRACT HAULER

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the Department; or the hauler transports the sludge to another permitted treatment facility.
3. Haulers who land apply septage must obtain a state permit.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or if the ash is determined to be hazardous with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored, and ash used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain sludge storage lagoons as storage facilities, accumulated sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of sludge removed will be dependent on sludge generation and accumulation in the facility. Enough sludge must be removed to maintain adequate storage capacity in the facility.
    a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section H.

SECTION G – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the Department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
    a. This permit does not authorize the land application of domestic sludge except for when sludge meets the definition of biosolids.
    b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge to be land applied onto grass land, crop land, timber or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
5. Public Contact Sites:

    Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the Department after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.
    a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
    b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.
6. Agricultural and Silvicultural Sites:

    Septage – Based on Water Quality guide 422 (WQ422) published by the University of Missouri
    a. Haulers that land apply septage must obtain a state permit
    b. Do not apply more than 30,000 gallons of septage per acre per year.
    c. Septage tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to other mechanical type treatment facilities.
    d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.
    e. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

a. Biosolids shall be monitored to determine the quality for regulated pollutants
b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to reach the maximum concentration of pollutants allowed.
c. Table 1 gives the maximum concentration allowable to protect water quality standards

TABLE 1

Biosolids ceiling concentration [1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

[1] Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

TABLE 2

Biosolids Low Metal Concentration [1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2,800

[1] You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

TABLE 3

Pollutant	CEC 15+		CEC 5 to 15		CEC 0 to 5	
	Annual	Total [1]	Annual	Total [1]	Annual	Total [1]
Arsenic	1.8	36.0	1.8	36.0	1.8	36.0
Cadmium	1.7	35.0	0.9	9.0	0.4	4.5
Copper	66.0	1,335.0	25.0	250.0	12.0	125.0
Lead	13.0	267.0	13.0	267.0	13.0	133.0
Mercury	0.7	15.0	0.7	15.0	0.7	15.0
Nickel	19.0	347.0	19.0	250.0	12.0	125.0
Selenium	4.5	89.0	4.5	44.0	1.6	16.0
Zinc	124.0	2,492.0	50.0	500.0	25.0	250.0

[1] Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

TABLE 4 - Guidelines for land application of other trace substances [1]

Cumulative Loading	
Pollutant	Pounds per acre
Aluminum	4,000[2]
Beryllium	100
Cobalt	50
Fluoride	800
Manganese	500
Silver	200
Tin	1,000
Dioxin	(10 ppt in soil)[3]
Other	[4]

[1] Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)

[2] This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

[3] Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

[4] Case by case review. Concentrations in sludge should not exceed the 95th percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426 (WQ426) published by the University of Missouri

a. Use best management practices when applying biosolids.
b. Biosolids cannot discharge from the land application site
c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
e. Do not apply more than the agronomic rate of nitrogen needed.
f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.
    i. PAN can be determined as follows and is in accordance with WQ426
    (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
    [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
g. Buffer zones are as follows:
    i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
    ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
    iii. 150 feet if dwellings;
    iv. 100 feet of wetlands or permanent flowing streams;
    v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
h. Slope limitation for application sites are as follows;
    i. A slope 0 to 6 percent has no rate limitation
    ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels
    iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the Department.
k. Biosolids / sludge applicators must keep detailed records up to five years.

SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the Department. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6. 010 and 10 CSR 20 – 6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
    a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
    b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
    c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre.
        i. PAN can be determined as follows:

        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
4. When closing a domestic wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works definition. See Section B of these standard conditions. Under the septage category, residuals may be left in place as follows:
    a. Testing for metals or fecal coliform is not required
    b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
    c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoons and/or earthen structure and/or ash pond closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200
7. When closing a mechanical wastewater and/or industrial process wastewater plant; all sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
    b. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
    c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

SECTION I – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

TABLE 5

Design Sludge Production (dry tons per year)	Monitoring Frequency (See Notes 1, 2, and 3)			
	Metals, Pathogens and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants and TCLP [3]
0 to 100	1 per year	1 per year	1 per month	1 per year
101 to 200	biannual	biannual	1 per month	1 per year
201 to 1,000	quarterly	quarterly	1 per month	1 per year
1,001 to 10,000	1 per month	1 per month	1 per week	--[4]
10,001 +	1 per week	1 per week	1 per day	--[4]

[1] Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less.

[2] Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

[3] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.

[4] One sample for each 1,000 dry tons of sludge.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.
Note 2: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.
Note 3: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the Department.
4. At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

SECTION J – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these standard conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
    a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
    b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:

Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the Department and EPA. Other facilities need to report only to the Department. Reports shall be submitted to the addresses listed as follows:

DNR regional office listed in your permit
(see cover letter of permit)
ATTN: Sludge Coordinator

EPA Region VII
Water Compliance Branch (WACM)
Sludge Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

5. Annual report contents. The annual report shall include the following:
    a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the permit.
    b. Sludge or biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at the end of the year, and the quantity used or disposed.
    c. Gallons and % solids data used to calculate the dry ton amounts.
    d. Description of any unusual operating conditions.
    e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
        i. This must include the name, address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
    f. Contract Hauler Activities:
    If contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge or biosolids use permit.
    g. Land Application Sites:
        i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
        ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

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DEC 20 2018
Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

FORM B2 – APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FACILITY NAME	
Oak Grove WWTF	
PERMIT NO.	COUNTY
MO-0130371	Jackson County

APPLICATION OVERVIEW

Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

BASIC APPLICATION INFORMATION

A. Basic Application Information for all Applicants. All applicants must complete Part A.

B. Additional Application Information for all Applicants. All applicants must complete Part B.

C. Certification. All applicants must complete Part C.

SUPPLEMENTAL APPLICATION INFORMATION

D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:

1. Has a design flow rate greater than or equal to 1 million gallons per day.
2. Is required to have or currently has a pretreatment program.
3. Is otherwise required by the permitting authority to provide the information.

E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:

1. Has a design flow rate greater than or equal to 1 million gallons per day.
2. Is required to have or currently has a pretreatment program.
3. Is otherwise required by the permitting authority to provide the information.

F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.

SIUs are defined as:

1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
2. Any other industrial user that meets one or more of the following:
   - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
   - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
   - iii. Is designated as an SIU by the control authority.
   - iv. Is otherwise required by the permitting authority to provide the information.

G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems.*

ALL APPLICANTS MUST COMPLETE PARTS A, B and C

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Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

FORM B2 – APPLICATION FOR AN OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
12-20-18	

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

- ☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
  (Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)
- ☑ An operating permit renewal: Permit #MO- 0130371 Expiration Date March 31,2019
- ☐ An operating permit modification: Permit #MO-_____ Reason: _____

1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? ☑ YES ☐ NO

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Oak Grove WWTF		816-690-0087	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
1500 Gillispie Rd.	Oak Grove	MO.	64075

2.1 LEGAL DESCRIPTION (Facility Site): ¼, ¼, SW ¼, Sec. 22 , T 49n , R 29W — COUNTY: Jackson County

2.2 UTM Coordinates Easting (X): 404175 Northing (Y): 4321090
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Unnamed Tributary of Sni-A-Bar Creek

2.4 Number of Outfalls: 1 wastewater outfalls, 1 stormwater outfalls, instream monitoring sites

3. OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Oak Grove MO.	tmathes@cityofoakgrove.com	816-690-3773	
ADDRESS	CITY	STATE	ZIP CODE
1300 Broadway	Oak Grove	MO.	64075

3.1 Request review of draft permit prior to Public Notice? ☑ YES ☐ NO

3.2 Are you a Publically Owned Treatment Works (POTW)? ☑ YES ☐ NO
If yes, is the Financial Questionnaire attached? ☑ YES ☐ NO

3.3 Are you a Privately Owned Treatment Facility? ☐ YES ☒ NO

3.4 Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)? ☐ YES ☑ NO

4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
Mayor Jeremy Martin	'jeremy@martins.net'	816-690-3773	
ADDRESS	CITY	STATE	ZIP CODE
1300 S Broadway	Oak Grove	MO.	64075

If the Continuing Authority is different than the Owner, include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.

5. OPERATOR

NAME	TITLE	CERTIFICATE NUMBER (IF APPLICABLE)
Bryan Leighow	Chief WWTF Operator	5910
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
bleighow@cityofoakgrove.com	816-690-0087	

6. FACILITY CONTACT

NAME	TITLE		
Tim Mathes	Assistant City Administrator		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
tmathes@cityofoakgrove.com	816-690-3773		
ADDRESS	CITY	STATE	ZIP CODE
1300 S Broadway	Oak Grove	MO.	64075

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

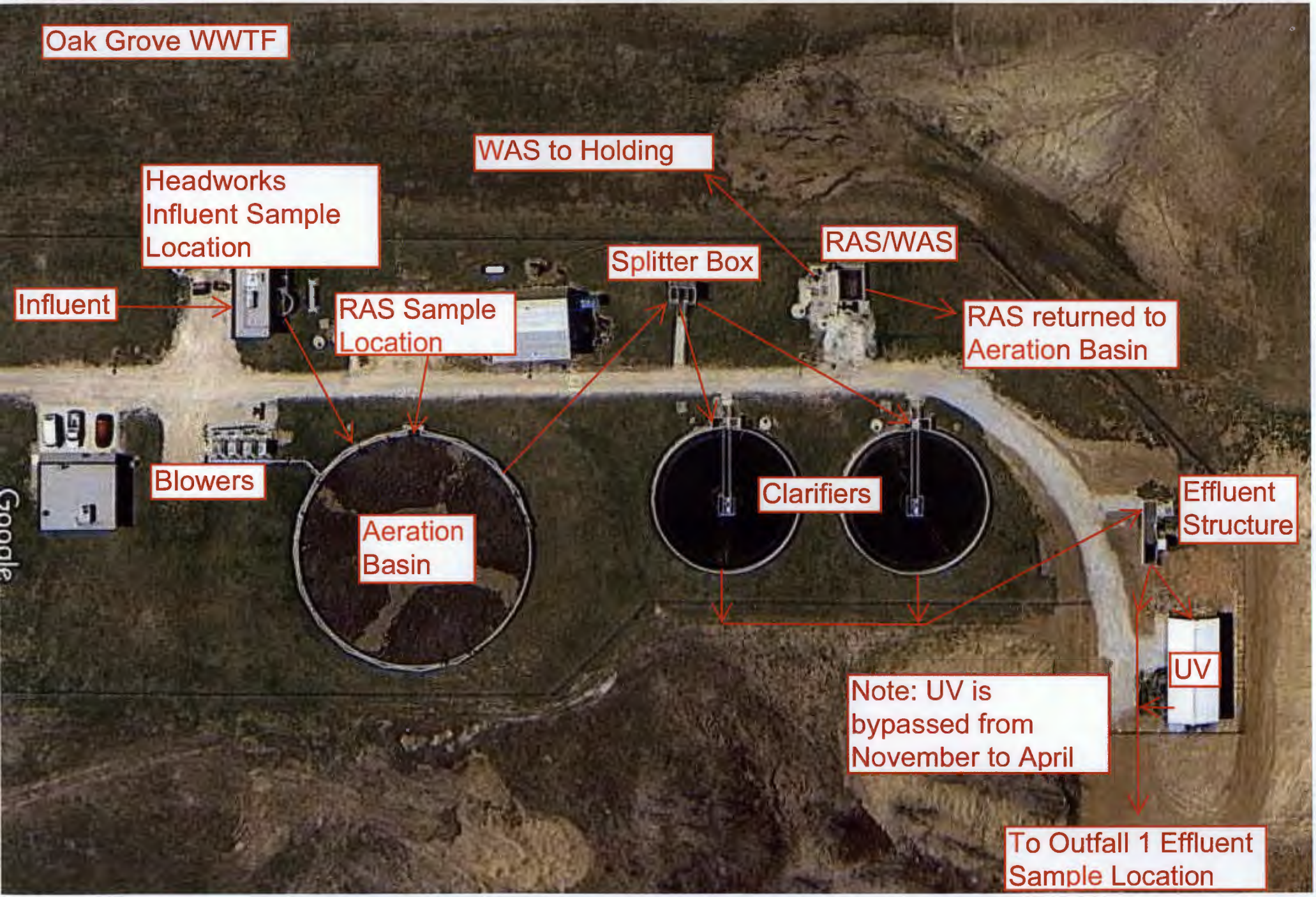
PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

