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-0094919
Owner:	City of Cuba
Address:	202 North Smith, Cuba, MO 65453
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Cuba Wastewater Treatment Facility
Facility Address:	0.3 miles west from the intersection of Hwy 19 and Treatment Plant Rd. Cuba, MO 65453
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See 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

See Page 2

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.

December 1, 2019 — Effective Date
June 1, 2020 — Modification Date

Edward B. Galbraith, Director, Division of Environmental Quality

September 30, 2024
Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW
The use or operation of this facility shall be by or under the supervision of a Certified "C" Operator.
Influent lift station / bar screen / oxidation ditch (2) / final clarifiers (3) / UV disinfection / post aeration tank / sludge holding tanks / sludge is land applied / 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 15,500.
Design flow is 1,550,000 gallons per day.
Actual flow is 1,250,000 gallons per day.
Design sludge production is 264 dry tons/year.

Legal Description:	Sec. 24, T39N, R05W, Crawford County
UTM Coordinates:	X = 639076, Y = 4216418
Receiving Stream:	Pleasant Valley Creek (C) (3960)
First Classified Stream and ID:	100K Extent-Remaining Streams (C) (3960)
USGS Basin & Sub-watershed No.:	(07140103-0205)

Permitted Feature INF – Influent Monitoring Location – Influent structure

Permitted Feature SM1 – Instream Monitoring – Downstream – bridge over Pleasant Valley Creek on Glassey Road – See Special Condition #20

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 in **Table A-1** shall become effective on **December 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/week	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		26	17	twice/month	composite**
Total Suspended Solids	mg/L		26	17	twice/month	composite**
E. coli (Note 1)	#/100mL		1,030	206	once/week	grab
Ammonia as N (Apr 1 – Sep 30) (Oct 1 – Mar 31)	mg/L	 5.6 10.2		 1.3 2.7	twice/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
EFFLUENT PARAMETER(S)	**UNITS**	**MINIMUM**		**MAXIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
pH – Units***	SU	6.5		9.0	twice/month	grab
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MINIMUM**		**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Dissolved Oxygen	mg/L	*		*	twice/month	grab
EFFLUENT PARAMETER(S)			**UNITS**	**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Biochemical Oxygen Demand$_5$ – Percent Removal (Note 2)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 2)			%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE JANUARY 28, 2020. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring requirement only.

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

*** pH is measured in pH units and is not to be averaged.

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 for BOD_5 and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using 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. 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 in **Table A-2** shall become effective on **December 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****	composite**
Boron, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Cadmium, Total Recoverable	µg/L	2.9		1.0	once/quarter****	composite**
Copper, Total Recoverable	µg/L	33.0		16.9	once/quarter****	composite**
Cyanide, Amenable to Chlorination (Note 3)	µg/L	6.6		4.6	once/quarter****	grab
Selenium, Total Recoverable (Note 4)	µg/L	9.2		3.4	once/quarter****	composite**

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE APRIL 28, 2020.

* 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**	**Quarterly Effluent Parameters**	**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

Note 3 – This effluent limit is below the accepted minimum quantification level (ML). The Department has determined the current acceptable ML of Cyanide Amenable to Chlorination to be 10 µg/L when using SM 4500-CN^-G. Cyanides Amenable to Chlorination after Distillation in *Standard Methods for the Examination of Water and Wastewater*, 22nd Edition. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 10 µg/L will be considered violations of the permit and values less than the minimum quantification level of 10 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of Cyanide in excess of the effluent limits stated in the permit.

Note 4 - This permit establishes effluent limitations/monitoring for total recoverable selenium which are below the most commonly used analytical methods detection limits. However, 40 CFR 136 indicates effluent characteristics can be effectively quantified using EPA approved method 200.9 or 3113B. These methods have detection limits of 0.6 µg/L and 2 µg/L respectively; either may be used to determine compliance with this permit.

OUTFALL #001	TABLE A-3. 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 in **Table A-3** shall become effective on **December 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 5)	TU_a	*			once/year	composite**
ACUTE WET TEST MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2021.						
Limit Set: WC						
Chronic Whole Effluent Toxicity (Note 6)	TU_c	*			once/permit cycle	composite**
CHRONIC WET TEST REPORTS SHALL BE SUBMITTED **ONCE PER PERMIT CYCLE**; THE FIRST REPORT IS DUE JANUARY 28, 2024.						

* Monitoring requirement only.

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

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

Note 6 –The Chronic WET test shall be conducted during the 4th year of the permit cycle. See Special Condition #19 for additional requirements.

PERMITTED FEATURE INF	TABLE B. INFLUENT MONITORING REQUIREMENTS

The monitoring requirements in **Table B** shall become effective on **December 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						
Biochemical Oxygen Demand$_5$ (Note 2)	mg/L			*	twice/month	composite**
Total Suspended Solids (Note 2)	mg/L			*	twice/month	composite**
Ammonia as N	mg/L	*		*	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 JANUARY 28, 2020.

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

Note 2 – Influent sampling for BOD_5 and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using 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.

PERMITTED FEATURE SM1	TABLE C-1. INSTREAM MONITORING REQUIREMENTS

The monitoring requirements in **Table C-1** shall become effective on **December 1, 2019** and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below:

PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: DM						
Hardness, Total	mg/L	*		*	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE APRIL 28, 2020.

* Monitoring requirement only.
**** See table below for quarterly sampling requirements.

Quarterly Minimum Sampling Requirements			
Quarter	**Months**	**Quarterly Effluent Parameters**	**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

D. 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 August 1, 2019, and hereby incorporated as though fully set forth herein.

E. 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/).
      (3) Pretreatment Program Reports; and
      (4) 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 Termination (NOTs);
      (2) No Exposure Certifications (NOEs); 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 submit compliance monitoring data and reports electronically. The Department may grant a waiver to a permittee 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.

4. Report as no-discharge when a discharge does not occur during the report period.

E. 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, use one-half of the method detection limit (MDL) 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. Upon approval of the request, the Department will modify the permit.

8. The permittee shall develop and implement a program for maintenance and repair of its collection system. The permittee may compare collection system performance results and other data with the benchmarks used in the Departments' Capacity, Management, Operation, And Maintenance (CMOM) Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. Additional information regarding the Departments' CMOM Model is available at http://dnr.mo.gov/pubs/pub2574.htm.

   The permittee shall also submit a report to the Southeast Regional Office 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 specific 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 Southeast 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 to the treatment facility shall be maintained.

E. SPECIAL CONDITIONS (continued)

13. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and 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 storage basin(s) shall be operated and maintained to ensure their structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.

16. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the storage basin and to divert stormwater runoff around the storage basin and protect embankments from erosion.

17. Pretreatment: The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.
    (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
        (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
        (2) A summary of the status of Industrial User compliance over the reporting period;
        (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
        (4) Any other relevant information requested by the Department.
    (b) Pursuant to 40 CFR 122.44(j)(2)(ii), the permittee shall submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) by **June 1, 2020**. Please contact the Department's pretreatment coordinator for further guidance. Should revision of local limits be deemed necessary, it is recommended that revisions follow the US Environmental Protection Agency's guidance document *Local Limits Development Guidance.* EPA833-R04-002A. July 2004.

18. Expanded Effluent Testing:
    Permittee must sample and analyze for the pollutants listed in 40 CFR 122.21 Appendix J, Table 2, 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.

E. SPECIAL CONDITIONS (continued)

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) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (e) 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.

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:
        a. The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
        b. 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) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (e) 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.

20. Receiving Water Monitoring Conditions
    a) Downstream receiving water samples should be taken at the location(s) specified on Page 2 of this permit. In the event that a safe, accessible location is not present at the location(s) listed, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.
    b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
    c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
        a. If turbidity in the stream increases notably; or
        b. If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hour.
    d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
    e) Please contact the Department if you need additional instructions or assistance.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATEMENT OF BASIS
MO-0094919
CUBA WASTEWATER TREATMENT FACILITY

This Statement of Basis (Statement) gives pertinent information regarding modification(s) to the above listed operating permit. A Statement is not an enforceable part of a Missouri State Operating Permit.

Part I – Facility Information

Facility Type: POTW
Facility Description: The use or operation of this facility shall be by or under the supervision of a Certified "C" Operator. Influent lift station / bar screen / oxidation ditch (2) / final clarifiers (3) / UV disinfection / post aeration tank / sludge holding tanks / sludge is land applied / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater.

Part II – Modification Rationale

This operating permit is hereby modified to reflect the approval of a No Exposure Certification for Exclusion from NPDES Stormwater Permitting. The City of Cuba submitted a No Exposure Certification for Exclusion from NPDES Stormwater Permitting, which was approved by the Department on February 21, 2020. This exclusion will be reevaluated at the time of renewal.

This exclusion will be reevaluated at the time of renewal.

No other changes were made at this time.

Part III – 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.

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 20, 2020 through April 20, 2020. No responses received. A typographical error was discovered during the PN of the modification foo the permit. Special Condition #8 had been erroneously removed. The permit has been updated.

DATE OF FACT SHEET: MARCH 3, 2020

COMPLETED BY:

DANIELLE SKOUBY, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
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MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0094919
CUBA WASTEWATER TREATMENT FACILITY

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 Operating Permit covering POTW domestic Wastewater Treatment Facilities (WWTF).

Part I – Facility Information

Facility Type: POTW

Facility Description: Influent lift station / bar screen / oxidation ditch (2) / final clarifiers (3) / UV disinfection / post aeration tank / sludge holding tanks / sludge is land applied /

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

Application Date: 4/11/19
Expiration Date: 7/31/19

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	2.4	Secondary	Domestic

Facility Performance History:
This facility was last inspected on March 20, 2019. The inspection showed the following unsatisfactory features:

- The facility failed to apply for renewal of the Missouri States Operating Permit (MSOP) at least one hundred and eighty (180) days before the expiration.
- The facility failed to conduct operational monitoring for temperature analysis as required by the special conditions of MSOP MO0094919.

The facility returned to compliance on April 11, 2019.

A review of discharge monitoring data submitted by the permittee indicated the following:

- Final Effluent Exceedances:
  - E. coli: April 2018, August 2017, September 2016, August 2016, October 2015, June 2015, May 2015 and September 2014.
  - Oil & Grease: August 2015

Comments:
Changes in the permit include the re-calculation of final effluent limits for Ammonia as N, the addition of influent and effluent monitoring requirements for nutrients (Ammonia as N, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate) per 10 CSR 20-7.015(9)(D)8 and the addition of Chronic WET test requirements based on renewal application requirements per 40 CFR 122.21(j)(5)(v) the permittee should perform at least one Chronic WET test per permit cycle. Oil & Grease were updated from once/week to once/quarter sampling and reporting frequency. Monitoring for Boron, TR was added to the permit due to the facility accepting landfill leachate from Prairie Valley Landfill. Final effluent limits were added for Cadmium, Selenium, Cyanide and Copper based on RPA analysis of DMR data provided by the facility. Downstream monitoring for Hardness has been added to collect representative instream data for calculating final effluent limits for metals. Final effluent limits for BOD_5 and TSS were updated to reflect the Water Quality and Antidegradation Review completed December 8, 2009 and completion of facility upgrades that were completed approximately the end of 2012 to beginning of 2013. Monitoring for Dissolved Oxygen was also added per the review. See Appendix D – Antidegradation Analysis. Daily maximum and monthly average final effluent limits were added back into the permit for Cadmium and Selenium. There was a typographical error in the 2018 modification and the units were calculated without converting from milligrams (mg) to micrograms (µg). Sampling and Reporting Frequencies for BOD_5, TSS, Ammonia as N and pH have been reduced from once per week to twice (2) per month per 10 CSR 20-7.015(8)(B)1.A. See Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters. Special conditions include updated inflow and infiltration, bypass reporting, and reporting of non-detects requirements, the addition of Chronic WET Test requirements, the addition of downstream monitoring for hardness, the removal of the changes in discharges of toxic substances as Standard Conditions Part II contains these requirements, and 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. Also, a Stormwater Pollution Prevention Plan (SWPPP) must be developed and implemented **within 180 days of the effective date** of this permit. See Special Condition #19 of the permit. The receiving stream on the previous permit was listed as "8-20-13 MUDD V1.0" (C) (3960). With the approval of updates to WQS, effective August 1, 2019, these streams have been renamed to "100K Extent-Remaining Streams" (C) (3960).

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(n) C Certification Level. Please see **Appendix A - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: Steve Black
Certification Number: 9512
Certification Level: WW-C

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 publicly 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 publicly 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's 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)
100K Extent-Remaining Streams	C	3960	AQL, WBC-B, SCR, HHP, IRR, LWW	07140103-0205	0.0
Pleasant Valley Creek	C	2058			0.10
Pleasant Valley Creek	P	2057			1.88

*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 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
100K Extent-Remaining Streams (C) (3960)	0	0	0

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B(I)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0	0	0	0	0	N/A

RECEIVING STREAM MONITORING REQUIREMENTS:
No receiving water monitoring requirements recommended at this time.