7.1 Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – Chlorination and Dechlorination), influents, and outfalls. Specify where samples are taken. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram.
Attach sheets as necessary.

1) Headworks Building - stepscreen removal, grit chamber, Raw sample
2) Aeration Basin - fine air diffusers, mixing, RAS sample
3) Splitter Box - separating flow, ML sample
4) Clarifiers 1 and 2 - Settling
5) RAS/WAS Pit - returning, wasting
6) Partial Flume - ultrasonic measure
7) UV Building - UV disinfection, EFF samples
8) Outfall

See Attached Process Diagram


Oak Grove WWTF
WAS to Holding
Headworks
Influent Sample
Location
Splitter Box
RAS/WAS
Influent
RAS Sample
Location
RAS returned to
Aeration Basin
Blowers
Clarifiers
Effluent
Structure
Aeration
Basin
UV
Note: UV is
bypassed from
November to April
To Outfall 1 Effluent
Sample Location
Google

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

7.2 **Topographic Map.** Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information.

a. The area surrounding the treatment plant, including all unit processes.
b. The location of the downstream landowner(s). (See Item 10.)
c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
d. The actual point of discharge.
e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed.

7.3 Facility SIC Code: 4952 . | Discharge SIC Code: _____.

7.4 Number of people presently connected or population equivalent (P.E.): 13,000 Design P.E. _____

7.5 Connections to the facility:

Number of units presently connected:

Homes 2829 Trailers n/a Apartments 50 Other (including industrial) _____

Number of Commercial Establishments: 193

7.6 Design Flow 1.3 MGD | Actual Flow .734 MGD

7.7 Will discharge be continuous through the year? Yes ☑ No ☐

Discharge will occur during the following months: How many days of the week will discharge occur?

All months 7 days a week

7.8 Is industrial wastewater discharged to the facility? Yes ☐ No ☑

If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary

Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.

7.9 Does the facility accept or process leachate from landfills?: Yes ☐ No ☑

7.10 Is wastewater land applied? Yes ☐ No ☑

If yes, is Form I attached? Yes ☐ No ☐

7.11 Does the facility discharge to a losing stream or sinkhole? Yes ☐ No ☑

7.12 Has a wasteload allocation study been completed for this facility? Yes ☐ No ☑

8. LABORATORY CONTROL INFORMATION

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

Lab work conducted outside of plant.	Yes ☑	No ☐
Push–button or visual methods for simple test such as pH, settleable solids.	Yes ☑	No ☐
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes ☑	No ☐
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes ☑	No ☐
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes ☐	No ☑

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

9.1 Is the sludge a hazardous waste as defined by 10 CSR 25? Yes ☐ No ☑

9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year 305 Actual Dry Tons/Year 144

9.3 Sludge storage provided: 1MG Cubic feet; _____ Days of storage; 2 Average percent solids of sludge;

☐ No sludge storage is provided. ☑ Sludge is stored in lagoon.

9.4 Type of storage:

☐ Holding Tank ☐ Building
☐ Basin ☑ Lagoon
☐ Concrete Pad ☐ Other (Describe) _____

9.5 Sludge Treatment:

☐ Anaerobic Digester ☐ Storage Tank ☐ Lime Stabilization ☑ Lagoon
☐ Aerobic Digester ☐ Air or Heat Drying ☐ Composting ☐ Other (Attach Description)

9.6 Sludge use or disposal:

☐ Land Application ☐ Contract Hauler ☐ Hauled to Another Treatment Facility ☐ Solid Waste Landfill
☑ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration
☐ Other (Attach Explanation Sheet) _____

9.7 Person responsible for hauling sludge to disposal facility:
☐ By Applicant ☐ By Others (complete below)

NAME	EMAIL ADDRESS		
NA			
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.	
		MO-	

9.8 Sludge use or disposal facility:
☐ By Applicant ☐ By Others (Complete below)

NAME	EMAIL ADDRESS		
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.	
		MO-	

9.9 Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503?
☑ Yes ☐ No (Explain)

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

10.1 Length of sanitary sewer collection system in miles
42

10.2 Does significant infiltration occur in the collection system? ☑ Yes ☐ No
If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:

Collection system improvements including inspection of the system, lining of the gravity lines and manholes are budgeted each year.

11. BYPASSING

Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes ☐ No ☑
If yes, explain:

12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of the contractor?
Yes ☐ No ☑
If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME	
MAILING ADDRESS	
TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS
RESPONSIBILITIES OF CONTRACTOR	

13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

Provide information about any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses for each.

Improvements to the grit separation system, ongoing replacement of blower diffusers and covering the clarifier weirs.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least **three samples** and must be no more than four and one-half years apart.

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	7.36	S.U.	7.00	S.U.	97
pH (Maximum)	7.69	S.U.	7.51	S.U.	97
Flow Rate	3.243	MGD	.788	MGD	365

*For pH report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
		Conc.	Units	Conc.	Units	Number of Samples		
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD_5	18.02	mg/L	4.79	mg/L	48	SM 22 5210 B	
	$CBOD_5$	NA	mg/L	NA	mg/L	NA	NA	
E. COLI		866.4	#/100 mL	113.6	#/100 mL	35	MPN	
TOTAL SUSPENDED *SOLIDS (TSS)*		23.5	mg/L	3.37	mg/L	97	SM 22 2540 D	
AMMONIA (as N)		7.9	mg/L	.61	mg/L	96	SM 22 45010 D	
CHLORINE* (TOTAL RESIDUAL, TRC)		NA	mg/L	NA	mg/L	NA	NA	
DISSOLVED OXYGEN		10.27	mg/L	8.51	mg/L	97	SM 22 4500-O G.	
OIL and GREASE		< 5	mg/L	< 5	mg/L	6	EPA 1664 A	
OTHER			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

PART C – CERTIFICATION

15. CERTIFICATION

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
Tim Mathes	Assistant City Administrator

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE

816-690-3773 Ext 1008

DATE SIGNED

December 13, 2018

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

Send Completed Form to:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

END OF PART C

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.

Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works.

If the treatment works has a design flow greater than or equal to 1 million gallons per day or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least **three pollutant scans** and must be no more than four and one-half years apart.

Outfall Number (Complete Once for Each Outfall Discharging Effluent to Waters of the State.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ALUMINUM											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM III											
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as $CaCO_3$)											
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

SEE ATTACHED

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYLVINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State.

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
PENTACHLOROPHENOL											
PHENOL											
2,4,6-TRICHLOROPHENOL											
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											
3,4-BENZO-FLUORANTHENE											
BENZO(GH) PHERYLENE											
BENZO(K) FLUORANTHENE											
BIS (2-CHLOROTHOXY) METHANE											
BIS (2-CHLOROETHYL) – ETHER											
BIS (2-CHLOROISO-PROPYL) ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE											
4-BROMOPHENYL PHENYL ETHER											
BUTYL BENZYL PHTHALATE											
2-CHLORONAPH-THALENE											
4-CHLORPHENYL PHENYL ETHER											
CHRYSENE											
DI-N-BUTYL PHTHALATE											
DI-N-OCTYL PHTHALATE											
DIBENZO (A,H) ANTHRACENE											
1,2-DICHLORO-BENZENE											
1,3-DICHLORO-BENZENE											
1,4-DICHLORO-BENZENE											
3,3-DICHLORO-BENZIDINE											
DIETHYL PHTHALATE											
DIMETHYL PHTHALATE											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State.

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
2,4-DINITRO-TOLUENE											
2,6-DINITRO-TOLUENE											
1,2-DIPHENYL-HYDRAZINE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROBUTADIENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											
Use this space (or a separate sheet) to provide information on other pollutants not specifically listed in this form.											

END OF PART D

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME: Oak Grove WWTF	PERMIT NO.: MO- 0130371	OUTFALL NO.: 001

PART E – TOXICITY TESTING DATA

17. TOXICITY TESTING DATA

Refer to the APPLICATION OVERVIEW to determine whether Part E applies to the treatment works.

Publicly owned treatment works, or POTWs, meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points.

A. POTWs with a design flow rate greater than or equal to 1 million gallons per day

B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403)

C. POTWs required by the permitting authority to submit data for these parameters

- At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: _____chronic X acute

Complete the following chart **for the last three whole effluent toxicity tests.** Allow one column per test. Copy this page if more than three tests are being reported.