Receiving Water Body's Water Quality
The Department conducted a stream survey on July 8, 2011. The AQL use designation was impaired 70 yards below stream of the outfall.

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.

- **Sampling and Reporting Frequency (BOD_5, TSS, Ammonia as N and pH)**. Sampling and reporting frequencies were reduced from once per week to twice per month. Discharge monitoring data submitted by the permittee shows that operations at the facility have been consistent and have low variability. Therefore, the Department has found the permittee eligible for reduced monitoring frequencies. The permit is still protective of water quality.

- **Sampling and Reporting Frequencies (OIL & GREASE)**. Sampling and reporting frequencies were reduced from once per week to once per quarter. Discharge monitoring data submitted by the permittee shows that operations at the facility have been consistent and have low variability. Therefore, the Department has found the permittee eligible for reduced monitoring frequencies. 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 must review and maintain stormwater BMPs as appropriate.

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 authorized to land apply biosolids in accordance with Standard Conditions III.

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 optional and 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. Each facility must make a request. If a single entity owns or operates more than one facility, 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

✓ This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved 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 B – 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, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A 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. A 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(b)(14)(ix) 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.

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 was either not submitted or determined not applicable by Department staff.

WHOLE EFFLUENT TOXICITY (WET) TEST:
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.

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

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 does not discharge to a 303(d) listed stream.

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	monthly	T
BOD_5	mg/L	1		26	17	45/30	2/month	monthly	C
TSS	mg/L	1		26	17	45/30	2/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	5.6		1.3	5.4/1.3	2/month	monthly	C
Ammonia as N (Oct 1 – Mar 31)	mg/L	2, 3	10.2		2.7	10.6/2.7	2/month	monthly	C
Oil & Grease	mg/L	1, 3	15		10	15/10	1/quarter	quarterly	G
Total Phosphorus	mg/L	1, 11	*		*	***	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1, 11	*		*	***	1/month	monthly	C
Nitrite + Nitrate	mg/L	1, 11	*		*	***	1/month	monthly	C
Boron, Total Recoverable	µg/L	1, 7	*		*	***	1/quarter	quarterly	C
Cadmium, Total Recoverable	µg/L	2	2.9		1.0	***	1/quarter	quarterly	C
Copper, Total Recoverable	µg/L	1, 7	33.0		16.9	***	1/quarter	quarterly	C
Cyanide, Amenable to Chlorination	µg/L	1, 7	6.6		4.6	***	1/quarter	quarterly	G
Selenium, Total Recoverable	µg/L	2	9.2		3.4	***	1/quarter	quarterly	C
Acute Whole Effluent Toxicity	TUa	1, 9	*			*	1/year	annually	C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			***	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	2/month	monthly	G

PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg. Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
Dissolved Oxygen (DO)	mg/L	3, 7	*		*	***	2/month	monthly	G
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).** This permit established new limits for BOD_5. 26 mg/L as a Weekly Average and 17 mg/L as a Monthly Average. Facility was upgraded 2012-2013 to include two (2) oxidation ditches, a post aeration tank and UV disinfection. Please see attached Antidegradation Review Sheet.

- **Total Suspended Solids (TSS).** This permit established new limits for TSS. 26 mg/L as a Weekly Average and 17 mg/L as a Monthly Average. Facility was upgraded 2012-2013 to include two (2) oxidation ditches, a post aeration tank and UV disinfection. Please see attached Antidegradation 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: Ce = ((2.4025 + 0)1.5 – (0 * 0.01)) / 2.4025
Ce = 1.5

Acute WLA: Ce = ((2.4025 + 0)12.1 – (0 * 2.4025)) / 2.4025
Ce = 12.1

LTAc = 1.5 mg/L * (0.585) = 0.88 mg/L [CV = 1.35, 99th Percentile, 30 day avg.]
LTAa = 12.1 mg/L * (0.157) = 1.90 mg/L [CV = 1.35, 99th Percentile]

MDL = 0.88 mg/L * (6.37) = **5.6** mg/L [CV = 1.35, 99th Percentile]
AML = 0.88 mg/L * (1.45) = **1.3** mg/L [CV = 1.35, 95th Percentile, n=30]

Winter: October 1 – March 31

Chronic WLA: Ce = ((2.4025 + 0)3.1 – (0 * 0.01)) / 2.4025
Ce = 3.1

Acute WLA: Ce = ((2.4025 + 0)12.1 – (0 * 2.4025)) / 2.4025
Ce = 12.1

LTAc = 3.1 mg/L * (0.663) = 2.06 mg/L [CV = 1.02, 99th Percentile, 30 day avg.]
LTAa = 12.1 mg/L * (0.201) = 2.43 mg/L [CV = 1.02, 99th Percentile]

MDL = 2.06 mg/L * (4.97) = **10.2** mg/L [CV = 1.02, 99th Percentile]
AML = 2.06 mg/L * (1.33) = **2.7** mg/L [CV = 1.02, 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 are 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.

- **Dissolved Oxygen**. Currently, there is no monitoring data related to the dissolved oxygen concentration in the discharge or to the condition of the receiving stream's dissolved oxygen. Therefore reasonable potential to cause or contribute to an excursion of either the general or specific criteria may exist based upon the permittee's application for discharge. Monitoring only requirements have been included in this permit in order to determine if a future effluent limitation is necessary to protect water quality. Please see the attached Appendix D – Antidegradation Review.

- **Cyanide, Amenable to Chlorination.** Protection of Aquatic Life CCC = 5 µg/L, CMC = 22 µg/L, Background CN = 0 µg/L. The Department has determined the current acceptable ML of Cyanide Amenable to Chlorination to be 10 µg/L when using SM 4500-CN-G.

  Acute AQL: 22 ug/L
  Chronic AQL: 5 ug/L

  Acute WLA: Ce = ((2.398 cfsDF + 0 cfsZID) * 22 – (0 cfsZID * 0 background)) / 2.398 cfsDF = 22
  Chronic WLA: Ce = ((2.398 cfsDF + 0 cfsMZ) * 5 – (0 cfsMZ * 0 background)) / 2.398 cfsDF = 5

  LTAa: WLAa * LTAa multiplier = 22 * 0.551 = 12.125 [CV: 0.277, 99th %ile]
  LTAc: WLAc * LTAc multiplier = 5 * 0.732 = 3.662 [CV: 0.277, 99th %ile]

  use most protective LTA: 3.662

  Daily Maximum: MDL = LTA * MDL multiplier = 3.662 * 1.814 = **6.6** ug/L [CV: 0.277, 99th %ile]
  Monthly Average: AML = LTA * AML multiplier = 3.662 * 1.243 = **4.6** ug/L [CV: 0.277, 95th %ile, n=4]

- **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
Downstream water hardness of 250mg/L is used in the calculation below. This value represents the 50th percentile (median) for all sample data submitted to the Department.

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.

- **Boron, Total Recoverable**. As indicated on the renewal application, the facility accepts landfill leachate. Therefore, the permit writer included monitoring only requirements for Boron in order to determine if the discharge has the reasonable potential to cause or contribute to an excursion of any of the above metals' water quality standards.

- ✓ **Cadmium, Total Recoverable.**
  Acute AQL: e^(1.0166 * ln250 – 3.062490) * (1.136672 – ln250 *0.041838) = 11.606 µg/L [at hardness 250]
  Chronic AQL: e^(0.7977 * ln250 – 3.909) * (1.101672 – ln250*0.041938) = 1.429 µg/L [at hardness 250]

  TR Conversion: AQL/Translator = 11.606 / 0.906 = 12.815 [at hardness 250]
  TR Conversion: AQL/Translator = 1.429 / 0.871 = 1.641 [at hardness 250]

  Acute WLA: Ce = ((2.398 cfsDF + 0 cfsZID) * 12.815 – (0 cfsZID * 0 background)) / 2.398 cfsDF = 12.815
  Chronic WLA: Ce = ((2.398 cfsDF + 0 cfsMZ) * 1.641 – (0 cfsMZ * 0 background)) / 2.398 cfsDF = 1.641

  LTAa: WLAa * LTAa multiplier = 12.815 * 0.127 = 1.628 [CV: 1.776, 99th %ile]
  LTAc: WLAc * LTAc multiplier = 1.641 * 0.227 = 0.373 [CV: 1.776, 99th %ile]

  use most protective LTA: 0.373

  Daily Maximum: MDL = LTA * MDL multiplier = 0.373 * 7.874 = **2.9** µg/L [CV: 1.776, 99th %ile]
  Monthly Average: AML = LTA * AML multiplier = 0.373 * 2.621 = **1.0** µg/L [CV: 1.776, 95th %ile, n=4]

- **Copper, Total Recoverable**. Protection of Aquatic Life Acute Criteria = 31.85 µg/L, Chronic Criteria = 19.59 µg/L. The hardness value of **250 mg/L** represents the 50th percentile (median) for Pleasant Valley Creek (C) (3960).

  Acute AQL: e^(0.9422 * ln250 – 1.700300) * (0.960) = 31.855 µg/L [at hardness 250]
  Chronic AQL: e^(0.78545 * ln250 – 1.702) * (0.960) = 19.595 µg/L [at hardness 250]

  TR Conversion: AQL/Translator = 31.855 / 0.96 = 33.182 [at hardness 250]
  TR Conversion: AQL/Translator = 19.595 / 0.96 = 20.411 [at hardness 250]

  Acute WLA: Ce = ((2.398 cfsDF + 0 cfsZID) * 33.182 – (0 cfsZID * 0 background)) / 2.398 cfsDF = 33.182
  Chronic WLA: Ce = ((2.398 cfsDF + 0 cfsMZ) * 20.411 – (0 cfsMZ * 0 background)) / 2.398 cfsDF = 20.411

  LTAa: WLAa * LTAa multiplier = 33.182 * 0.336 = 11.157 [CV: 0.568, 99th %ile]
  LTAc: WLAc * LTAc multiplier = 20.411 * 0.544 = 11.103 [CV: 0.568, 99th %ile]

  use most protective LTA: 11.103

  Daily Maximum: MDL = LTA * MDL multiplier = 11.103 * 2.974 = **33.0** µg/L [CV: 0.568, 99th %ile]
  Monthly Average: AML = LTA * AML multiplier = 11.103 * 1.521 = **16.9** µg/L [CV: 0.568, 95th %ile, n=4]

- ✓ **Selenium, Total Recoverable.**
  Chronic AQL: 5 µg/L

  TR Conversion: AQL/Translator = 5 / 1 = 5

  Chronic WLA: Ce = ((2.398 cfsDF + 0 cfsMZ) * 5 – (0 cfsMZ * 0 background)) / 2.398 cfsDF = 5

  LTAc: WLAc * LTAc multiplier = 5 * 0.312 = 1.559 [CV: 1.242, 99th %ile]

  Daily Maximum: MDL = LTA * MDL multiplier = 1.559 * 5.931 = **9.2** µg/L [CV: 1.242, 99th %ile]
  Monthly Average: AML = LTA * AML multiplier = 1.559 * 2.173 = **3.4** µg/L [CV: 1.242, 95th %ile, n=4]]

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 Class C [10 CSR 20-7.031(5)(A)4.B.(IV)(b)] 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. A chronic toxic unit limit of 1.6 applies.

  - Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Class C [10 CSR 20-7.031(5)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

Sampling Frequency Justification: Sampling and reporting frequencies were reduced from once per week to twice per month for BOD_5, TSS, Ammonia as N and pH. Oil & Grease sampling and reporting frequency was reduced to once per quarter from once per week. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.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 incorporates a pretreatment program.

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.

Sampling Type Justification: As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour modified composite sample. Grab samples, however, must be collected for pH, *E. coli*, Oil & Grease, Dissolved Oxygen and Cyanide 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 ****
BOD_5	mg/L	1			*	*	2/month	monthly	C
TSS	mg/L	1			*	*	2/month	monthly	C
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 = Composite
G = 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

- **Biochemical Oxygen Demand (BOD_5)**. An influent sample is required to determine the removal efficiency. 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.

- **Total Suspended Solids (TSS)**. An influent sample is required to determine the removal efficiency. 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.

- **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: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per [10 CSR 20-7.015(9)(D)8.]. The sampling and reporting frequencies for influent BOD_5 and TSS have been established to match the required sampling frequency of these parameters in the effluent.

Sampling Type Justification: Sample types for influent parameters were established to match the required sampling type of these parameters in the effluent. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

PERMITTED FEATURE SM1 – INSTREAM MONITORING (DOWNSTREAM)

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.