	Most Recent	2ND Most Recent	3RD Most Recent
A. Test Information			
Test Method Number	EPA 821/R-02/012	EPA 821/R-02/012	EPA 821/R-02/012
Final Report Number	60268341	60241163	60190931
Outfall Number	1	1	1
Dates Sample Collected	04/17/18	04/4/17	4/01/15
Date Test Started	04/17/18	04/4/17	4/01/15
Duration	48 Hours	48 Hours	48 Hours
B. Toxicity Test Methods Followed			
Manual Title			
Edition Number and Year of Publication			
Page Number(s)			
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite	48	48	48
Grab	1	1	1
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	☐	☐	☐
After Disinfection	☐ UV Building	☐ UV Building	☐ UV Building
After Dechlorination	☐	☐	☐
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:	UV Building	UV Building	UV Building
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	☐	☐	☐
Acute Toxicity	☐ Acute toxicity	☐ Acute toxicity	☐ Acute toxicity
G. Provide the type of test performed			
Static	☐ Pimephales	☐ Pimephales	☐ Pimephales
Static-renewal	☐	☐	☐
Flow-through	☐	☐	☐
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	☐	☐	☐
Receiving Water	☐ 100% Effluent water	☐ 100% Effluent water	☐ 100% Effluent water

FACILITY NAME Oak Grove WWTF	PERMIT NO. MO- 0130371	OUTFALL NO. 001

PART E – TOXICITY TESTING DATA

17. TOXICITY TESTING DATA (continued)

	Most Recent	Second Most Recent	Third Most Recent
I. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh Water	x	x	x
Salt Water			
J. Percentage of effluent used for all concentrations in the test series			
	100%	100%	100%
K. Parameters measured during the test (State whether parameter meets test method specifications)			
pH	7.89 yes	7.61 yes	7.51 yes
Salinity			
Temperature	25 yes	25 yes	25 yes
Ammonia	< .1 yes	< .1 yes	< .1 yes
Dissolved Oxygen	9.2 yes	8.2 yes	7.7 yes
L. Test Results			
Acute:			
Percent Survival in 100% Effluent	100%	100%	100%
LC_{50}			
95% C.I.			
Control Percent Survival			
Other (Describe)			
Chronic:			
NOEC			
IC_{25}			
Control Percent Survival			
Other (Describe)			
M. Quality Control/ Quality Assurance			
Is reference toxicant data available?	No	No	No
Was reference toxicant test within acceptable bounds?	within 36 hours of collection	within 36 hours of collection	within 36 hours of collection
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (Describe)			

Is the treatment works involved in a toxicity reduction evaluation? ☐ Yes ☑ No

If yes, describe:

If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☐ Yes ☑ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs ____

Number of CIUs ____

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME			
MAILING ADDRESS	CITY	STATE	ZIP CODE

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s):

Raw Material(s):

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

gpd ☐ Continuous ☐ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

gpd ☐ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

19.5 Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☐ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

20. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE

20.1 Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? ☐ Yes ☑ No

20.2 Method by which RCRA waste is received. (Check all that apply)
☐ Truck ☐ Rail ☐ Dedicated Pipe

20.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

21. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER

21.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?
☐ Yes ☑ No
Provide a list of sites and the requested information for each current and future site.

21.2 Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

21.3 List the hazardous constituents that are received (or are expected to be received). Included data on volume and concentration, if known. (Attach additional sheets if necessary)

21.4 Waste Treatment

a. Is this waste treated (or will it be treated) prior to entering the treatment works?
☐ Yes ☐ No

If Yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?
☐ Continuous ☐ Intermittent

If intermittent, describe the discharge schedule:

END OF PART F

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Oak Grove WWTF	MO- 0130371	001

PART G – COMBINED SEWER SYSTEMS

Refer to the APPLICATION OVERVIEW to determine whether Part G applies to the treatment works.

22. GENERAL INFORMATION

22.1 System Map. Provide a map indicating the following: (May be included with basic application information.)

A. All CSO Discharges.
B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)
C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

22.2 System Diagram. Provide a diagram, either in the map provided above or on a separate drawing, of the Combined Sewer Collection System that includes the following information:

A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.
B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.
C. Locations of In-Line or Off-Line Storage Structures.
D. Locations of Flow-Regulating Devices.
E. Locations of Pump Stations.

22.3 Percent of collection system that is combined sewer

22.4 Population served by combined sewer collection system

22.5 Name of any satellite community with combined sewer collection system

23. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT

23.1 Description of Outfall

a. Outfall Number

b. Location

c. Distance from Shore (if applicable) _____ ft

d. Depth Below Surface (if applicable) _____ ft

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO
☐ CSO Flow Volume ☐ Receiving Water Quality

f. How many storm events were monitored last year?

23.2 CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate

b. Give the Average Duration Per CSO Event
Hours ☐ Actual ☐ Approximate

c. Give the Average Volume Per CSO Event
Million Gallons ☐ Actual ☐ Approximate

d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

23.3 Description of Receiving Waters

a. Name of Receiving Water

b. Name of Watershed/River/Stream System

c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)

d. Name of State Management/River Basin

e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

23.4 CSO Operations

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shellfish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable state water quality standard.)

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 31, 2018

Bryan Leighow
City of Oak Grove
1300 Broadway
Oak Grove, MO 64075

RE: Project: NONE GIVEN
Pace Project No.: 60275540

Dear Bryan Leighow:
Enclosed are the analytical results for sample(s) received by the laboratory on July 23, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angie Brown
Angie.Brown@pacelabs.com
1(913)563-1402
Project Manager

Enclosures

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: NONE GIVEN
Pace Project No.: 60275540

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: NONE GIVEN
Pace Project No.: 60275540

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60275540001	**EFFLUENT**	Water	07/23/18 11:00	07/23/18 12:50
60275540002	**TB**	Water	07/23/18 11:00	07/23/18 12:50

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: NONE GIVEN
Pace Project No.: 60275540

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60275540001	**EFFLUENT**	EPA 624 Low	PGH	39	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: NONE GIVEN
Pace Project No.: 60275540

Sample: EFFLUENT **Lab ID: 60275540001** Collected: 07/23/18 11:00 Received: 07/23/18 12:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics	Analytical Method: EPA 624 Low							
Acrolein	ND	ug/L	100	1		07/30/18 19:28	107-02-8	L1
Acrylonitrile	ND	ug/L	20.0	1		07/30/18 19:28	107-13-1	
Benzene	ND	ug/L	1.0	1		07/30/18 19:28	71-43-2	L1
Bromodichloromethane	ND	ug/L	1.0	1		07/30/18 19:28	75-27-4	
Bromoform	ND	ug/L	1.0	1		07/30/18 19:28	75-25-2	
Bromomethane	ND	ug/L	5.0	1		07/30/18 19:28	74-83-9	
Carbon tetrachloride	ND	ug/L	1.0	1		07/30/18 19:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		07/30/18 19:28	108-90-7	
Chloroethane	ND	ug/L	1.0	1		07/30/18 19:28	75-00-3	
2-Chloroethylvinyl ether	ND	ug/L	10.0	1		07/30/18 19:28	110-75-8	c2
Chloroform	ND	ug/L	1.0	1		07/30/18 19:28	67-66-3	
Chloromethane	ND	ug/L	1.0	1		07/30/18 19:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	1		07/30/18 19:28	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		07/30/18 19:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		07/30/18 19:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		07/30/18 19:28	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.0	1		07/30/18 19:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		07/30/18 19:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		07/30/18 19:28	75-35-4	L1
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/30/18 19:28	156-59-2	L1,N2
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		07/30/18 19:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		07/30/18 19:28	78-87-5	L1
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		07/30/18 19:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		07/30/18 19:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		07/30/18 19:28	100-41-4	
Methylene chloride	ND	ug/L	1.0	1		07/30/18 19:28	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		07/30/18 19:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		07/30/18 19:28	127-18-4	
Toluene	ND	ug/L	1.0	1		07/30/18 19:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		07/30/18 19:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		07/30/18 19:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		07/30/18 19:28	79-01-6	L1
Trichlorofluoromethane	ND	ug/L	1.0	1		07/30/18 19:28	75-69-4	
Vinyl chloride	ND	ug/L	1.0	1		07/30/18 19:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		07/30/18 19:28	1330-20-7	N2
Surrogates								
4-Bromofluorobenzene (S)	98	%	80-120	1		07/30/18 19:28	460-00-4	
Toluene-d8 (S)	99	%	80-120	1		07/30/18 19:28	2037-26-5	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		07/30/18 19:28	17060-07-0	
Preservation pH	**7.0**		1.0	1		07/30/18 19:28		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: NONE GIVEN
Pace Project No.: 60275540

QC Batch: 536988
QC Batch Method: EPA 624 Low
Analysis Method: EPA 624 Low
Analysis Description: 624 MSV
Associated Lab Samples: 60275540001

METHOD BLANK: 2199742
Matrix: Water
Associated Lab Samples: 60275540001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	07/30/18 15:15	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	07/30/18 15:15	
1,1,2-Trichloroethane	ug/L	ND	1.0	07/30/18 15:15	
1,1-Dichloroethane	ug/L	ND	1.0	07/30/18 15:15	
1,1-Dichloroethene	ug/L	ND	1.0	07/30/18 15:15	
1,2-Dichlorobenzene	ug/L	ND	1.0	07/30/18 15:15	
1,2-Dichloroethane	ug/L	ND	1.0	07/30/18 15:15	
1,2-Dichloropropane	ug/L	ND	1.0	07/30/18 15:15	
1,3-Dichlorobenzene	ug/L	ND	1.0	07/30/18 15:15	
1,4-Dichlorobenzene	ug/L	ND	1.0	07/30/18 15:15	
2-Chloroethylvinyl ether	ug/L	ND	10.0	07/30/18 15:15	
Acrolein	ug/L	ND	100	07/30/18 15:15	
Acrylonitrile	ug/L	ND	20.0	07/30/18 15:15	
Benzene	ug/L	ND	1.0	07/30/18 15:15	
Bromodichloromethane	ug/L	ND	1.0	07/30/18 15:15	
Bromoform	ug/L	ND	1.0	07/30/18 15:15	
Bromomethane	ug/L	ND	5.0	07/30/18 15:15	
Carbon tetrachloride	ug/L	ND	1.0	07/30/18 15:15	
Chlorobenzene	ug/L	ND	1.0	07/30/18 15:15	
Chloroethane	ug/L	ND	1.0	07/30/18 15:15	
Chloroform	ug/L	ND	1.0	07/30/18 15:15	
Chloromethane	ug/L	ND	1.0	07/30/18 15:15	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/30/18 15:15	N2
cis-1,3-Dichloropropene	ug/L	ND	1.0	07/30/18 15:15	
Dibromochloromethane	ug/L	ND	1.0	07/30/18 15:15	
Ethylbenzene	ug/L	ND	1.0	07/30/18 15:15	
Methylene chloride	ug/L	ND	1.0	07/30/18 15:15	
Tetrachloroethene	ug/L	ND	1.0	07/30/18 15:15	
Toluene	ug/L	ND	1.0	07/30/18 15:15	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/30/18 15:15	
trans-1,3-Dichloropropene	ug/L	ND	1.0	07/30/18 15:15	
Trichloroethene	ug/L	ND	1.0	07/30/18 15:15	
Trichlorofluoromethane	ug/L	ND	1.0	07/30/18 15:15	
Vinyl chloride	ug/L	ND	1.0	07/30/18 15:15	
Xylene (Total)	ug/L	ND	3.0	07/30/18 15:15	N2
1,2-Dichloroethane-d4 (S)	%	96	80-120	07/30/18 15:15	
4-Bromofluorobenzene (S)	%	99	80-120	07/30/18 15:15	
Toluene-d8 (S)	%	99	80-120	07/30/18 15:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: NONE GIVEN
Pace Project No.: 60275540

LABORATORY CONTROL SAMPLE: 2199743

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.7	113	77-114	
1,1,2,2-Tetrachloroethane	ug/L	20	21.3	107	72-119	
1,1,2-Trichloroethane	ug/L	20	22.7	113	77-118	
1,1-Dichloroethane	ug/L	20	22.4	112	59-155	
1,1-Dichloroethene	ug/L	20	24.2	121	65-118	L1
1,2-Dichlorobenzene	ug/L	20	21.0	105	79-118	
1,2-Dichloroethane	ug/L	20	21.7	108	77-115	
1,2-Dichloropropane	ug/L	20	23.0	115	79-111	L1
1,3-Dichlorobenzene	ug/L	20	20.5	102	77-114	
1,4-Dichlorobenzene	ug/L	20	20.7	103	79-111	
2-Chloroethylvinyl ether	ug/L	20	21.0	105	32-167	
Acrolein	ug/L	200	805	402	10-183	L1
Acrylonitrile	ug/L	200	231	115	70-122	
Benzene	ug/L	20	22.4	112	81-111	L1
Bromodichloromethane	ug/L	20	21.8	109	78-117	
Bromoform	ug/L	20	20.5	103	67-122	
Bromomethane	ug/L	20	15.1	75	10-186	
Carbon tetrachloride	ug/L	20	22.9	114	72-117	
Chlorobenzene	ug/L	20	21.9	110	80-110	
Chloroethane	ug/L	20	21.6	108	34-168	
Chloroform	ug/L	20	22.5	112	74-112	
Chloromethane	ug/L	20	12.2	61	11-187	
cis-1,2-Dichloroethene	ug/L	20	23.0	115	75-111	L1,N2
cis-1,3-Dichloropropene	ug/L	20	21.9	110	77-115	
Dibromochloromethane	ug/L	20	21.0	105	76-119	
Ethylbenzene	ug/L	20	21.0	105	80-111	
Methylene chloride	ug/L	20	20.6	103	72-114	
Tetrachloroethene	ug/L	20	22.0	110	77-111	
Toluene	ug/L	20	21.5	108	78-110	
trans-1,2-Dichloroethene	ug/L	20	22.4	112	72-113	
trans-1,3-Dichloropropene	ug/L	20	20.8	104	76-121	
Trichloroethene	ug/L	20	25.1	125	75-110	L1
Trichlorofluoromethane	ug/L	20	24.0	120	66-135	
Vinyl chloride	ug/L	20	25.3	127	32-165	
Xylene (Total)	ug/L	60	62.8	105	80-111	N2
1,2-Dichloroethane-d4 (S)	%			100	80-120	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			97	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: NONE GIVEN
Pace Project No.: 60275540

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 536988

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

N2 The lab does not hold NELAC/TNI accreditation for this parameter.

c2 Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NONE GIVEN
Pace Project No.: 60275540

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60275540001	**EFFLUENT**	EPA 624 Low	536988		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60275540

60275540

Client Name: City of Oak Grove WWTP

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☑ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: T266 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 8.6 **Corr. Factor** +0.2 **Corrected** 8.8

Date and Initials of person examining contents: 7.23.18 HT

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☑N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☑Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

AKB

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: MW for (AKB) Date: 7/24/18

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:	Section C Invoice Information:	
Company:	City of Oak Grove WWTP	Report To: Bryan Leighow	Attention:	
Address:	1300 Broadway	Copy To:	Company Name:	Regulatory Agency
Oak Grove, MO 64075			Address:	
Email:	bleighow@cityofoakgrove.com	Purchase Order #:	Pace Quote:	
Phone:	(816)690-6918 Fax:	Project Name:	Pace Project Manager: Angie Brown	State / Location
Requested Due Date:		Project #:	Pace Profile #: 7701 line 4	Missouri

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N): Y/N	Analyses Test	EPA 624	EPA 625	200.7/245.1 Metals	Total Phenols	Hexavalent chromium	Trivalent Chromium	Hardness	Residual Chlorine (Y/N)	60275540
1	Effluent			7/22	11 AM	7/23	11 AM		3	X														3DG9U					001
2																								2DG9U(TB)					002
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Bryan Leighow	7-23	12150		7/23	1250	8.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Bryan Leighow					
SIGNATURE of SAMPLER:	Bryan Leighow	DATE Signed: 7-23-18				

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 26, 2018

Bryan Leighow
City of Oak Grove
1300 Broadway
Oak Grove, MO 64075

RE: Project: Permit renewal
Pace Project No.: 60274609

Dear Bryan Leighow:
Enclosed are the analytical results for sample(s) received by the laboratory on July 11, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angie Brown
Angie.Brown@pacelabs.com
1(913)563-1402
Project Manager

Enclosures

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Permit renewal
Pace Project No.: 60274609

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: Permit renewal
Pace Project No.: 60274609

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60274609001	EFFLUENT	Water	07/11/18 11:00	07/11/18 13:32
60274609002	TRIP BLANK	Water	07/11/18 11:00	07/11/18 13:32

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: Permit renewal
Pace Project No.: 60274609

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60274609001	**EFFLUENT**	EPA 200.7	TDS	15	PASI-K
		EPA 245.1	LMB	1	PASI-K
		EPA 625	JMT	60	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 420.1	RAD	1	PASI-K
		EPA 7196	ZMH	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Permit renewal
Pace Project No.: 60274609

Sample: EFFLUENT **Lab ID: 60274609001** Collected: 07/11/18 11:00 Received: 07/11/18 13:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Aluminum	ND	ug/L	75.0	1	07/16/18 11:55	07/21/18 21:24	7429-90-5	
Antimony	ND	ug/L	10.0	1	07/16/18 11:55	07/21/18 21:24	7440-36-0	
Arsenic	ND	ug/L	15.0	1	07/16/18 11:55	07/21/18 21:24	7440-38-2	
Beryllium	ND	ug/L	1.0	1	07/16/18 11:55	07/21/18 21:24	7440-41-7	
Cadmium	ND	ug/L	5.0	1	07/16/18 11:55	07/21/18 21:24	7440-43-9	
Chromium	ND	ug/L	5.0	1	07/16/18 11:55	07/21/18 21:24	7440-47-3	
Copper	ND	ug/L	10.0	1	07/16/18 11:55	07/21/18 21:24	7440-50-8	
Iron	**57.8**	ug/L	50.0	1	07/16/18 11:55	07/21/18 21:24	7439-89-6	
Lead	ND	ug/L	10.0	1	07/16/18 11:55	07/21/18 21:24	7439-92-1	
Nickel	ND	ug/L	5.0	1	07/16/18 11:55	07/21/18 21:24	7440-02-0	
Selenium	ND	ug/L	15.0	1	07/16/18 11:55	07/21/18 21:24	7782-49-2	
Silver	ND	ug/L	7.0	1	07/16/18 11:55	07/21/18 21:24	7440-22-4	
Thallium	ND	ug/L	20.0	1	07/16/18 11:55	07/21/18 21:24	7440-28-0	
Total Hardness by 2340B	**157000**	ug/L	500	1	07/16/18 11:55	07/21/18 21:24		
Zinc	ND	ug/L	50.0	1	07/16/18 11:55	07/21/18 21:24	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	07/23/18 14:20	07/24/18 13:51	7439-97-6	
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Acenaphthene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	83-32-9	
Acenaphthene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	83-32-9	H2
Acenaphthylene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	208-96-8	
Acenaphthylene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	208-96-8	H2
Anthracene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	120-12-7	
Anthracene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	120-12-7	H2
Benzidine	ND	ug/L	48.1	1	07/16/18 21:00	07/18/18 03:24	92-87-5	L2
Benzidine	ND	ug/L	49.0	1	07/19/18 19:30	07/20/18 23:38	92-87-5	H2
Benzo(a)anthracene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	56-55-3	
Benzo(a)anthracene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	56-55-3	H2
Benzo(a)pyrene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	50-32-8	
Benzo(a)pyrene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	50-32-8	H2
Benzo(b)fluoranthene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	205-99-2	
Benzo(b)fluoranthene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	205-99-2	H2
Benzo(g,h,i)perylene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	191-24-2	
Benzo(g,h,i)perylene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	191-24-2	H2
Benzo(k)fluoranthene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	207-08-9	
Benzo(k)fluoranthene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	207-08-9	H2
4-Bromophenylphenyl ether	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	101-55-3	
4-Bromophenylphenyl ether	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	101-55-3	H2
Butylbenzylphthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	85-68-7	
Butylbenzylphthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	85-68-7	H2
4-Chloro-3-methylphenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	59-50-7	
4-Chloro-3-methylphenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	59-50-7	H2
bis(2-Chloroethoxy)methane	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	111-91-1	
bis(2-Chloroethoxy)methane	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	111-91-1	H2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Permit renewal
Pace Project No.: 60274609

Sample: EFFLUENT **Lab ID: 60274609001** Collected: 07/11/18 11:00 Received: 07/11/18 13:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
bis(2-Chloroethyl) ether	ND	ug/L	5.8	1	07/16/18 21:00	07/18/18 03:24	111-44-4	
bis(2-Chloroethyl) ether	ND	ug/L	5.9	1	07/19/18 19:30	07/20/18 23:38	111-44-4	H2
bis(2-Chloroisopropyl) ether	ND	ug/L	5.8	1	07/16/18 21:00	07/18/18 03:24	39638-32-9	
bis(2-Chloroisopropyl) ether	ND	ug/L	5.9	1	07/19/18 19:30	07/20/18 23:38	39638-32-9	H2
2-Chloronaphthalene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	91-58-7	
2-Chloronaphthalene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	91-58-7	H2
2-Chlorophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	95-57-8	
2-Chlorophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	95-57-8	H2
4-Chlorophenylphenyl ether	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	7005-72-3	
4-Chlorophenylphenyl ether	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	7005-72-3	H2
Chrysene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	218-01-9	
Chrysene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	218-01-9	H2
Dibenz(a,h)anthracene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	53-70-3	
Dibenz(a,h)anthracene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	53-70-3	H2
3,3'-Dichlorobenzidine	ND	ug/L	19.2	1	07/16/18 21:00	07/18/18 03:24	91-94-1	
3,3'-Dichlorobenzidine	ND	ug/L	19.6	1	07/19/18 19:30	07/20/18 23:38	91-94-1	H2
2,4-Dichlorophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	120-83-2	
2,4-Dichlorophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	120-83-2	H2
Diethylphthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	84-66-2	
Diethylphthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	84-66-2	H2
2,4-Dimethylphenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	105-67-9	
2,4-Dimethylphenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	105-67-9	H2
Dimethylphthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	131-11-3	
Dimethylphthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	131-11-3	H2
Di-n-butylphthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	84-74-2	
Di-n-butylphthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	84-74-2	H2
4,6-Dinitro-2-methylphenol	ND	ug/L	24.0	1	07/16/18 21:00	07/18/18 03:24	534-52-1	
4,6-Dinitro-2-methylphenol	ND	ug/L	24.5	1	07/19/18 19:30	07/20/18 23:38	534-52-1	H2
2,4-Dinitrophenol	ND	ug/L	48.1	1	07/16/18 21:00	07/18/18 03:24	51-28-5	
2,4-Dinitrophenol	ND	ug/L	49.0	1	07/19/18 19:30	07/20/18 23:38	51-28-5	H2
2,4-Dinitrotoluene	ND	ug/L	5.8	1	07/16/18 21:00	07/18/18 03:24	121-14-2	
2,4-Dinitrotoluene	ND	ug/L	5.9	1	07/19/18 19:30	07/20/18 23:38	121-14-2	H2
2,6-Dinitrotoluene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	606-20-2	
2,6-Dinitrotoluene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	606-20-2	H2
Di-n-octylphthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	117-84-0	
Di-n-octylphthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	117-84-0	H2
1,2-Diphenylhydrazine	ND	ug/L	7.7	1	07/16/18 21:00	07/18/18 03:24	122-66-7	
1,2-Diphenylhydrazine	ND	ug/L	7.8	1	07/19/18 19:30	07/20/18 23:38	122-66-7	H2
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	117-81-7	
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	117-81-7	H2
Fluoranthene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	206-44-0	
Fluoranthene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	206-44-0	H2
Fluorene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	86-73-7	
Fluorene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	86-73-7	H2
Hexachloro-1,3-butadiene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	87-68-3	
Hexachloro-1,3-butadiene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	87-68-3	H2
Hexachlorobenzene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	118-74-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Permit renewal
Pace Project No.: 60274609