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Hardness	mg/L	1, 3	*		*	***	1/quarter	quarterly	G

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

PERMITTED FEATURE SM2 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Hardness**. Monitoring only requirement as the metals parameters contained in the permit are hardness based. This data will be used in the next permit renewal.

Sampling Frequency Justification: The sampling and reporting frequency for Total Hardness has been established to match the required sampling frequency of the metals parameters in the effluent.

Sampling Type Justification: For the purposes of instream data collection, and as the upstream water quality should be consistent over a 24 hour period, grab samples are sufficient. 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 March 20, 2019, 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, this facility utilizes secondary treatment technology and is currently in compliance with secondary treatment technology based effluent limits established in 40 CFR 133 and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. 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) Waters shall provide for the attainment and maintenance of water quality standards downstream including waters of another state. Please see (D) above as justification is the same.

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

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

(H) 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.

(I) 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 publicly-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 Cuba

New Permit Requirements			
Monthly monitoring (influent and effluent) for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrites + Nitrates; monthly influent monitoring for Ammonia as N; increase in twice per month BOD5 and TSS removal; twice monthly sampling for Dissolved Oxygen (DO), quarterly sampling for TR Boron, TR Cadmium, TR Copper, Cyanide ATC, TR Selenium, and Total Harness, a Chronic WET test once per permit cycle, and the development of a Stormwater Pollution Prevention Plan (SWPPP).			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
$6,738	$23,639	$28.88	1.47%

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.

- ✓ The approval of Cadmium and Hardness by the EPA is environmentally necessary to ensure the criteria are reflective of the most current science available while protecting the water quality standards of the receiving stream without placing needless and overly burdensome requirements on regulated entities

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. With permit synchronization, this permit will expire in the 3rd Quarter of calendar year 2024.

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 October 11, 2019 through November 11, 2019. No responses received..

DATE OF FACT SHEET: AUGUST 21, 2019

COMPLETED BY:

DANIELLE SKOUBY, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 526-1503
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Appendices

APPENDIX A - CLASSIFICATION WORKSHEET:

Item	Points Possible	Points Assigned
Maximum Population Equivalent (P.E.) served , peak day	1 pt./10,000 PE or major fraction thereof. (Max 10 pts.)	1.55
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	1.55
Effluent Discharge		
Missouri or Mississippi River	0	-
All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation	1	-
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	-
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
Direct reuse or recycle of effluent	6	-
Land Application/Irrigation		
Drip Irrigation	3	-
Land application/irrigation	5	-
Overland flow	4	-
Variation in Raw Wastes (highest level only)		
Variations do not exceed those normally or typically expected	0	-
Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow	2	-
Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow	4	4
Department-approved pretreatment program	6	-
Preliminary Treatment		
STEP systems (operated by the permittee)	3	-
Screening and/or comminution	3	3
Grit removal	3	-
Plant pumping of main flow	3	3
Flow equalization	5	-
Primary Treatment		
Primary clarifiers	5	-
Chemical addition (except chlorine, enzymes)	4	-
Secondary Treatment		
Trickling filter and other fixed film media with or without secondary clarifiers	10	-
Activated sludge (including 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	-
Total from page **ONE (1)**	----	31.1

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
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	6
Disinfection		
Chlorination or comparable	5	-
On-site generation of disinfectant (except UV light)	5	-
Dechlorination	2	-
UV light	4	4
Required Laboratory Control Performed by Plant Personnel (highest level only)		
Lab work done outside the plant	0	-
Push – button or visual methods for simple test such as pH, settleable solids	3	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	-
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	-
Total from page **TWO (2)**	----	18
Total from page **ONE (1)**	---	31.1
Grand Total	---	49.1

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

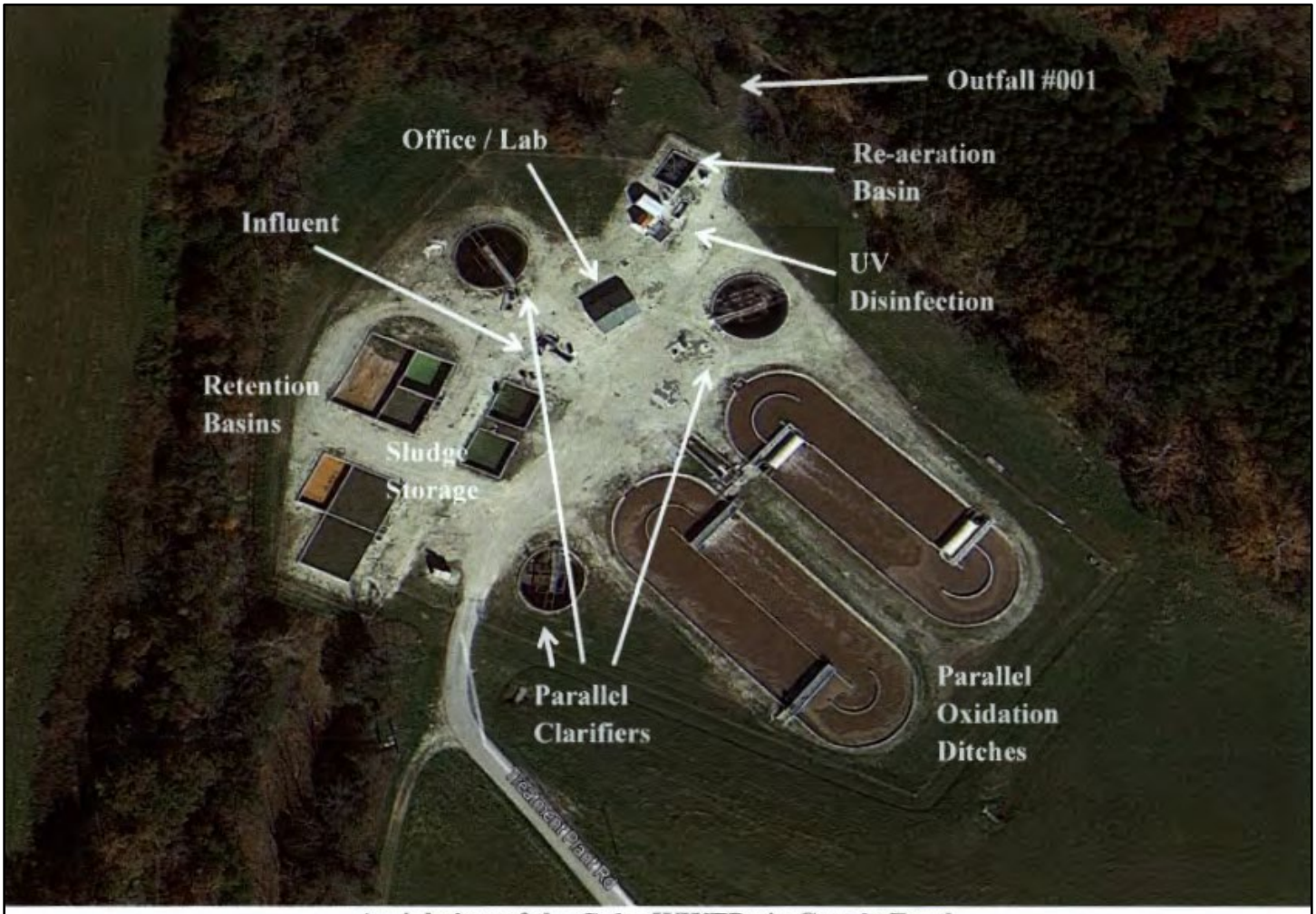
APPENDIX B – RPA RESULTS:

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	6.22	1.5	6.22	37.00	2.4/0.0011	1.35	2.59	YES
Total Ammonia as Nitrogen (Winter) mg/L	12.1	4.13	3.1	4.13	36.00	1.9/0.11	1.02	2.17	YES
Cadmium, Total Recoverable (µg/L)	12.82	5.59	1.64	5.59	212	3.9/0.01	1.776	1.43	YES
Copper, Total Recoverable (µg/L)	33.18	61.95	20.41	61.95	14	25/0.5	0.568	2.48	YES
Cyanide, ATC (µg/L)	22	6.07	5	6.07	14	5.3/2.5	0.277	1.15	YES
Selenium, Total Recoverable (µg/L)	n/a	25.44	5.00	25.44	212	19/0.1	1.242	1.34	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 C – FACILITY FLOW DIAGRAM:



Aerial view of the Cuba WWTP via Google Earth

*From March 20, 2019 Inspection Report

APPENDIX D – ANTIDEGRADATION ANALYSIS:

Water Quality and Antidegradation Review

For the Protection of Water Quality and Determination of Effluent Limits for Discharge to Pleasant Valley Creek

by

City of Cuba Wastewater Treatment Facility

December 08, 2009

Table of Contents

1. Facility Information

FACILITY NAME: City of Cuba WWTF NPDES #: MO-0094919

FACILITY TYPE/DESCRIPTION: As a result of the submitted alternative analysis, the applicant's preferred alternative is expanding and increasing operation and maintenance on dual oxidation ditches with screening, additional final clarifiers, sludge holding basins, elimination of the primary clarifier, and the addition of ultraviolet disinfection. Current design flow is 0.92 MGD and current average dry weather flow is 0.99 MGD. The proposed design flow is 1.55 MGD.

EDU*: Ozark/ Meramec 8- DIGIT HUC: 07140103 COUNTY: Crawford

* - Ecological Drainage Unit

LEGAL DESCRIPTION: NE ¼, SE ¼, Sec. 24, T39N, R5W LATITUDE/LONGITUDE: 3805063/-09124549

2. Water Quality Information

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri's Antidegradation Rule and Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1. Water Quality History:

The City of Cuba is currently permitted for 0.92 MGD; however based on review of the last five (5) years Discharge Monitoring Reports (DMRs), the average dry weather flow is 0.99 MGD (1.24 MGD wet weather average). When reviewing the DMRs, the only permit exceedances were oil and grease violations once in 2006 and once in 2007.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)*
001	2.40	Secondary	Domestic	0.0

* Less than 2 miles to Pleasant Valley Creek (P), which is designated with Whole Body Contact.

3. Receiving Waterbody Information

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Pleasant Valley Creek	C	02058	0.0	0.0	0.0	AQL; LWW
Pleasant Valley Creek	P	02057	1.0	0.1	0.1	AQL; LWW; WBC (B)

** Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND)

RECEIVING WATER BODY SEGMENT #1: Pleasant Valley Creek (C)
Upper end segment* UTM or Lat/Long coordinates: 38.21' 53"/ -90.49' 34" (Outfall)
Lower end segment* UTM or Lat/Long coordinates: 38.23'49.7/ - 90.48' 3.1" (Pleasant Valley Creek (P))

*Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

4. General Comments

Missouri Engineering Company prepared, on behalf of the City of Cuba, the *Antidegradation Report Proposed Expansion Facility for Cuba* dated August 7, 2009. As this is an existing facility and the discharge location is not being changed, the Geohydrological Evaluation was not submitted with the request and the receiving stream is gaining for discharge purposes (Appendix A: Map). Applicant elected to maintain loading on the stream for BOD_5 and TSS and assume that ammonia is significantly degrading the receiving stream in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. Dissolved oxygen modeling (Appendix B) analysis was submitted for review. Information that was provided by the applicant in the submitted report and summary forms in Appendix C was used to develop this review document. A Missouri Department of Conservation Natural Heritage Review was obtained by the applicant; and no endangered species were found to be impacted by the discharge.

5. Antidegradation Review Information

The following is a review of the *Antidegradation* dated August 7, 2009.

5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix C). Pollutants of concern are defined as those pollutants "proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge." (AIP, Page 7). Tier 2 was assumed for all POCs (see Appendix C).

TABLE 1: POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
BOD_5/DO	2	Non-degrading	Maintaining stream load
Total Suspended Solids (TSS)	**	Non-degrading	Maintaining stream load
Ammonia	2	Significant	
pH	***	Significant	Permit limits applied
Oil and Grease		Significant	Permit limits applied
Escherichia coli (E. coli)	2	Significant	UV disinfection
Fecal coliform	2	Significant	UV disinfection

* Tier assumed. Tier determination not possible: ** No in-stream standards for these parameters. *** Standards for these parameters are ranges

The following Antidegradation Review Summary attachments in Appendix D were used by the applicant:

☒ Tier Determination and Effluent Summary

For pollutants of concern, the attachments are:

☒ Attachment A, Tier 2 with significant degradation.

5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. With the exception of BOD_5 and TSS, all POCs were considered to be Tier 2 and significantly degraded in the absence of existing water quality.

5.3. ALTERNATIVES ANALYSIS AND SOCIO-ECONOMIC IMPACT DISCUSSION

Missouri's antidegradation implementation procedures specify that if the proposed activity does result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are required. Six alternatives from non-degrading to less degrading to degrading alternatives were evaluated. Alternative 1 was an alternative discharge to a regional wastewater collection treatment system, which is not currently available. Alternative 2 was an alternative discharge location to the Bourbeuse River, which would require at least 55,000 feet of piping and is not economically viable. Alternative 3 is expanding the current treatment plant to dual oxidation ditches, add UV disinfection, eliminate the peak flow clarifier and make sewer improvements within the city. Alternative 4 evaluated land applying the wastewater. However this alternative would require large amounts of land for the storage basin and for land applying, which makes this alternative not practical or affordable. Alternative 5 was to install a tertiary type filtration

to achieve further treatment. Alternative 6 evaluated building a new treatment facility and using an activated sludge with belt filter presses. Alternatives 2 and 5 would include much of the same upgrades evaluated in Alternative 3. Alternatives 5 and 6 would provide higher treatment of the effluent; however the cost to undertake either alternative is not economically efficient. This analysis showed that the return on environmental benefits with increasing cost of treatment did not justify more expenditure beyond the based case treatment alternative (see Appendix C). Table 2 lists the various alternatives and the estimated cost.

Alternative 3 is the expanding of the current treatment plant to the dual oxidation ditches and addition of UV disinfection. The expansion of the current plant along with sewer improvements to help eliminate some of the wet weather flow was the preferred alternative based on this analysis. With the upgrades to be completed, the City will be eliminating the peak flow clarifier, and addressing infiltration and inflow issues within the City. The affordability analysis further argued the value of expanding the oxidation ditches at the facility. With the sewer improvements, I&I issues should be decreased, which may cause the influent into the plant to become more concentrated. The plant is planning to add an aeration step to ensure the dissolved oxygen concentration is above 5.0 mg/L at discharge.

The project has necessity to provide wastewater treatment from the currently permitted 0.92 MGD to the current average dry weather flow of 0.99 MGD. The proposed expansion to 1.55 MGD is to accommodate development of residential and commercial properties in the area. The City of Cuba has almost a 50% increase in daytime population, which provides further demand on resources. By expanding the WWTF, the development of industries and commercial facilities should not be limited by the POTW in the foreseeable future. With new jobs, there will be an increase in the tax base to provide services. Also by expanding the treatment facility, the peak flow clarifier will be eliminated, thus removing an environmental concern.

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Table 2: Cost Comparison of Alternatives

Alternatives	Practicable	Economically Efficient	Cost per gallon	Cost	Ratio
Alternative Discharge Location	Y	N	$3.43	$5,310,000	2.64
Expand & Improve Operations & Maintenance of existing system	Y	Y	$1.30	$2,010,000	BASE
Land Application	N	N	$9.20	$14,255,000	7.09
Tertiary Treatment	Y	N	$2.12	$3,288,000	1.64
Activated Sludge with filters*	Y	N	$3.12	$4,830,000	2.40

*This cost does not include the operations, maintenance, or instillation costs

5.3.1. REGIONALIZATION ALTERATIVE

Within Section II B 1. of the AIP, discussion of the potential for discharge to a regional waste water collection system is mentioned. The applicant provided discussion of this alternative. The alternative analysis mentions the cities of Rolla and Sullivan, both of which are over 20 miles away. This authority is not operative at this time so a waiver required under 10 CSR 20-6.010(3) (B) 1 Continuing Authorities can not be obtained.

NEEDS A WAIVER TO PREVENT CONFLICT WITH AREA WIDE MANAGEMENT PLAN APPROVED UNDER SECTION 208 OF THE CLEAN WATER ACT AND UNDER 10 CSR 20-6.010(3) (B) 1 CONTINUING AUTHORITIES? (Y OR N) N

6. General Assumptions of the Water Quality and Antidegradation Review

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).

5. WQBEL supercede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.

7. Mixing Considerations

Mixing Zone (MZ): Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution (ZID):. Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)]

8. Permit Limits and Information

Wasteload Allocation Study Conducted (Y or N):	N	Use Attainability Analysis Conducted (Y or N):	Y	Whole Body Contact Use Retained (Y or N):	*

*-. According to Table H of 10 CSR 20-7, Pleasant Valley Creek (C) does not contain WBC as a designated use. However, an Use Attainability Analysis for Pleasant Valley Creek (C) was conducted April- July 2005 and July 2006. The results were declared incomplete. Pleasant Valley Creek (P) in Table H is designated for WBC.

Wet Test (Y or N): Y Frequency: Once/Year AEC: 100% Method: multiple

OUTFALL #001

Table 3: Effluent Limits

Parameter	Daily Maximum	Weekly Average	Monthly Average	Basis for Limit (note 2)	Monitoring Frequency
Flow	*		*	FSR	once/week
BOD_5 (mg/L)	26		17	NDL	once/week
TSS (mg/L)	26		17	NDL	once/week
pH (S.U.)	6.0 – 9.0		6.0 – 9.0	FSR	once/week
Temperature (°C)	*		*	N/A	once/week
Ammonia as N (mg/L) (May 1 – Oct 31)	3.7		1.4	WQBEL	once/week
Ammonia as N (mg/L) (Nov 1 – Apr 30)	7.5		2.9	WQBEL	once/week
Dissolved Oxygen (mg/L)	5.0 Minimum		5.0 Minimum	WQBEL	once/week
Escherichia coliform (E. coli)	Please see the E. coli discussion in the Derivation & Discussion of Limits section of this WQRS below.				
Fecal Coliform (Note 1)	1000		400**	FSR	once/week

* - Monitoring requirements only.
**- The monthly average for fecal coliform shall be reported as a geometric mean.
***-This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data should be reported to ensure removal efficiency requirements are met.
Note 1– colonies/100 mL
Note 2– Water Quality-based Effluent Limitation --WQBEL; or Minimally Degrading Effluent Limit--MDEL; or Technology-based Effluent Limit-TBEL; or No Degradation Limit--NDL; or PAL—Preferred Alternative Effluent Limit; or FSR --Federal/State Regulation; or N/A--Not Applicable. Also, please see the **General Assumptions of the WQAR #4 & #5.**

Table 4: Calculation of Loading

Parameter	Existing					Proposed Expansion				% Change in Load
	Limit	Permit Limits (mg/L)	(lbs/ MG) /(mg/L)	Design Flow (MGD)	Load (lbs/ day)	Permit Limits (mg/L)	(lbs/ MG) /(mg/L)	Design Flow (MGD)	Load (lbs/ day)	
BOD_5	Monthly	30	8.34	0.92	230.2	17	8.34	1.55	230.2	0%
	Weekly*	45	8.34	0.92	345.3	26	8.34	1.55	345.3	0%
TSS	Monthly	30	8.34	0.92	230.2	17	8.34	1.55	230.2	0%
	Weekly*	45	8.34	0.92	345.3	26	8.34	1.55	345.3	0%
Ammonia-Summer	Monthly	1.4	8.34	0.92	10.7	1.4	8.34	1.55	18.1	+70%
	Daily	3.7	8.34	0.92	28.4	3.7	8.34	1.55	47.3	+66%
Ammonia-Winter	Monthly	2.9	8.34	0.92	22.5	2.9	8.34	1.55	37.5	+66%
	Daily	7.5	8.34	0.92	57.6	7.5	8.34	1.55	97.0	+70%

* Previous Permit was in weekly and monthly averages; this WQAR has limits as daily maximum and monthly average.

9. Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

10. Derivation and Discussion of Limits

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration).

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).

2) Alternative Analysis-based – Using the preferred alternative's treatment capacity provided by the consultant as the WLA, the significantly-degrading effluent average monthly and daily maximum limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the maximum daily limit. This is an accepted procedure that is defined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than secondary treatment limitations for 1) existing facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, and 2) new facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process.

10.1. ***OUTFALL #001*** *– MAIN FACILITY OUTFALL*

10.2. LIMIT DERIVATION

- **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).** The applicant proposed no increase in loading, which would be a 17 mg/L monthly average and 26 mg/L maximum daily limit. Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **Total Suspended Solids (TSS).** The applicant proposed no increase in loading, which would be a 17 mg/L monthly average and 26 mg/L maximum daily limit. Influent monitoring may be required for this facility in its Missouri State Operating Permit.

- **Dissolved Oxygen.** Dissolved oxygen in the stream is dependent upon the wastewater treatment plant effluent concentration of dissolved oxygen. Because the City of Cuba discharges to a Class C stream, which requires the aquatic life must be protected, the modified Streeter-Phelps water quality modeling used a minimum dissolved oxygen concentration of 5.0 mg/l for the effluent. The department is requiring this dissolved oxygen concentration of 5.0 mg/l as a daily minimum and monthly average for the outfall.

  The consultant provided dissolved oxygen modeling using 30 mg/L $CBOD_5$ as input to the Streeter Phelps analysis, a 1.5 cfs as effluent flow, and dissolved oxygen of 4.0 mg/l. With the increased design flow to 1.55 MGD, the effluent flow is 2.4 cfs. Also, upon review of the DMRs, the department lowered the effluent $CBOD_5$ to more accurately reflect the effluent being released. MDNR reran the Streeter-Phelps modeling with the lower CBOD, higher effluent flow and dissolved oxygen of 5.0 mg/l (Appendix B). Streeter Phelps modeling simulated using the proposed design flow indicated a 2.85 mg/L dissolved oxygen deficit below the calculated dissolved oxygen saturation value of 7.85 mg/l. The modeled lowest dissolved oxygen or critical dissolved oxygen sag is estimated at 5.0 mg/L.

  As a result of this analysis, MDNR staff concludes that the above mentioned effluent limits are protective of beneficial uses and existing water quality.

- **pH.** pH shall be maintained in the range from six to nine (6.0 – 9.0) standard units [10 CSR 20-7.015 (8)(B)2.].

- **Temperature.** Monitoring requirement only. Temperature affects the toxicity of Ammonia.

- **Total Ammonia Nitrogen.** Applicant supplied an alternative limit of 6 mg/L for preferred alternative treatment (see Appendix C). The facility's permit already contains effluent limits more stringent that are based on Water Quality Standards that they are meeting. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. When comparing the Water Quality Based Effluent Limits (WQBELs) to the DMRs for the previous 5 years, the 99th percentile value for summer was 1.2 mg/L and the 99th percentile value for winter was 3.1 mg/L. As these values are near the WQBEL average monthly limits, the WQBEL are the effluent limits. No ammonia decay was taken into consideration due to the proximity between the discharge location and the classified segment.

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: May 1–October 31; Winter: November 1–April 30

SUMMER

$$C_e = \frac{(((Q_e + Q_s) * C) - (Q_s * C_s))}{Q_e}$$

$$WLA_c = \frac{(((2.40 + 0.0) * 1.5) - (0 * 0.01))}{2.40} = 1.5 \text{ mg/l}$$

$$WLA_a = \frac{(((2.40 + 0.0) * 12.1) - (0 * 0.01))}{2.40} = 12.1 \text{ mg/l}$$

LTA_c = 1.5 mg/L (0.780) = **1.2 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.88 mg/L [CV = 0.6, 99th Percentile]
MDL = 1.2 mg/L (3.11) = **3.7 mg/L** [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L (1.19) = **1.4 mg/L** [CV = 0.6, 95th Percentile, n = 30]

WINTER

$$WLA_c = \frac{(((2.40 + 0.0) * 3.1) - (0 * 0.01))}{2.40} = 3.1 \text{ mg/l}$$

$$WLA_a = \frac{(((2.40 + 0.0) * 12.1) - (0 * 0.01))}{2.40} = 12.1 \text{ mg/l}$$

LTA_c = 3.1 mg/L (0.780) = **2.4 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]
MDL = 2.4 mg/L (3.11) = **7.5 mg/L** [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L (1.19) = **2.9 mg/L** [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	3.7	1.4
Winter	7.5	2.9

- **E. coli**. This facility may be required to have E. coli effluent limitations when Missouri adopts the implementation of the E. coli effluent regulations. Also, please see **GENERAL ASSUMPTIONS OF THE WQAR #7.** The addition of these limits will depend on new E. coli rule and finalizing the operating permit.

- **Fecal Coliform**. Discharge shall not contain more than a monthly geometric mean of 400 colonies/ 100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015(2)(B)4.A.]. Future renewals of the facility operating permit will contain effluent limitations for E. coli that will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards when Missouri adopts the implementation of the E. coli standards. Also, please see **GENERAL ASSUMPTIONS OF THE WQAR #7.** Removal of these limits will depend on new E. coli rule and finalizing the operating permit.

- **Monitoring Frequency**. Once per week monitoring. Monitoring frequencies have been retained from current permit.