Sample: EFFLUENT **Lab ID: 60274609001** Collected: 07/11/18 11:00 Received: 07/11/18 13:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Hexachlorobenzene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	118-74-1	H2
Hexachlorocyclopentadiene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	77-47-4	
Hexachlorocyclopentadiene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	77-47-4	H2
Hexachloroethane	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	67-72-1	
Hexachloroethane	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	67-72-1	H2
Indeno(1,2,3-cd)pyrene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	193-39-5	
Indeno(1,2,3-cd)pyrene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	193-39-5	H2
Isophorone	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	78-59-1	
Isophorone	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	78-59-1	H2
Naphthalene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	91-20-3	
Naphthalene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	91-20-3	H2
Nitrobenzene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	98-95-3	
Nitrobenzene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	98-95-3	H2
2-Nitrophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	88-75-5	
2-Nitrophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	88-75-5	H2
4-Nitrophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	100-02-7	
4-Nitrophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	100-02-7	H2
N-Nitrosodimethylamine	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	62-75-9	
N-Nitrosodimethylamine	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	62-75-9	H2
N-Nitroso-di-n-propylamine	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	621-64-7	
N-Nitroso-di-n-propylamine	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	621-64-7	H2
N-Nitrosodiphenylamine	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	86-30-6	
N-Nitrosodiphenylamine	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	86-30-6	H2
Pentachlorophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	87-86-5	
Pentachlorophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	87-86-5	H2
Phenanthrene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	85-01-8	
Phenanthrene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	85-01-8	H2
Phenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	108-95-2	
Phenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	108-95-2	H2
Pyrene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	129-00-0	
Pyrene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	129-00-0	H2
1,2,4-Trichlorobenzene	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	120-82-1	
1,2,4-Trichlorobenzene	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	120-82-1	H2
2,4,6-Trichlorophenol	ND	ug/L	4.8	1	07/16/18 21:00	07/18/18 03:24	88-06-2	
2,4,6-Trichlorophenol	ND	ug/L	4.9	1	07/19/18 19:30	07/20/18 23:38	88-06-2	H2
Surrogates								
Nitrobenzene-d5 (S)	65	%	24-110	1	07/16/18 21:00	07/18/18 03:24	4165-60-0	
Nitrobenzene-d5 (S)	54	%	24-110	1	07/19/18 19:30	07/20/18 23:38	4165-60-0	
2-Fluorobiphenyl (S)	55	%	24-110	1	07/19/18 19:30	07/20/18 23:38	321-60-8	
2-Fluorobiphenyl (S)	76	%	24-110	1	07/16/18 21:00	07/18/18 03:24	321-60-8	
Terphenyl-d14 (S)	70	%	35-118	1	07/19/18 19:30	07/20/18 23:38	1718-51-0	
Terphenyl-d14 (S)	93	%	35-118	1	07/16/18 21:00	07/18/18 03:24	1718-51-0	
Phenol-d6 (S)	29	%	11-42	1	07/16/18 21:00	07/18/18 03:24	13127-88-3	
Phenol-d6 (S)	24	%	11-42	1	07/19/18 19:30	07/20/18 23:38	13127-88-3	
2-Fluorophenol (S)	42	%	20-59	1	07/16/18 21:00	07/18/18 03:24	367-12-4	
2-Fluorophenol (S)	33	%	20-59	1	07/19/18 19:30	07/20/18 23:38	367-12-4	
2,4,6-Tribromophenol (S)	91	%	24-126	1	07/16/18 21:00	07/18/18 03:24	118-79-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

ANALYTICAL RESULTS

Project: Permit renewal
Pace Project No.: 60274609

Sample: EFFLUENT **Lab ID: 60274609001** Collected: 07/11/18 11:00 Received: 07/11/18 13:32 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625							
Surrogates								
2,4,6-Tribromophenol (S)	73	%	24-126	1	07/19/18 19:30	07/20/18 23:38	118-79-6	
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	mg/L	0.010	1		07/24/18 16:11	16065-83-1	
Phenolics, Total Recoverable	Analytical Method: EPA 420.1							
Phenolics, Total Recoverable	ND	mg/L	0.050	1		07/19/18 14:50		
7196 Chromium, Hexavalent	Analytical Method: EPA 7196							
Chromium, Hexavalent	ND	mg/L	0.010	1		07/12/18 10:18	18540-29-9	

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 535669
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 60274609001

METHOD BLANK: 2194514 Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/24/18 13:27	

LABORATORY CONTROL SAMPLE: 2194515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2194516 2194517

Parameter	Units	60274410002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	5.0	5.0	99	100	70-130	1	20	

MATRIX SPIKE SAMPLE: 2194518

Parameter	Units	60274468003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	5	ND	0	70-130	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 534523
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60274609001

METHOD BLANK: 2189433
Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	75.0	07/21/18 21:22	
Antimony	ug/L	ND	10.0	07/21/18 21:22	
Arsenic	ug/L	ND	15.0	07/21/18 21:22	
Beryllium	ug/L	ND	1.0	07/21/18 21:22	
Cadmium	ug/L	ND	5.0	07/21/18 21:22	
Chromium	ug/L	ND	5.0	07/21/18 21:22	
Copper	ug/L	ND	10.0	07/21/18 21:22	
Iron	ug/L	ND	50.0	07/21/18 21:22	
Lead	ug/L	ND	10.0	07/21/18 21:22	
Nickel	ug/L	ND	5.0	07/21/18 21:22	
Selenium	ug/L	ND	15.0	07/21/18 21:22	
Silver	ug/L	ND	7.0	07/21/18 21:22	
Thallium	ug/L	ND	20.0	07/21/18 21:22	
Total Hardness by 2340B	ug/L	ND	500	07/21/18 21:22	
Zinc	ug/L	ND	50.0	07/21/18 21:22	

LABORATORY CONTROL SAMPLE: 2189434

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	10100	101	85-115	
Antimony	ug/L	1000	1050	105	85-115	
Arsenic	ug/L	1000	988	99	85-115	
Beryllium	ug/L	1000	970	97	85-115	
Cadmium	ug/L	1000	1020	102	85-115	
Chromium	ug/L	1000	992	99	85-115	
Copper	ug/L	1000	1000	100	85-115	
Iron	ug/L	10000	9900	99	85-115	
Lead	ug/L	1000	1040	104	85-115	
Nickel	ug/L	1000	1040	104	85-115	
Selenium	ug/L	1000	1040	104	85-115	
Silver	ug/L	500	508	102	85-115	
Thallium	ug/L	1000	1060	106	85-115	
Total Hardness by 2340B	ug/L		64900			
Zinc	ug/L	1000	1020	102	85-115	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2189435 2189436

Parameter	Units	60274609001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9800	9830	97	98	70-130	0	20	
Antimony	ug/L	ND	1000	1000	1000	1020	100	102	70-130	1	20	
Arsenic	ug/L	ND	1000	1000	961	964	96	96	70-130	0	20	
Beryllium	ug/L	ND	1000	1000	937	938	94	94	70-130	0	20	
Cadmium	ug/L	ND	1000	1000	965	970	96	97	70-130	1	20	
Chromium	ug/L	ND	1000	1000	955	974	95	97	70-130	2	20	
Copper	ug/L	ND	1000	1000	970	995	97	99	70-130	3	20	
Iron	ug/L	57.8	10000	10000	9550	9570	95	95	70-130	0	20	
Lead	ug/L	ND	1000	1000	952	960	95	96	70-130	1	20	
Nickel	ug/L	ND	1000	1000	968	978	97	98	70-130	1	20	
Selenium	ug/L	ND	1000	1000	998	1010	100	101	70-130	1	20	
Silver	ug/L	ND	500	500	486	500	97	100	70-130	3	20	
Thallium	ug/L	ND	1000	1000	942	946	94	95	70-130	0	20	
Total Hardness by 2340B	ug/L	157000			212000	215000				1		
Zinc	ug/L	ND	1000	1000	998	1010	96	97	70-130	1	20	

MATRIX SPIKE SAMPLE: 2189437

Parameter	Units	60274725006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	ND	10000	10400	104	70-130	
Antimony	ug/L	ND	1000	1080	108	70-130	
Arsenic	ug/L	ND	1000	1040	104	70-130	
Beryllium	ug/L	ND	1000	987	99	70-130	
Cadmium	ug/L	ND	1000	1040	104	70-130	
Chromium	ug/L	ND	1000	1020	102	70-130	
Copper	ug/L	ND	1000	1040	104	70-130	
Iron	ug/L	ND	10000	10100	101	70-130	
Lead	ug/L	ND	1000	1010	101	70-130	
Nickel	ug/L	ND	1000	1020	102	70-130	
Selenium	ug/L	ND	1000	1090	108	70-130	
Silver	ug/L	ND	500	527	105	70-130	
Thallium	ug/L	ND	1000	988	99	70-130	
Total Hardness by 2340B	ug/L	548000		638000			
Zinc	ug/L	60.8	1000	1080	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 534485
QC Batch Method: EPA 625
Analysis Method: EPA 625
Analysis Description: 625 MSS
Associated Lab Samples: 60274609001