11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION

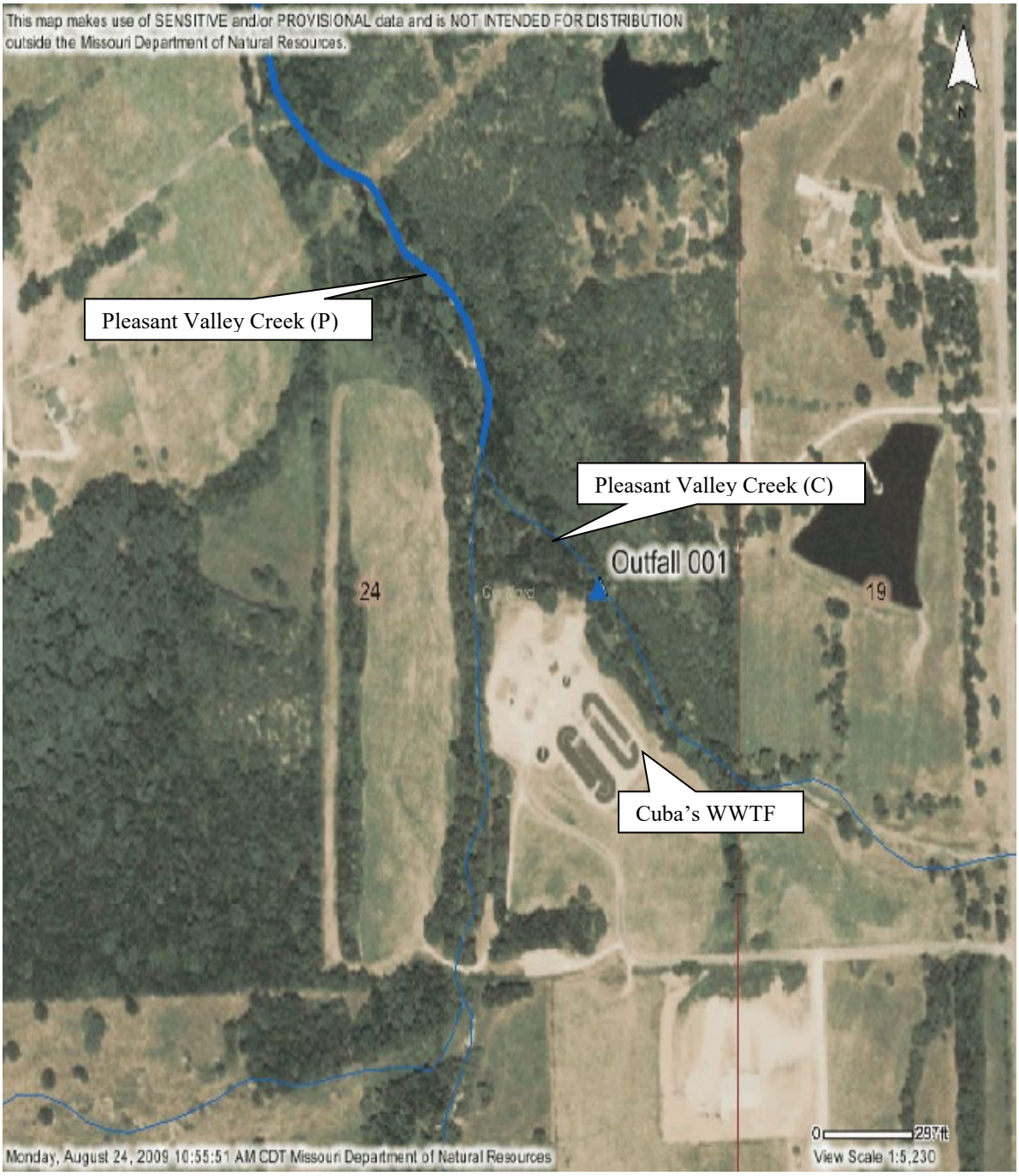
The proposed expanded facility discharge, Cuba WWTF, 1.55 MGD will result in significant degradation of the segment identified in Pleasant Valley Creek. Expanding and Improving Operation and Maintenance of the existing treatment plant was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations. The cost effectiveness of the other technologies were evaluated, and Expanding and Improving Operation and Maintenance of the existing treatment plant was found to be cost effective and was determined to be the preferred alternative.

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Leasue J. Meyers
Date: 09/15/09, revised 12/08/2009
Unit Chief: John Rustige, PE

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 A: Map of Discharge Location



Appendix B: Missouri DNR Streeter Phelps Model Results

Streeter-Phelps analysis of critical dissolved oxygen sag.

Based on Lotus File DOSAG2.WK1 Revised 19-Oct-93

INPUT

1. EFFLUENT CHARACTERISTICS

Discharge (cfs):	2.4
CBOD5 (mg/L):	21
NBOD (mg/L):	5
Dissolved Oxygen (mg/L):	5
Temperature (deg C):	26

2. RECEIVING WATER CHARACTERISTICS

Upstream Discharge (cfs):	0
Upstream CBOD5 (mg/L):	0.0
Upstream NBOD (mg/L):	0
Upstream Dissolved Oxygen (mg/L):	0
Upstream Temperature (deg C):	26
Elevation (ft NGVD):	912
Downstream Average Channel Slope (ft/ft):	0.0076
Downstream Average Channel Depth (ft):	0.5
Downstream Average Channel Velocity (fps):	1

3. REAERATION RATE (Base e) AT 20 deg C (day^-1): 52.49

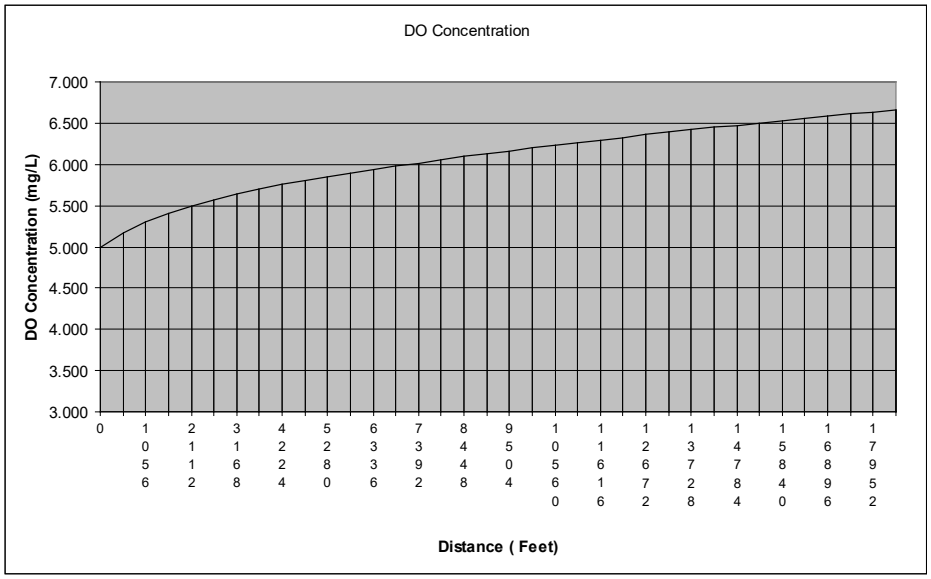
Reference	Applic. Vel (fps)	Applic. Dep (ft)	Suggested Values
Churchill	1.5 - 6	2 - 50	36.99
O'Connor and Dobbins	.1 - 1.5	2 - 50	36.66
Owens	.1 - 6	1 - 2	77.87
Tsivoglou-Wallace	.1 - 6	.1 - 2	52.49

4. BOD DECAY RATE (Base e) AT 20 deg C (day^-1): 3.33

Reference	Suggested Value
Wright and McDonnell, 1979	3.33

OUTPUT

1. INITIAL MIXED RIVER CONDITION	
CBOD5 (mg/L):	21.0
NBOD (mg/L):	5.0
Dissolved Oxygen (mg/L):	5.0
Temperature (deg C):	26.0
2. TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)	
Reaeration (day^-1):	60.52
BOD Decay (day^-1):	4.39
3. CALCULATED INITIAL ULTIMATE CBODU AND TOTAL BODU	
Initial Mixed CBODU (mg/L):	30.9
Initial Mixed Total BODU (CBODU + NBOD, mg/L):	35.9
4. INITIAL DISSOLVED OXYGEN DEFICIT	
Saturation Dissolved Oxygen (mg/L):	7.851
Initial Deficit (mg/L):	2.85
5. TRAVEL TIME TO CRITICAL DO CONCENTRATION (days):	0.00
6. DISTANCE TO CRITICAL DO CONCENTRATION (feet):	0.00
7. CRITICAL DO DEFICIT (mg/L):	2.85
8. CRITICAL DO CONCENTRATION (mg/L):	5.00



Appendix C: Antidegradation Review Summary Attachments

The attachments that follow contain summary information provided by the applicant, City of Cuba., MDNR staff determined that changes must be made to the information contained within these attachments. The following were modified and can be found within the MDNR WQAR:

1) Attachment A: Comparison of Alternatives. BOD5 and TSS were lowered to non-degrading effluent limits of AML= 17 mg/l and MDL= 26 mg/L. Ammonia effluent limits must meet the WQBEL of 1.4 mg/l for summer and 2.9 mg/l for winter, which in the Antidegradation Report, all evaluated technologies meet or achieve levels less than. Treatment type is oxidation ditches.
2) Oil and Grease were not evaluated by the applicant. Oil and Grease limits were placed in the WQAR to reflect the Water Quality Standard of 10 mg/l.

AUG - 3 2009
WATER PROTECTION PROGRAM

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

WATER QUALITY REVIEW ASSISTANCE/ANTIDEGRADATION REVIEW REQUEST

PRE-CONSTRUCTION REVIEW FOR PROTECTION OF BENEFICIAL USES AND DEVELOPING EFFLUENT LIMITS

TYPE OF PROJECT
☐ Grant ☒ SRF Loan ☐ All Other Projects

REQUESTER	TELEPHONE NUMBER WITH AREA CODE
Missouri Engineering Company	(573) 364-4003
PERMITTEE	**TELEPHONE NUMBER WITH AREA CODE**
City of Cuba, Missouri	(573) 885-7432

REASON FOR REQUEST

☐ New Discharge (See Instruction #9) ☐ Upgrade (No expansion) (See AIP) ☒ Expansion

DESCRIPTION OF PROPOSED ACTIVITY: Increase treatment capacity by increasing one oxidation ditch and splitting flow per each oxidation ditch size, revise piping to treat all flow (including I/I). Remove and replace two small clarifiers with one clarifier, add UV disinfection, add sludge storage, add leachate holding basin.

FACILITY INFORMATION

FACILITY NAME	MSOP NUMBER (IF APPLICABLE)
City of Cuba Wastewater Treatment Facility	MO-0094919
COUNTY	**SIC / NAICS CODE**
Crawford	4952

METHOD OF BACTERIA COMPLIANCE
☐ Chlorine Disinfection ☒ Ultraviolet Disinfection ☐ Ozone ☐ Not Applicable

WATER QUALITY ISSUES
Currently average daily greater than permitted peak, flow clarification w/o treatment, and future disinfection requirements.

Water quality issues include: effluent limit compliance issues, notice (s) of violation, water body beneficial uses not attained or supported, etc.

OUTFALL	LOCATION (LAT/LONG OR LEGAL DESCRIPTION)	MAPPED[1] (CHECK)	RECEIVING WATER BODY[2]
001	+3805055/-09124510	☒	Pleasant Valley Creek
		☐	
		☐	

[1] Attach topographic map (See www.dnr.mo.gov/internetmapviewer/) with outfall location(s) clearly marked. For additional outfalls, attach a separate form.
[2] See general instructions for discharges to streams.

OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*
001	1.55	Extended Aeration	Municipal Wastewater

* Describe predominating character of effluent. Example: domestic wastewater, municipal wastewater, industrial wastewater, storm water, mining leachate, etc.
** If expansion, indicate new design flow.

☒ Checked for rare or endangered species and provided determination with this request. See Instruction #8.

ANTIDEGRADATION REVIEW SUBMISSION:

See attached Antidegradation instructions. Applicant supplied a summary within:
☐ Tier Determination and Effluent Limit Summary
☒ Attachment A – Significant Degradation
☐ Attachment B – Minimal Degradation
☐ Attachment C – Temporary degradation
☐ Attachment D – Tier 1 Review
☐ No Degradation Evaluation – Conclusion of Antidegradation Review

MO 780-1893 (03-09)

See general instructions. Additional information may be needed to complete your request. Your request may be returned if items are missing. Revised submittal will be considered a new submittal.

SIGNATURE Joseph G. Heberlie DATE 7/23/09

PRINT NAME Joseph G. Heberlie, P.E., Missouri Engineering Company

E-MAIL ADDRESS jheberlie@moengco.com

Submit request to:
Missouri Department of Natural Resources
Water Protection Program
Attn: Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176
Phone: 573-751-1300
Fax: 573-522-9920

The water quality review assistance is a process to determine effluent limits for new facilities or existing facilities seeking to increase loading into the receiving stream. Limits can be calculated by the permittee and submitted for review the department.

GENERAL INSTRUCTIONS

1. Please attach:
   A. A list of pollutants expected to be discharged.
   B. The location of each outfall clearly shown on map(s). A U.S. Geological Survey topographic map is available at www.dnr.mo.gov/internetmapviewer/.
2. Discharge(s) to all gaining streams: Applicant must submit dissolved oxygen analysis (i.e., using Missouri Department of Natural Resources approved models such as Streeter Phelps (www.ecy.wa.gov/programs/eap/pwspread/pwspread.html) or Qual2K/Qual2E (Q2K/Q2E) stream water quality study (www.epa.gov/athens/wwqtsc/index.html)) indicating that the preferred alternative's BOD_5 effluent limitations from the alternative analysis or the technology-based/regulatory BOD_5 effluent limits are protective of Missouri's water quality standard for dissolved oxygen. **Note:** If Q2K/Q2E is used, wasteload allocation for ammonia must be assumed. All Q2K/Q2E studies must have department approved Quality Assurance Project Plans. Recommended modeling procedures from the department (may differ with discharge) for this analysis are available upon request.
3. Discharge(s) to unclassified gaining stream: Applicant may provide the time of travel to the confluence with the classified stream segment for modeling pollutant decay (See *Total Ammonia Nitrogen Criteria Implementation Guidance Policy* at www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm). Otherwise, the applicant may determine limits based on no decay of discharge pollutants, which typically results in lower permit limits. Please use the TR-55 method (*Natural Resource Conservation Service, Urban Hydrology for Small Watersheds, Technical Release No. 55, June 1986*) for time of travel determination (http://directives.sc.egov.usda.gov/22162.wba). Please include a map, schematic or description of flow segments with your calculations. A worksheet with instructions is available upon request.
4. For all discharges, the chronic water quality criteria point of compliance is the classified stream or the confluence with the classified stream. No mixing is allowed for streams with seven-day Q10 low flow less than 0.1 cfs (10 CSR 20-7.031(4)(A)B(I)), while mixing is allowed for streams with seven-day Q10 low flow greater than 0.1 cfs (10 CSR 20-7.031(4) (A)B(II)).
5. For industrial facilities, a list of all chemicals, compounds, elements, etc. found in the discharge must be submitted with the request. Proprietary names of chemicals are not sufficient, as these chemicals may contain several pollutants for which the department must evaluate separate effluent limits. A pre-construction review meeting is highly recommended.
6. Do not submit water quality review assistance requests for renewals. All water quality-based effluent limits will be determined during the renewal process.
7. 10 CSR 20-7.015(8)(B)3. allows alternative limitations (i.e., lagoon or trickling filters) if a water quality impact study is conducted. This impact study should indicate that equivalent to secondary treatment for lagoons or trickling filters are protective of Missouri Water Quality standards for dissolved oxygen and ammonia.
8. Applicant must check for rare and endangered aquatic species that may be affected by the discharge at http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm.
9. Additional requirements for new facilities:
   A. Division of Geology and Land Survey Geohydrologic Evaluations must be submitted with the request.
   B. Coordinates of outfall (s) in lat/long or in the public land survey system must be provided.
   C. Please submit a letter with project timeframe.

Note: Lack of response for additional informational within a reasonable timeframe will result in return of request.

MO 780-1893 (03-09)

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

ANTIDEGRADATION REVIEW SUMMARY
ATTACHMENT A: TIER 2 – SIGNIFICANT DEGRADATION

1. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
City of Cuba Wastewater Treatment Facility		573-885-6543	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
5604 Highway 19	Cuba	MO	65401

2. RECEIVING WATER BODY SEGMENT #1

NAME
Pleasant Valley Creek

3. WATER BODY SEGMENT #2 (IF APPLICABLE)

NAME

4. IDENTIFYING ALTERNATIVES

Supply a summary of the alternatives considered and the level of treatment attainable with regards to the alternative. "For Discharges likely to cause significant degradation, an analysis of non-degrading and less-degrading alternatives must be provided," as stated in the Antidegradation Implementation Procedure Section II.B.1. Per 10 CSR 20-6.010(4)(D)1., the feasibility of a no-discharge system must be considered. Attach all supportive documentation in the Antidegradation Review report.

Non-degrading alternatives:

Alternatives ranging from less-degrading to degrading including Preferred Alternative (All must meet water quality standards):

Alternatives	Level of Treatment Attainable for each Pollutant of Concern					
	BOD	TSS	Ammonia as N	Bacteria (E. Coli)		
	(mg/L)	(mg/L)	(mg/L)	(#/100mL)		
2. Alternate Discharge Location	30	30	6	0		
3. Improve O&M of Existing	30	30	6	0		
5. Improve O&M of Existing plus Tertiary	1	2		0		
6. New Higher Level of Treatment Plant	1	2		0		
4. Land Application	0	0	0	0		

Identifying Alternatives Summary: _____

1. Alternative Discharge to a Regional Wastewater Collection and Treatment System, 2. Alternative Discharge Locations, 3. Alternative Improved Operation and Maintenance of Existing Treatment Plant, 4. Alternative Land Application, 5. Alternative Treatment Plant Upgrade to Tertiary Type Facility that provides higher levels of treatment, 6. Alternative New Treatment Facility using Activated Sludge Process.

5. DETERMINATION OF THE REASONABLE ALTERNATIVE

Per the Antidegradation Implementation Procedure Section II.B.2, "a reasonable alternative is one that is practicable, economically efficient and affordable." Provide basis and supporting documentation in the Antidegradation Review report.

Practicability Summary:

"The practicability of an alternative is considered by evaluating the effectiveness, reliability, and potential environmental impacts," according to the Antidegradation Implementation Procedure Section II.B.2.a. Examples of factors to consider, including secondary environmental impacts, are given in the Antidegradation Implementation Procedure Section II.B.2.a.

Upgrading the existing treatment plant (Alt.3) to meet the required needs without additional treatment above that is the most practical.

Economic Efficiency Summary:

Alternatives that are deemed practicable must undergo a direct cost comparison in order to determine economic efficiency. Means to determine economic efficiency are provided in the Antidegradation Implementation Procedure Section II.B.2.b.

After comparison of associated costs, Alternative Three is the most economically efficient.

Affordability Summary:

Alternatives identified as most practicable and economically efficient are considered affordable if the applicant does not supply an affordability analysis. An affordability analysis per the Antidegradation Implementation Procedure Section II.B.2.c, "may be used to determine if the alternative is too expensive to reasonably implement."

Alternate Three is the most practical and economically efficient, therefore it is considered affordable.

Preferred Chosen Alternative:

Alternative Three Improved Operation and Maintenance of Existing Treatment Plant.

Reasons for Rejecting the other Evaluated Alternatives:

Alternative 1: Not available
Alternative 2: Not affordable or practical
Alternative 4: Not affordable, practical, or possible
Alternative 5: Not practical or affordable
Alternative 6: Not practical or affordable

Comments/Discussion:

See Report.

6. SOCIAL AND ECONOMIC IMPORTANCE OF THE PREFERRED ALTERNATIVE

If the preferred alternative will result in significant degradation, then it must be demonstrated that it will allow important economic and social development in accordance to the Antidegradation Implementation Procedure Section II.E. Social and Economic Importance is defined as the social and economic benefits to the community that will occur from any activity involving a new or expanding discharge.

Identify the affected community:

The affected community is defined in 10 CSR 20-7.031(2)(B) as the community "in the geographical area in which the waters are located.: Per the Antidegradation Implementation Procedure Section II.E.1, "the affected community should include those living near the site of the proposed project as well as those in the community that are expected to directly or indirectly benefit from the project."

City of Cuba, Crawford County and the surrounding counties of Phelps, Dent, Iron, Washington, Franklin, and Gasconade.

Identify relevant factors that characterize the social and economic conditions of the affected community:

Examples of social and economic factors are provided in the Antidegradation Implementation Procedure Section II.E.1., but specific community examples are encouraged.

1. Job Creation
2. Increased Tax Base
3. Increased Production
4. Reserving assimilative capacity

Describe the important social and economic development associated with the project:

Determining benefits for the community and the environment should be site specific and in accordance with the Antidegradation Implementation Procedure Section II.E.1. Jobs are created by the identified expansion of a defense contractor by 100 employees and the indirect addition of 130 employees. This will increase the tax base to provide additional public infrastructure and allow for future development.

PROPOSED PROJECT SUMMARY: The proposed project is affordable, practical, and economically efficient. The proposed project does not add risks to endangered species in the Crawford or surrounding counties. The social and economic benefits are very significant with the City of Cuba adding 47 pct to it population during the work day. This benefits the tax base for the City of Cuba, Crawford, and surrounding counties for the expansion of public infrastructure and services. The project improves the POTW.

Attach the Antidegradation Review report and all supporting documentation. This is a technical document, which must be signed, sealed and dated by a registered professional engineer of Missouri.

CONSULTANT: I have prepared or reviewed this form and all attached reports and documentation. The conclusion proposed in consistent with the Antidegradation Implementation Procedure and current state and federal regulations.

SIGNATURE	DATE
Joseph G. Heberlie	7/23/09

PRINT NAME	LICENSE # :
Joseph G. Heberlie, P.E.	MO E-25995
TELEPHONE NUMBER WITH AREA CODE	**E-MAIL ADDRESS:**
(573)364-4003	jheberlie@moengco.com

OWNER: I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE	DATE
Kenny Killam (MAYOR)	8-3-09

CONTINUING AUTHORITY: I have read and reviewed the prepared documents and agree with this submittal.

SIGNATURE	DATE
Kenny Killam (MAYOR)	8-3-09

MO780-2021 (01/09)

APPENDIX E – COST ANALYSIS FOR COMPLIANCE:

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

Cuba Wastewater Treatment Facility, Permit Renewal
City of Cuba
Missouri State Operating Permit #MO-0094919

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 monthly monitoring (influent and effluent) for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrites + Nitrates; monthly influent monitoring for Ammonia as N; monthly sampling for TR Cadmium and TR Selenium, twice monthly sampling for Dissolved Oxygen (DO), quarterly sampling for Cyanide ATC, TR Copper and Total Harness, a Chronic WET test once per permit cycle, and the development of a Stormwater Pollution Prevention Plan (SWPPP).

Connections
The number of connections was reported by the permittee on the Financial Questionnaire.

Connection Type	Number
Residential	1,305
Commercial	188
Industrial	2
Total	**1,495**

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'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 Cuba	
Current Monthly User Rates per 5,000 gallons*	$28.50
Median Household Income (MHI)[1]	$23,639
Current Annual Operating Costs (excludes depreciation)	$399,310

*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
Total Phosphorus – Influent	Monthly	$24	$288
Total Kjeldahl Nitrogen - Influent	Monthly	$33	$396
Nitrate + Nitrite - Influent	Monthly	$40	$480
Ammonia - Influent	Monthly	$20	$240
Total Phosphorus – Effluent	Monthly	$24	$288
Total Kjeldahl Nitrogen - Effluent	Monthly	$33	$396
Nitrate + Nitrite - Effluent	Monthly	$40	$480
BOD_5 – Removal Calculation Increase	Twice Monthly	$41	$492
TSS – Removal Calculation Increase	Twice Monthly	$16	$192
Dissolved Oxygen	Twice Monthly	$12	$288
Total Recoverable Boron	Quarterly	$36	$144
Total Recoverable Cadmium	Quarterly	$33	$132
Total Recoverable Copper	Quarterly	$33	$132
ATC, Cyanide	Quarterly	$40	$160
Total Recoverable Selenium	Quarterly	$33	$132
Total Hardness	Quarterly	$47	$188
Chronic WET test	Once every 5 years	$1,550	$310
SWPPP	Costs estimated for 5 years	$10,000	$2,000
Total Estimated Annual Cost of New Permit Requirements			**$ 6,738**

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	$6,738
(2)	Estimated Monthly User Cost for New Requirements [2]	$0.38
	Estimated Monthly User Cost for New Requirements as a Percent of MHI [3]	0.019%
(3)	Total Monthly User Cost*	$28.88
	Total Monthly User Cost as a Percent of MHI [4]	1.47%

* 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.

(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 $1,633,000. The community reported that each user pays $28.50 monthly, of which, $7.60 is used toward payments on the current outstanding debt.

As shown in Criterion 2, the projected user rate plus the amount of the current user rate used toward payments on outstanding debt is $28.88.