METHOD BLANK: 2189371
Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	07/17/18 15:53	
1,2-Diphenylhydrazine	ug/L	ND	8.0	07/17/18 15:53	
2,4,6-Trichlorophenol	ug/L	ND	5.0	07/17/18 15:53	
2,4-Dichlorophenol	ug/L	ND	5.0	07/17/18 15:53	
2,4-Dimethylphenol	ug/L	ND	5.0	07/17/18 15:53	
2,4-Dinitrophenol	ug/L	ND	50.0	07/17/18 15:53	
2,4-Dinitrotoluene	ug/L	ND	6.0	07/17/18 15:53	
2,6-Dinitrotoluene	ug/L	ND	5.0	07/17/18 15:53	
2-Chloronaphthalene	ug/L	ND	5.0	07/17/18 15:53	
2-Chlorophenol	ug/L	ND	5.0	07/17/18 15:53	
2-Nitrophenol	ug/L	ND	5.0	07/17/18 15:53	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	07/17/18 15:53	
4,6-Dinitro-2-methylphenol	ug/L	ND	25.0	07/17/18 15:53	
4-Bromophenylphenyl ether	ug/L	ND	5.0	07/17/18 15:53	
4-Chloro-3-methylphenol	ug/L	ND	5.0	07/17/18 15:53	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	07/17/18 15:53	
4-Nitrophenol	ug/L	ND	5.0	07/17/18 15:53	
Acenaphthene	ug/L	ND	5.0	07/17/18 15:53	
Acenaphthylene	ug/L	ND	5.0	07/17/18 15:53	
Anthracene	ug/L	ND	5.0	07/17/18 15:53	
Benzidine	ug/L	ND	50.0	07/17/18 15:53	
Benzo(a)anthracene	ug/L	ND	5.0	07/17/18 15:53	
Benzo(a)pyrene	ug/L	ND	5.0	07/17/18 15:53	
Benzo(b)fluoranthene	ug/L	ND	5.0	07/17/18 15:53	
Benzo(g,h,i)perylene	ug/L	ND	5.0	07/17/18 15:53	
Benzo(k)fluoranthene	ug/L	ND	5.0	07/17/18 15:53	
bis(2-Chloroethoxy)methane	ug/L	ND	5.0	07/17/18 15:53	
bis(2-Chloroethyl) ether	ug/L	ND	6.0	07/17/18 15:53	
bis(2-Chloroisopropyl) ether	ug/L	ND	6.0	07/17/18 15:53	
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	07/17/18 15:53	
Butylbenzylphthalate	ug/L	ND	5.0	07/17/18 15:53	
Chrysene	ug/L	ND	5.0	07/17/18 15:53	
Di-n-butylphthalate	ug/L	ND	5.0	07/17/18 15:53	
Di-n-octylphthalate	ug/L	ND	5.0	07/17/18 15:53	
Dibenz(a,h)anthracene	ug/L	ND	5.0	07/17/18 15:53	
Diethylphthalate	ug/L	ND	5.0	07/17/18 15:53	
Dimethylphthalate	ug/L	ND	5.0	07/17/18 15:53	
Fluoranthene	ug/L	ND	5.0	07/17/18 15:53	
Fluorene	ug/L	ND	5.0	07/17/18 15:53	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	07/17/18 15:53	
Hexachlorobenzene	ug/L	ND	5.0	07/17/18 15:53	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

METHOD BLANK: 2189371 Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachlorocyclopentadiene	ug/L	ND	5.0	07/17/18 15:53	
Hexachloroethane	ug/L	ND	5.0	07/17/18 15:53	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	07/17/18 15:53	
Isophorone	ug/L	ND	5.0	07/17/18 15:53	
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	07/17/18 15:53	
N-Nitrosodimethylamine	ug/L	ND	5.0	07/17/18 15:53	
N-Nitrosodiphenylamine	ug/L	ND	5.0	07/17/18 15:53	
Naphthalene	ug/L	ND	5.0	07/17/18 15:53	
Nitrobenzene	ug/L	ND	5.0	07/17/18 15:53	
Pentachlorophenol	ug/L	ND	5.0	07/17/18 15:53	
Phenanthrene	ug/L	ND	5.0	07/17/18 15:53	
Phenol	ug/L	ND	5.0	07/17/18 15:53	
Pyrene	ug/L	ND	5.0	07/17/18 15:53	
2,4,6-Tribromophenol (S)	%	103	24-126	07/17/18 15:53	
2-Fluorobiphenyl (S)	%	90	24-110	07/17/18 15:53	
2-Fluorophenol (S)	%	46	20-59	07/17/18 15:53	
Nitrobenzene-d5 (S)	%	73	24-110	07/17/18 15:53	
Phenol-d6 (S)	%	28	11-42	07/17/18 15:53	
Terphenyl-d14 (S)	%	108	35-118	07/17/18 15:53	

LABORATORY CONTROL SAMPLE: 2189372

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	33.5	67	54-93	
1,2-Diphenylhydrazine	ug/L	50	39.2	78	62-105	
2,4,6-Trichlorophenol	ug/L	50	42.2	84	63-100	
2,4-Dichlorophenol	ug/L	50	38.6	77	59-95	
2,4-Dimethylphenol	ug/L	50	37.7	75	55-92	
2,4-Dinitrophenol	ug/L	50	30.7J	61	36-137	
2,4-Dinitrotoluene	ug/L	50	43.2	86	65-113	
2,6-Dinitrotoluene	ug/L	50	43.7	87	65-108	
2-Chloronaphthalene	ug/L	50	38.6	77	60-98	
2-Chlorophenol	ug/L	50	34.2	68	51-89	
2-Nitrophenol	ug/L	50	38.1	76	54-110	
3,3'-Dichlorobenzidine	ug/L	50	55.7	111	64-163	
4,6-Dinitro-2-methylphenol	ug/L	50	44.6	89	58-125	
4-Bromophenylphenyl ether	ug/L	50	43.6	87	61-107	
4-Chloro-3-methylphenol	ug/L	50	37.5	75	62-96	
4-Chlorophenylphenyl ether	ug/L	50	43.0	86	63-102	
4-Nitrophenol	ug/L	50	16.3	33	18-50	
Acenaphthene	ug/L	50	40.2	80	62-101	
Acenaphthylene	ug/L	50	40.3	81	62-100	
Anthracene	ug/L	50	43.7	87	63-105	
Benzidine	ug/L	50	ND	0	10-123	L2

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

LABORATORY CONTROL SAMPLE: 2189372

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzo(a)anthracene	ug/L	50	44.9	90	65-105	
Benzo(a)pyrene	ug/L	50	45.7	91	59-110	
Benzo(b)fluoranthene	ug/L	50	44.5	89	60-114	
Benzo(g,h,i)perylene	ug/L	50	45.3	91	60-110	
Benzo(k)fluoranthene	ug/L	50	47.1	94	59-110	
bis(2-Chloroethoxy)methane	ug/L	50	37.2	74	60-97	
bis(2-Chloroethyl) ether	ug/L	50	35.4	71	53-97	
bis(2-Chloroisopropyl) ether	ug/L	50	31.6	63	54-98	
bis(2-Ethylhexyl)phthalate	ug/L	50	44.6	89	61-121	
Butylbenzylphthalate	ug/L	50	44.5	89	59-125	
Chrysene	ug/L	50	45.1	90	63-109	
Di-n-butylphthalate	ug/L	50	44.2	88	65-112	
Di-n-octylphthalate	ug/L	50	46.4	93	56-127	
Dibenz(a,h)anthracene	ug/L	50	46.3	93	60-111	
Diethylphthalate	ug/L	50	42.7	85	65-103	
Dimethylphthalate	ug/L	50	43.7	87	64-103	
Fluoranthene	ug/L	50	44.1	88	64-108	
Fluorene	ug/L	50	41.9	84	65-101	
Hexachloro-1,3-butadiene	ug/L	50	30.0	60	48-94	
Hexachlorobenzene	ug/L	50	44.9	90	59-106	
Hexachlorocyclopentadiene	ug/L	100	35.2	35	19-56	
Hexachloroethane	ug/L	50	26.1	52	47-90	
Indeno(1,2,3-cd)pyrene	ug/L	50	44.2	88	60-110	
Isophorone	ug/L	50	36.8	74	62-97	
N-Nitroso-di-n-propylamine	ug/L	50	32.9	66	59-100	
N-Nitrosodimethylamine	ug/L	50	17.8	36	20-67	
N-Nitrosodiphenylamine	ug/L	50	43.5	87	64-102	
Naphthalene	ug/L	50	35.2	70	58-94	
Nitrobenzene	ug/L	50	35.7	71	59-98	
Pentachlorophenol	ug/L	50	40.2	80	54-121	
Phenanthrene	ug/L	50	43.7	87	63-105	
Phenol	ug/L	50	15.3	31	17-44	
Pyrene	ug/L	50	44.3	89	63-108	
2,4,6-Tribromophenol (S)	%			100	24-126	
2-Fluorobiphenyl (S)	%			84	24-110	
2-Fluorophenol (S)	%			45	20-59	
Nitrobenzene-d5 (S)	%			70	24-110	
Phenol-d6 (S)	%			29	11-42	
Terphenyl-d14 (S)	%			93	35-118	

MATRIX SPIKE SAMPLE: 2189373

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND		34.0			
1,2-Diphenylhydrazine	ug/L	ND		34.6			

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REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