(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 Cuba

No.	Administrative Unit	Cuba City	Missouri State	United States
1	Population (2017)	3,336	6,075,300	321,004,416
2	Percent Change in Population (2000-2017)	3.3%	8.6%	14.1%
3	2017 Median Household Income (in 2018 Dollars)	$23,639	$52,801	$59,060
4	Percent Change in Median Household Income (2000-2017)	-35.0%	-7.7%	-6.7%
5	Median Age (2017)	34.1	38.4	37.8
6	Change in Median Age in Years (2000-2017)	-2.5	2.3	2.5
7	Unemployment Rate (2017)	15.3%	5.8%	6.6%
8	Percent of Population Below Poverty Level (2017)	34.6%	14.6%	14.6%
9	Percent of Household Received Food Stamps (2017)	45.0%	12.2%	12.6%
10	(Primary) County Where the Community Is Located	Crawford County		

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

The community reported that they are working on potential sewer line replacements.

(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 Cuba to seek funding from an outside source.

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

The community did not report any other relevant local economic conditions.

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 Cuba has been determined to be a category 3 community. This means that the City of Cuba's socioeconomic status and population is predicted to remain stable over time. Future changes in only a few of the 19 weighted factors could cause this community to experience either a rise or decline of population. 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) 2017 MHI in 2017 Dollar: United States Census Bureau. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2017 Inflation-Adjusted Dollars). http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B19013&prodType=table.
   (B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-1-pt1.pdf. (2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) 2018 CPI, 2017 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2018) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable.
   (D) 2017 MHI in 2018 Dollar = 2017 MHI in 2017 Dollar x 2018 CPI /2017 CPI; 2000 MHI in 2018 Dollar = 2000 MHI in 1999 Dollar x 2018 CPI /1999 CPI.
   (E) Percent Change in Median Household Income (2000-2017) = (2017 MHI in 2018 Dollar - 2000 MHI in 2018 Dollar) / (2000 MHI in 2018 Dollar).
2. ($6,738/1,495)/12 = $0.38 (Estimated Monthly User Cost for New Requirements)
3. ($0.38/($23,639/12))100% = 0.019% (New Sampling Only)
4. ($28.88/($23,639/12))100% = 1.47% (Total User Cost)
5. (A) Total Population in 2017: United States Census Bureau. 2013-2017 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_17_5YR_B01003&prodType=table. (B) Total Population in 2000: (1) 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. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf. (2) 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. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Percent Change in Population (2000-2017) = (Total Population in 2017 - Total Population in 2000) / (Total Population in 2000).
6. (A) Median Age in 2017: United States Census Bureau. 2013-2017 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_17_5YR_B01002&prodType=table.
   (B) Median Age in 2000: (1) 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. (2) 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 (2000-2017) = (Median Age in 2017 - Median Age in 2000).
7. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, B23025: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B23025&prodType=table.
8. United States Census Bureau. 2013-2017 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_17_5YR_S1701&prodType=table.
9. United States Census Bureau. 2013-2017 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_17_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
August 1, 2019

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. PART III Standard Conditions pertain to biosolids and sludge requirements under the Missouri Clean Water Law and regulations for domestic and municipal wastewater and also incorporates federal sludge disposal requirements under 40 CFR Part 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR Part 503 for domestic biosolids and sludge.
2. PART III Standard Conditions apply only to biosolids and sludge generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Biosolids and Sludge Use and Disposal Practices:
    a. The permittee is authorized to operate the biosolids and sludge generating, treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge/biosolids volume listed in the facility description and shall not use biosolids or sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. For facilities operating under general operating permits that incorporate Standard Conditions PART III, the facility is authorized to operate the biosolids and sludge generating, treatment, storage, use and disposal facilities identified in the original operating permit application, subsequent renewal applications or subsequent written approval by the department.
4. Biosolids or Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater biosolids or sludge from other facilities as long as the permittee's design sludge capacity is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the biosolids or sludge generator or hauler that certifies the type and source of the sludge
5. Nothing in this permit precludes the initiation of legal action under local laws, except to the extent local laws are preempted by state law.
6. This permit does not preclude the enforcement of other applicable 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 biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

SECTION B – DEFINITIONS

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures 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, feed 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 Part 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 (PSRP) in accordance with 40 CFR Part 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. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limted to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater 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. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. 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.
14. 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), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined 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.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Biosolids or sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and the requirements of Standard Conditions PART III or in accordance with Section A.3.c., above.
2. The permittee shall operate storage and treatment facilities, as defined by Section 644.016(23), RSMo, so that there is no biosolids or sludge discharged to waters of the state. Agricultural storm water discharges are exempt under the provisions of Section 644.059, RSMo.
3. Mechanical treatment plants shall have separate biosolids or sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove biosolids or sludge from these storage compartments on the required design schedule is a violation of this permit.

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

1. Permittees that use contract haulers, under the authority of their operating permit, to dispose of biosolids or sludge, are responsible for compliance with all the terms of this permit. Contract haulers that assume the responsibility of the final disposal of biosolids or sludge, including biosolids land application, must obtain a Missouri State Operating Permit unless the hauler transports the biosolids or sludge to another permitted treatment facility.
2. Testing of biosolids or sludge, other than total solids content, is not required if biosolids or sludge are hauled to a permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
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, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or 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 biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or 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 biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or 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 biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section I.

SECTION G – LAND APPLICATION OF BIOSOLIDS

1. The permittee shall not land apply biosolids unless land application is authorized in the facility description, the special conditions of the issued NPDES permit, or in accordance with Section A.3.c., above.
2. This permit only authorizes "Class A" or "Class B" biosolids derived from domestic wastewater 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.
3. Class A Biosolids Requirements: Biosolids shall meet Class A requirements for application to public contact sites, residential lawns, home gardens or sold and/or given away in a bag or other container.
4. Class B biosolids that are land applied to agricultural and public contact sites shall comply with the following restrictions:
    a. Food crops that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
    b. Food crops below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.
    c. Food crops below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
    d. Animal grazing shall not be allowed for 30 days after application of biosolids.
    e. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
    f. Turf shall not be harvested for one year after application of biosolids if used for lawns or high public contact sites in close proximity to populated areas such as city parks or golf courses.
    g. After Class B biosolids have been land applied to public contact sites with high potential for public exposure, as defined in 40 CFR § 503.31, such as city parks or golf courses, access must be restricted for 12 months.
    h. After Class B biosolids have been land applied public contact sites with low potential for public exposure as defined in 40 CFR § 503.31, such as a rural land application or reclamation sites, access must be restricted for 30 days.

5. Pollutant limits
    a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
    b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). 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 achieve pollutant concentration below those identified in Table 1, below.
    c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

TABLE 1

Biosolids ceiling concentration	
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

d. Table 2 below gives the low metal concentration for biosolids. Because of its higher quality, biosolids with pollutant concentrations below those listed in Table 2 can safely be applied to agricultural land, forest, public contact sites, lawns, home gardens or be given away without further analysis. Biosolids containing metals in concentrations above the low metals concentrations but below the ceiling concentration limits may be land applied but shall not exceed the annual loading rates in Table 3 and the cumulative loading rates in Table 4. The permittee is required to track polluntant loading onto application sites for parameters that have exceeded the low metal concentration limits.

TABLE 2

Biosolids Low Metal Concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2,800

e. Annual pollutant loading rate.

Table 3

Biosolids Annual Loading Rate	
Pollutant	Kg/ha (lbs./ac) per year
Arsenic	2.0 (1.79)
Cadmium	1.9 (1.70)
Copper	75 (66.94)
Lead	15 (13.39)
Mercury	0.85 (0.76)
Nickel	21 (18.74)
Selenium	5.0 (4.46)
Zinc	140 (124.96)

f. Cumulative pollutant loading rates.

Table 4

Biosolids Cumulative Pollutant Loading Rate	
Pollutant	Kg/ha (lbs./ac)
Arsenic	41 (37)
Cadmium	39 (35)
Copper	1500 (1339)
Lead	300 (268)
Mercury	17 (15)
Nickel	420 (375)
Selenium	100 (89)
Zinc	2800 (2499)

6. Best Management Practices. The permittee shall use the following best management practices during land application activities to prevent the discharge of biosolids to waters of the state.
   a. Biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under § 4 of the Endangered Species Act or its designated critical habitat.
   b. Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
   c. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; 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:

(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. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis.

ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. **NOTE:** There are a number of reference documents on the Missouri Department of Natural Resources website that are informative to implement best management practices in the proper management of biosolids, including crop specific nitrogen needs, realistic yields on a county by county basis and other supporting references.

iii. Biosolids that are applied at agronomic rates shall not cause the annual pollutant loading rates identified in Table 3 to be exceeded.

d. Buffer zones are as follows:

i. 300 feet of a water supply well, sinkhole, 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 outstandingstate resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;

iii. 150 feet of dwellings or public use areas;

iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);

v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.

vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.

e. Slope limitation for application sites are as follows:

i. For slopes less than or equal to 6 percent, 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.

iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.

f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.

g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:

i. A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of mthods or technology refletive of combination surface/shallow soil incorporation;

ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not included the use of methods or technology refletive of combination surface/shallow soil incorporation;

iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic 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 mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. 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.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. 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 sludges and/or biosolids. 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. Biosolids or sludge 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. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
    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. Alternative, site-specific application rates may be included in the closure plan for department consideration.
        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. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are "similar treatment works" under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. 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. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, 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. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure 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 plant, all biosolids or 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. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.

c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo 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, reclamation, or other beneficial use. Other solid wastes must be removed.

8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, 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 Part 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, biosolids or sludge 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

Biosolids or Sludge produced and disposed (Dry Tons per Year)	Monitoring Frequency (See Notes 1, and 2)		
	Metals, Pathogens and Vectors, Total Phosphorus, Total Potassium	Nitrogen TKN, Nitrogen PAN[1]	Priority Pollutants[2]
319 or less	1/year	1 per month	1/year
320 to 1650	4/year	1 per month	1/year
1651 to 16,500	6/year	1 per month	1/year
16,501+	12/year	1 per month	1/year

[1] 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.

[2] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) are required only for permit holders that must have a pre-treatment program. Monitoring requirements may be modified and incorporated into the operating permit by the Department on a case-by-case basis.

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: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. 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.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

SECTION K – 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 Standard Conditions PART III and any additional items in the Special Conditions section of this permit. This shall include dates when the biosolids or sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
   a. By February 19th of each year, applicable facilities shall submit an annual report for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and biosolids or sludge disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when biosolids or sludge are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Form. The annual report shall be prepared on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:
   Major facilities, which are those serving 10,000 persons or more or with a design flow equal to or greater than 1 million gallons per day or that are required to have an approved pretreatment program, shall report to both the Department and EPA if the facility land applied, disposed of biosolids by surface disposal, or operated a sewage sludge incinerator. All other facilities shall maintain their biosolids or sludge records and keep them available to Department personnel upon request. State reports shall be submitted to the address listed as follows:

   DNR regional or other applicable office listed in the
   permit (see cover letter of permit)
   ATTN: Sludge Coordinator

Reports to EPA must be electronically submitted online via the Central Data Exchange at: https://cdx.epa.gov/ Additional information is available at: https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws

5. Annual report contents. The annual report shall include the following:
    a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
    b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/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 and 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 using a 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 biosolids or sludge 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 and phosphorus. If no soil was tested during the year, report the last date when tested and the results.