MATRIX SPIKE SAMPLE: 2189373

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2,4,6-Trichlorophenol	ug/L	ND		41.6			
2,4-Dichlorophenol	ug/L	ND		40.2			
2,4-Dimethylphenol	ug/L	ND		8.3			M1
2,4-Dinitrophenol	ug/L	ND		20.8J			
2,4-Dinitrotoluene	ug/L	ND		39.8			
2,6-Dinitrotoluene	ug/L	ND		39.7			
2-Chloronaphthalene	ug/L	ND		36.8			
2-Chlorophenol	ug/L	ND		35.2			
2-Nitrophenol	ug/L	ND		42.2			
3,3'-Dichlorobenzidine	ug/L	ND		ND			M1
4,6-Dinitro-2-methylphenol	ug/L	ND		30.2			
4-Bromophenylphenyl ether	ug/L	ND		41.1			
4-Chloro-3-methylphenol	ug/L	ND		38.6			
4-Chlorophenylphenyl ether	ug/L	ND		39.4			
4-Nitrophenol	ug/L	ND		18.1			
Acenaphthene	ug/L	ND		37.1			
Acenaphthylene	ug/L	ND		35.8			
Anthracene	ug/L	ND		35.2			
Benzidine	ug/L	ND		ND			M0
Benzo(a)anthracene	ug/L	ND		40.6			
Benzo(a)pyrene	ug/L	ND		34.5			
Benzo(b)fluoranthene	ug/L	ND		43.6			
Benzo(g,h,i)perylene	ug/L	ND		39.4			
Benzo(k)fluoranthene	ug/L	ND		39.8			
bis(2-Chloroethoxy)methane	ug/L	ND		36.0			
bis(2-Chloroethyl) ether	ug/L	ND		34.4			
bis(2-Chloroisopropyl) ether	ug/L	ND		31.7			
bis(2-Ethylhexyl)phthalate	ug/L	ND		48.8			
Butylbenzylphthalate	ug/L	ND		48.6			
Chrysene	ug/L	ND		41.3			
Di-n-butylphthalate	ug/L	ND		42.1			
Di-n-octylphthalate	ug/L	ND		51.0			
Dibenz(a,h)anthracene	ug/L	ND		42.0			
Diethylphthalate	ug/L	ND		39.1			
Dimethylphthalate	ug/L	ND		39.3			
Fluoranthene	ug/L	ND		39.1			
Fluorene	ug/L	ND		38.3			
Hexachloro-1,3-butadiene	ug/L	ND		31.4			
Hexachlorobenzene	ug/L	ND		41.2			
Hexachlorocyclopentadiene	ug/L	ND		17.9			
Hexachloroethane	ug/L	ND		24.8			
Indeno(1,2,3-cd)pyrene	ug/L	ND		40.4			
Isophorone	ug/L	ND		35.4			
N-Nitroso-di-n-propylamine	ug/L	ND		33.4			
N-Nitrosodimethylamine	ug/L	ND		18.2			
N-Nitrosodiphenylamine	ug/L	ND		37.0			
Naphthalene	ug/L	ND		35.3			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

MATRIX SPIKE SAMPLE: 2189373

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrobenzene	ug/L	ND		50.0			
Pentachlorophenol	ug/L	ND		10.8			
Phenanthrene	ug/L	ND		39.0			
Phenol	ug/L	ND		13.7			
Pyrene	ug/L	ND		43.8			
2,4,6-Tribromophenol (S)	%				94	24-126	
2-Fluorobiphenyl (S)	%				81	24-110	
2-Fluorophenol (S)	%				46	20-59	
Nitrobenzene-d5 (S)	%				73	24-110	
Phenol-d6 (S)	%				29	11-42	
Terphenyl-d14 (S)	%				97	35-118	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 535199
QC Batch Method: EPA 625
Analysis Method: EPA 625
Analysis Description: 625 MSS
Associated Lab Samples: 60274609001

METHOD BLANK: 2192445
Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	07/20/18 14:54	
1,2-Diphenylhydrazine	ug/L	ND	8.0	07/20/18 14:54	
2,4,6-Trichlorophenol	ug/L	ND	5.0	07/20/18 14:54	
2,4-Dichlorophenol	ug/L	ND	5.0	07/20/18 14:54	
2,4-Dimethylphenol	ug/L	ND	5.0	07/20/18 14:54	
2,4-Dinitrophenol	ug/L	ND	50.0	07/20/18 14:54	
2,4-Dinitrotoluene	ug/L	ND	6.0	07/20/18 14:54	
2,6-Dinitrotoluene	ug/L	ND	5.0	07/20/18 14:54	
2-Chloronaphthalene	ug/L	ND	5.0	07/20/18 14:54	
2-Chlorophenol	ug/L	ND	5.0	07/20/18 14:54	
2-Nitrophenol	ug/L	ND	5.0	07/20/18 14:54	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	07/20/18 14:54	
4,6-Dinitro-2-methylphenol	ug/L	ND	25.0	07/20/18 14:54	
4-Bromophenylphenyl ether	ug/L	ND	5.0	07/20/18 14:54	
4-Chloro-3-methylphenol	ug/L	ND	5.0	07/20/18 14:54	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	07/20/18 14:54	
4-Nitrophenol	ug/L	ND	5.0	07/20/18 14:54	
Acenaphthene	ug/L	ND	5.0	07/20/18 14:54	
Acenaphthylene	ug/L	ND	5.0	07/20/18 14:54	
Anthracene	ug/L	ND	5.0	07/20/18 14:54	
Benzidine	ug/L	ND	50.0	07/20/18 14:54	
Benzo(a)anthracene	ug/L	ND	5.0	07/20/18 14:54	
Benzo(a)pyrene	ug/L	ND	5.0	07/20/18 14:54	
Benzo(b)fluoranthene	ug/L	ND	5.0	07/20/18 14:54	
Benzo(g,h,i)perylene	ug/L	ND	5.0	07/20/18 14:54	
Benzo(k)fluoranthene	ug/L	ND	5.0	07/20/18 14:54	
bis(2-Chloroethoxy)methane	ug/L	ND	5.0	07/20/18 14:54	
bis(2-Chloroethyl) ether	ug/L	ND	6.0	07/20/18 14:54	
bis(2-Chloroisopropyl) ether	ug/L	ND	6.0	07/20/18 14:54	
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	07/20/18 14:54	
Butylbenzylphthalate	ug/L	ND	5.0	07/20/18 14:54	
Chrysene	ug/L	ND	5.0	07/20/18 14:54	
Di-n-butylphthalate	ug/L	ND	5.0	07/20/18 14:54	
Di-n-octylphthalate	ug/L	ND	5.0	07/20/18 14:54	
Dibenz(a,h)anthracene	ug/L	ND	5.0	07/20/18 14:54	
Diethylphthalate	ug/L	ND	5.0	07/20/18 14:54	
Dimethylphthalate	ug/L	ND	5.0	07/20/18 14:54	
Fluoranthene	ug/L	ND	5.0	07/20/18 14:54	
Fluorene	ug/L	ND	5.0	07/20/18 14:54	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	07/20/18 14:54	
Hexachlorobenzene	ug/L	ND	5.0	07/20/18 14:54	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

METHOD BLANK: 2192445 Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachlorocyclopentadiene	ug/L	ND	5.0	07/20/18 14:54	
Hexachloroethane	ug/L	ND	5.0	07/20/18 14:54	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	07/20/18 14:54	
Isophorone	ug/L	ND	5.0	07/20/18 14:54	
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	07/20/18 14:54	
N-Nitrosodimethylamine	ug/L	ND	5.0	07/20/18 14:54	
N-Nitrosodiphenylamine	ug/L	ND	5.0	07/20/18 14:54	
Naphthalene	ug/L	ND	5.0	07/20/18 14:54	
Nitrobenzene	ug/L	ND	5.0	07/20/18 14:54	
Pentachlorophenol	ug/L	ND	5.0	07/20/18 14:54	
Phenanthrene	ug/L	ND	5.0	07/20/18 14:54	
Phenol	ug/L	ND	5.0	07/20/18 14:54	
Pyrene	ug/L	ND	5.0	07/20/18 14:54	
2,4,6-Tribromophenol (S)	%	76	24-126	07/20/18 14:54	
2-Fluorobiphenyl (S)	%	68	24-110	07/20/18 14:54	
2-Fluorophenol (S)	%	44	20-59	07/20/18 14:54	
Nitrobenzene-d5 (S)	%	59	24-110	07/20/18 14:54	
Phenol-d6 (S)	%	28	11-42	07/20/18 14:54	
Terphenyl-d14 (S)	%	75	35-118	07/20/18 14:54	

LABORATORY CONTROL SAMPLE: 2192446

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	33.2	66	54-93	
1,2-Diphenylhydrazine	ug/L	50	40.2	80	62-105	
2,4,6-Trichlorophenol	ug/L	50	29.5	59	63-100	1e
2,4-Dichlorophenol	ug/L	50	37.0	74	59-95	
2,4-Dimethylphenol	ug/L	50	34.0	68	55-92	
2,4-Dinitrophenol	ug/L	50	31.6J	63	36-137	
2,4-Dinitrotoluene	ug/L	50	39.9	80	65-113	
2,6-Dinitrotoluene	ug/L	50	38.4	77	65-108	
2-Chloronaphthalene	ug/L	50	34.8	70	60-98	
2-Chlorophenol	ug/L	50	34.3	69	51-89	
2-Nitrophenol	ug/L	50	38.7	77	54-110	
3,3'-Dichlorobenzidine	ug/L	50	47.5	95	64-163	
4,6-Dinitro-2-methylphenol	ug/L	50	36.9	74	58-125	
4-Bromophenylphenyl ether	ug/L	50	38.1	76	61-107	
4-Chloro-3-methylphenol	ug/L	50	39.4	79	62-96	
4-Chlorophenylphenyl ether	ug/L	50	38.4	77	63-102	
4-Nitrophenol	ug/L	50	17.0	34	18-50	
Acenaphthene	ug/L	50	36.8	74	62-101	
Acenaphthylene	ug/L	50	36.4	73	62-100	
Anthracene	ug/L	50	37.6	75	63-105	
Benzidine	ug/L	50	29.9J	60	10-123	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

LABORATORY CONTROL SAMPLE: 2192446

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzo(a)anthracene	ug/L	50	38.2	76	65-105	
Benzo(a)pyrene	ug/L	50	34.8	70	59-110	
Benzo(b)fluoranthene	ug/L	50	32.4	65	60-114	
Benzo(g,h,i)perylene	ug/L	50	41.8	84	60-110	
Benzo(k)fluoranthene	ug/L	50	32.4	65	59-110	
bis(2-Chloroethoxy)methane	ug/L	50	37.6	75	60-97	
bis(2-Chloroethyl) ether	ug/L	50	34.9	70	53-97	
bis(2-Chloroisopropyl) ether	ug/L	50	37.4	75	54-98	
bis(2-Ethylhexyl)phthalate	ug/L	50	39.4	79	61-121	
Butylbenzylphthalate	ug/L	50	38.6	77	59-125	
Chrysene	ug/L	50	37.0	74	63-109	
Di-n-butylphthalate	ug/L	50	40.4	81	65-112	
Di-n-octylphthalate	ug/L	50	30.5	61	56-127	
Dibenz(a,h)anthracene	ug/L	50	40.5	81	60-111	
Diethylphthalate	ug/L	50	39.7	79	65-103	
Dimethylphthalate	ug/L	50	37.9	76	64-103	
Fluoranthene	ug/L	50	39.6	79	64-108	
Fluorene	ug/L	50	38.7	77	65-101	
Hexachloro-1,3-butadiene	ug/L	50	27.3	55	48-94	
Hexachlorobenzene	ug/L	50	38.4	77	59-106	
Hexachlorocyclopentadiene	ug/L	100	23.0	23	19-56	
Hexachloroethane	ug/L	50	25.0	50	47-90	
Indeno(1,2,3-cd)pyrene	ug/L	50	40.3	81	60-110	
Isophorone	ug/L	50	38.4	77	62-97	
N-Nitroso-di-n-propylamine	ug/L	50	39.4	79	59-100	
N-Nitrosodimethylamine	ug/L	50	27.7	55	20-67	
N-Nitrosodiphenylamine	ug/L	50	39.5	79	64-102	
Naphthalene	ug/L	50	35.3	71	58-94	
Nitrobenzene	ug/L	50	38.8	78	59-98	
Pentachlorophenol	ug/L	50	30.1	60	54-121	
Phenanthrene	ug/L	50	38.8	78	63-105	
Phenol	ug/L	50	12.9	26	17-44	
Pyrene	ug/L	50	38.3	77	63-108	
2,4,6-Tribromophenol (S)	%			89	24-126	
2-Fluorobiphenyl (S)	%			71	24-110	
2-Fluorophenol (S)	%			47	20-59	
Nitrobenzene-d5 (S)	%			80	24-110	
Phenol-d6 (S)	%			24	11-42	
Terphenyl-d14 (S)	%			80	35-118	

MATRIX SPIKE SAMPLE: 2192447

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	48.1	35.2	73	44-109	
1,2-Diphenylhydrazine	ug/L	ND	48.1	41.4	86	16-120	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

MATRIX SPIKE SAMPLE: 2192447

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2,4,6-Trichlorophenol	ug/L	ND	48.1	41.2	86	37-123	
2,4-Dichlorophenol	ug/L	ND	48.1	39.4	82	39-115	
2,4-Dimethylphenol	ug/L	ND	48.1	16.0	33	32-116	
2,4-Dinitrophenol	ug/L	ND	48.1	25.5J	53	10-154	
2,4-Dinitrotoluene	ug/L	ND	48.1	43.0	89	39-122	
2,6-Dinitrotoluene	ug/L	ND	48.1	42.6	89	50-119	
2-Chloronaphthalene	ug/L	ND	48.1	37.1	77	60-110	
2-Chlorophenol	ug/L	ND	48.1	33.3	69	35-91	
2-Nitrophenol	ug/L	ND	48.1	40.0	83	29-132	
3,3'-Dichlorobenzidine	ug/L	ND	48.1	ND	0	10-156	M1
4,6-Dinitro-2-methylphenol	ug/L	ND	48.1	34.6	72	10-158	
4-Bromophenylphenyl ether	ug/L	ND	48.1	44.3	92	53-115	
4-Chloro-3-methylphenol	ug/L	ND	48.1	42.2	88	39-105	
4-Chlorophenylphenyl ether	ug/L	ND	48.1	41.5	86	29-111	
4-Nitrophenol	ug/L	ND	48.1	21.4	45	17-49	
Acenaphthene	ug/L	ND	48.1	38.3	80	47-110	
Acenaphthylene	ug/L	ND	48.1	37.3	78	33-110	
Anthracene	ug/L	ND	48.1	38.7	81	27-114	
Benzidine	ug/L	ND	48.1	ND	0	10-18	M1
Benzo(a)anthracene	ug/L	ND	48.1	42.0	87	33-113	
Benzo(a)pyrene	ug/L	ND	48.1	38.0	79	26-116	
Benzo(b)fluoranthene	ug/L	ND	48.1	44.3	92	28-121	
Benzo(g,h,i)perylene	ug/L	ND	48.1	51.8	108	24-118	
Benzo(k)fluoranthene	ug/L	ND	48.1	43.0	89	26-116	
bis(2-Chloroethoxy)methane	ug/L	ND	48.1	36.6	76	33-109	
bis(2-Chloroethyl) ether	ug/L	ND	48.1	34.0	71	27-106	
bis(2-Chloroisopropyl) ether	ug/L	ND	48.1	33.7	70	36-113	
bis(2-Ethylhexyl)phthalate	ug/L	ND	48.1	53.6	111	33-129	
Butylbenzylphthalate	ug/L	ND	48.1	48.3	100	32-131	
Chrysene	ug/L	ND	48.1	42.6	89	30-116	
Di-n-butylphthalate	ug/L	ND	48.1	44.6	93	31-120	
Di-n-octylphthalate	ug/L	ND	48.1	52.4	109	27-142	
Dibenz(a,h)anthracene	ug/L	ND	48.1	52.7	110	25-119	
Diethylphthalate	ug/L	ND	48.1	43.9	91	30-112	
Dimethylphthalate	ug/L	ND	48.1	41.5	86	29-111	
Fluoranthene	ug/L	ND	48.1	42.3	88	28-115	
Fluorene	ug/L	ND	48.1	41.2	86	59-111	
Hexachloro-1,3-butadiene	ug/L	ND	48.1	34.6	72	24-103	
Hexachlorobenzene	ug/L	ND	48.1	43.5	90	28-111	
Hexachlorocyclopentadiene	ug/L	ND	96.2	26.1	27	10-68	
Hexachloroethane	ug/L	ND	48.1	26.2	54	40-110	
Indeno(1,2,3-cd)pyrene	ug/L	ND	48.1	52.5	109	25-117	
Isophorone	ug/L	ND	48.1	37.8	79	28-107	
N-Nitroso-di-n-propylamine	ug/L	ND	48.1	36.4	76	28-110	
N-Nitrosodimethylamine	ug/L	ND	48.1	22.3	46	16-66	
N-Nitrosodiphenylamine	ug/L	ND	48.1	40.5	84	26-111	
Naphthalene	ug/L	ND	48.1	36.2	75	23-107	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

MATRIX SPIKE SAMPLE: 2192447

Parameter	Units	60274725008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrobenzene	ug/L	ND	48.1	50.5	105	35-118	
Pentachlorophenol	ug/L	ND	48.1	14.0	29	14-147	
Phenanthrene	ug/L	ND	48.1	42.2	88	54-113	
Phenol	ug/L	ND	48.1	14.0	29	16-42	
Pyrene	ug/L	ND	48.1	45.6	95	52-115	
2,4,6-Tribromophenol (S)	%				103	24-126	
2-Fluorobiphenyl (S)	%				80	24-110	
2-Fluorophenol (S)	%				42	20-59	
Nitrobenzene-d5 (S)	%				81	24-110	
Phenol-d6 (S)	%				30	11-42	
Terphenyl-d14 (S)	%				100	35-118	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
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(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 535086
QC Batch Method: EPA 420.1
Analysis Method: EPA 420.1
Analysis Description: 420.1 Phenolics Macro
Associated Lab Samples: 60274609001

METHOD BLANK: 2191669
Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phenolics, Total Recoverable	mg/L	ND	0.050	07/19/18 14:42	

LABORATORY CONTROL SAMPLE: 2191670

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/L	.25	0.25	100	90-110	

MATRIX SPIKE SAMPLE: 2191671

Parameter	Units	60274570001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/L	149	.25	186	14600	90-110	M1

MATRIX SPIKE SAMPLE: 2191673

Parameter	Units	60274648002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/L	0.21	.25	0.48	106	90-110	

SAMPLE DUPLICATE: 2191672

Parameter	Units	60274570003 Result	Dup Result	RPD	Max RPD	Qualifiers
Phenolics, Total Recoverable	mg/L	144	155	7	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(913)599-5665

QUALITY CONTROL DATA

Project: Permit renewal
Pace Project No.: 60274609

QC Batch: 534021
QC Batch Method: EPA 7196
Analysis Method: EPA 7196
Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 60274609001

METHOD BLANK: 2187206
Matrix: Water
Associated Lab Samples: 60274609001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	07/12/18 10:16	

LABORATORY CONTROL SAMPLE: 2187207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	.1	0.096	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2187208 2187209

Parameter	Units	60274609001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	mg/L	ND	.1	.1	0.11	0.10	106	102	85-115	4	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: Permit renewal
Pace Project No.: 60274609

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

1e	The LCS recovery was below QC limits. The successful recovery of the MS demonstrates that the analytical system was in control for this QA/QC sample group.
H2	Extraction or preparation conducted outside EPA method holding time.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Permit renewal
Pace Project No.: 60274609

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60274609001	**EFFLUENT**	EPA 200.7	534523	EPA 200.7	534561
60274609001	**EFFLUENT**	EPA 245.1	535669	EPA 245.1	535717
60274609001	**EFFLUENT**	EPA 625	534485	EPA 625	534843
60274609001	**EFFLUENT**	EPA 625	535199	EPA 625	535430
60274609001	**EFFLUENT**	Trivalent Chromium Calculation	535975		
60274609001	**EFFLUENT**	EPA 420.1	535086		
60274609001	**EFFLUENT**	EPA 7196	534021		

WO#: 60274609

60274609

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

Client Name: City of Oak Grove

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☒ Other ☐

Tracking #: ______ Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☒ Ziploc

Thermometer Used: T266 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 5.1 **Corr. Factor** +0.2 **Corrected** 5.3

Date and Initials of person examining contents: 7/11/18 AZ

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	CR+6
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No ☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	AZ 7/11/18
Headspace in VOA vials (>6mm):	☒Yes ☐No ☐N/A	Effluent #2, #3, #4
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Karen Date/Time:

Comments/ Resolution: VOA'S HAVE HEADSPACE; RECOLLECTING FOR VOCS ONLY

Project Manager Review: [signature] Date: 7/12

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	City of Oak Grove WWTP	Report To:	Bryan Leighow	Attention:	
Address:	1300 Broadway	Copy To:		Company Name:	
	Oak Grove, MO 64075			Address:	
Email:	bleighow@cityofoakgrove.com	Purchase Order #:		Pace Quote:	
Phone:	(816)690-6918 Fax:	Project Name:		Pace Project Manager:	Angie Brown
Requested Due Date:		Project #:		Pace Profile #:	7701 line 4

Regulatory Agency

State / Location: Missouri

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: EPA 624	EPA 625	8260 7/245.1 Metals	Total Phenols	Hexavalent chromium	Trivalent Chromium	Hardness	Residual Chlorine (Y/N)	
1	Effluent #1	WT	C	7-10	11 Am	7-11	11 Am		1			X								BP3N							6027460
2	Effluent #2	WT	C	7-10	11 Am	7-11	11 Am	12.1	1	X										VC9U							
3	Effluent #3	WT	C	7-10	11 Am	7-11	11 Am		1	X										↓							
4	Effluent #4	WT	C	7-10	11 Am	7-11	11 Am		1	X										↓							
5	Effluent #5	WT	C	7-10	11 Am	7-11	11 Am		1	X										BP3U							
6	Effluent #6	WT	C	7-10	11 Am	7-11	11 Am		1	X										AG1U							
7	Effluent #7	WT	C	7-10	11 Am	7-11	11 Am		1	X										↓							
8	Effluent #8	WT	C	7-10	11 Am	7-11	11 Am		1	HF	X									AG3S							
9																				2VG9U (TB)							ar
10																											
11																											
12																											

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Bryan Leighow	7-11-18	1:33		7/11	1332	5C	Y	Y	Y

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Bryan Leighow				
SIGNATURE of SAMPLER:	Bryan Leighow				
DATE Signed:	7-11-18				