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Water Protection Program

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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	
CUBA WASTEWATER TREATMENT FACILITY	
PERMIT NO.	COUNTY
MO-0094919	CRAWFORD

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

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	7495
DATE RECEIVED	FEE SUBMITTED
2-21-20	$200.00
JET PAY OONFIRMATION NUMBER	

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- _____ Expiration Date _____

☑ An operating permit modification: Permit #MO- 0094919 Reason: SWPPP EXEMPTION

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	
CUBA WASTEWATER TREATMENT FACILITY		573-885-2263	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
5604 HIGHWAY 19	CUBA	MO	65453

2.1 LEGAL DESCRIPTION 1/4 NE 1/4 SE 1/4 Sec. 24 , T39N , R 02W COUNTY: CRAWFORD

2.2 UTM Coordinates Easting (X): +3805055 Northing (Y): -09124510
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: PLEASANT VALLEY CREEK(U)PLEASANT VALLEY CREEK (C) (2058)

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

3. OWNER: The owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
CITY OF CUBA		573-885-7432	
ADDRESS	CITY	STATE	ZIP CODE
202 NORTH SMITH	CUBA	MO	65453

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 See: https://dnr.mo.gov/forms/780-2511-f.pdf

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	
CITY OF CUBA		573-885-7432	
ADDRESS	CITY	STATE	ZIP CODE
202 NORTH SMITH	CUBA	MO	65453

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)
STEVE BLACK	SUPERINTENDENT	9512 C
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
STEVEBLACK58@HOTMAIL.COM	573-259-2833	

6. FACILITY CONTACT

NAME	TITLE		
STEVE BLACK	SUPERINTENDENT		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
STEVEBLACK58@HOTMAIL.COM	573-259-2833		
ADDRESS	CITY	STATE	ZIP CODE
5604 HIGHWAY 19	CUBA	MO	65453

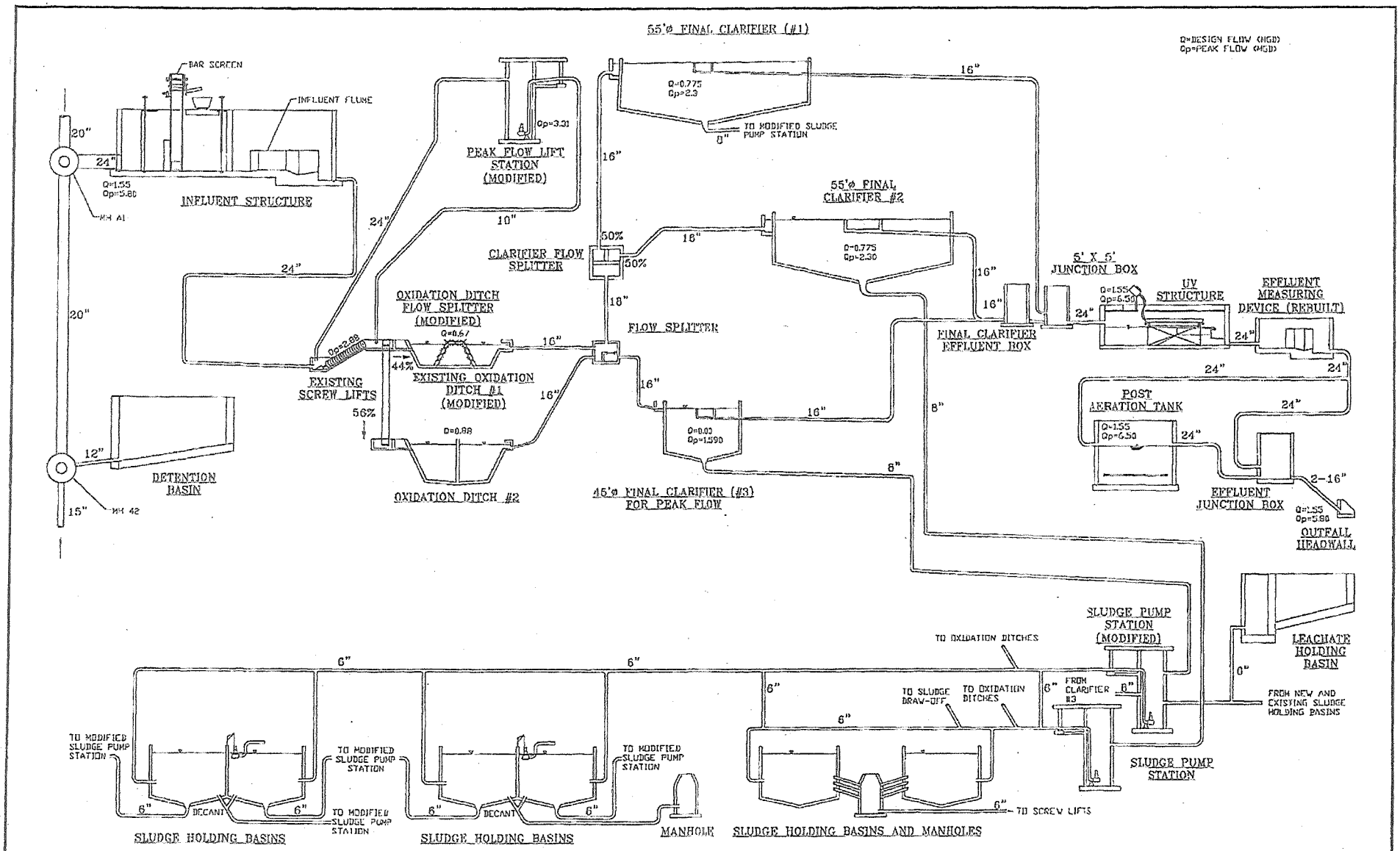
FACILITY NAME	PERMIT NO.	OUTFALL NO.
CUBA WWTF	MO- 0094919	1

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.

SCHEMATIC IS ON FOLLOWING PAGE.



PLANT SCHEMATIC

FACILITY NAME	PERMIT NO.	OUTFALL NO.
CUBA WWTF	MO- 0094919	1

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

7.2 **Map.** Attach to this application an aerial or 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 map can be obtained by visiting the following website: https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce

a. The area surrounding the treatment plant, including all unit processes.
b. 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.
c. The actual point of discharge.
d. 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.
e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
f. 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.): 3,369 Design P.E. 15,500

7.5 Connections to the facility:

Number of units presently connected: 1001

Residential: _____ Commericial: _____ Industrial _____

7.6 Design Flow 1.55 MGD	Actual Flow 1.250 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? _____

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

SIX SIGNIFICANT INDUSTRIAL USERS: BLUE BEACON TRUCK WASH, MIDLAND TECH,, WIELAND OLIN GLOBAL, HIGHLINE PLATING, OZARK MOUNTAIN TECHNOLOGY, PRAIRIE VALLEY LANDFILL

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? **If yes**, please attach Form I See: https://dnr.mo.gov/forms/780-1686-f.pdf	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.
CUBA WWTF	MO- 0094919	1

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 264 Actual Dry Tons/Year 145.5

9.3 Sludge storage provided: 40,888 Cubic feet; 90 Days of storage; _____ Average percent solids of sludge;

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

9.4 Type of storage:

☑ Holding Tank ☐ Basin ☐ Concrete Pad ☐ Building ☐ Lagoon ☐ 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		
OROS AND BUSCH			
ADDRESS	CITY	STATE	ZIP CODE
14933 MOORE CEMETERY RD	CARLINVILLE	IL	62626
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.	
BILL MILLER, JR.	636-359-1575	MO- 0094919	

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.
CUBA WWTF	MO- 0094919	1

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

10.1 Are there any municipal satellite collection systems connected to this facility? ☐ Yes ☑ No

If yes, please list all connected to this facility, contact phone number and length of each collection system

FACILITY	CONTACT PHONE NUMBER	LENGTH OF SYSTEM (FEET OR MILES)

10.2 Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) 24.4 miles

10.3 Does significant infiltration occur in the collection system? ☑ Yes ☐ No

If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:

THE CITY HAS A CURRENT i&i EVALUATION PROGRAM DEVELOPMENT IN PROCESS

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.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
CUBA WWTF	MO- 0094919	1

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. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8

Outfall Number #001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.5	S.U.	7.6	S.U.	52
pH (Maximum)	9.0	S.U.	7.6	S.U.	52
Flow Rate		MGD	1.250	MGD	FROM PERMIT

*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	8.4	mg/L	4	mg/L	52	SM5210B	4.0 MG/L
	$CBOD_5$		mg/L		mg/L			
E. COLI		72	#/100 mL	25	#/100 mL	10	1604	1 CFU/100ML
TOTAL SUSPENDED SOLIDS (TSS)		13	mg/L	3.2	mg/L	52	SM 2540C	
TOTAL PHOSPHORUS		3.2	mg/L	3.2	mg/L	2		
TOTAL KJELDAHL NITROGEN		15	mg/L	15	mg/L	2		
NITRITES + NITRATES		1.9	mg/L	1.9	mg/L	2	EPA 365.1	0.01 MG/;
AMMONIA AS N		0.82	mg/L	0.16	mg/L	52	EPA 350.1	0.01 MG/L
CHLORINE* (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		9.37	mg/L	8.92	mg/L	3	EPA40CFR136.3	0.1 MG/L
OIL and GREASE		6.5	mg/L	5.4	mg/L		EPA 1664	1.4 MG/L
OTHER: _____			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
CUBA WWTF	MO- 0094917	1

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally-consistent set of data. **One of the following must be checked in order for this application to be considered complete.** Please visit https://dnr.mo.gov/forms/780-2204-f.pdf to access the eDMR application.

☐ - You have completed and submitted with this permit application the required documentation to participate in the eDMR system.

☐ - You have previously submitted the required documentation to participate in the eDMR system and/or you are currently using the eDMR system.

☐ - You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.

16. JETPAY

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment.

New Site Specific Permit: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/
Construction Permits: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/
Modification Fee: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/

17. 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 submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
RAY MORTIMEYER	MAYOR

SIGNATURE: Ray Mortimeyer

TELEPHONE NUMBER WITH AREA CODE: 573-885-7432

DATE SIGNED: 2-18-2020

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 65102-0176

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.
Cuba WWTF	MO- 0094919	1

PART D – EXPANDED EFFLUENT TESTING DATA

18. 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 MGD 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 and analyzed using sufficiently sensitive methods found in 40 CFR Part 136. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8. In addition, all 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 pollutant scans** and must be no more than four and one-half years prior to the date of the permit application submittal. In the blank rows provided at the end of this list, include any additional data for pollutants not specifically listed in this form. Information may be written in the blanks below or provided as attached documents containing the laboratory test results.

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											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Cuba WWTF	MO- 0094919	1

PART D – EXPANDED EFFLUENT TESTING DATA

18. 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	Analyses precede this Expanded effluent Testing Data										
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											
TRICHLOROETHYLENE											
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.
Cuba WWTF	MO- 0094919	1

PART D – EXPANDED EFFLUENT TESTING DATA

18. 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	See preceding Expanded Effluent Data sheets										
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.
Cuba WWTF	MO- 0094919	1

PART D – EXPANDED EFFLUENT TESTING DATA

18. 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	See preceding Expanded Testing Data sheets										
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.

RECEIVED
FEB 21 2020
Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
NO EXPOSURE CERTIFICATION FOR EXCLUSION FROM NPDES STORMWATER PERMITTING UNDER MISSOURI CLEAN WATER LAW

PLEASE READ ALL THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM. SUBMITTAL OF AN INCOMPLETE FORM MAY RESULT IN THE FORM BEING RETURNED UNPROCESSED.

Submission of this No Exposure Certification (NEC) constitutes notice by the facility representative identified in Section 7 of this form that there is no exposure of the facility's industrial activities, equipment and materials to stormwater in accordance with the requirements of 10 CSR 20-6.200 Stormwater Regulations.

A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products or waste (including recyclable) products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. A storm-resistant shelter is not required for the following industrial materials and activities:

- Storage of drums, barrels, tanks and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves.
- Adequately maintained vehicles used in material handling.
- Final products, other than products that would be mobilized in stormwater discharges (e.g., rock salt).

A NEC must be provided for each facility qualifying for the no exposure exclusion. In addition, the certification of exclusion from NPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, or if the facility discharges any effluent other than stormwater to waters of the state, the facility is not eligible for the no exposure exclusion.

By signing and submitting this NEC, the facility representative in Section 7 certifies that a condition of no exposure exists at their facility or site, and is obligated to comply with the terms and conditions of 40 CFR 122.26(g).

1. FACILITY

FACILITY NAME			TELEPHONE NUMBER WITH AREA CODE	
Cuba Wastewater Treatment Facility				
ADDRESS (PHYSICAL LOCATION)	CITY	COUNTY	STATE	ZIP CODE
0.3 miles west from intersection of Hwy 19	Cuba	Crawford	MO	65453

1.2 PLEASE SELECT ONE: treatment plant road

- ☐ a. This facility is now in operation under No Exposure Certification MO – NX_____and is submitting a certification for renewal
- ☐ b. This is a facility submitting a request for a new No Exposure Certification (for a new facility).
- ☐ c. This facility is now in operation under Missouri State Operating Permit MO –_____, is requesting a new NEC, and wishes to terminate existing operating permit.
- ☑ d. This facility is a wastewater treatment plant with a design flow equal to or greater than 1.0 million gallons per day or a treatment plant required to have an approved pretreatment system and is requesting a NEC.

2. OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Cuba		573-885-7432	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
202 North Smith	Cuba	MO	65453

3. CONTINUING AUTHORITY

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Cuba		573-885-7432	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
202 North Smith	Cuba	MO	65453

4. FACILITY CONTACT

NAME		TELEPHONE NUMBER WITH AREA CODE
Steve Black		573-259-2833
TITLE	EMAIL ADDRESS	
Operator	steveblack58@hotmail.com	

5. ADDITIONAL INFORMATION

5.1 Does the discharge(s) for which you are seeking an exclusion discharge to a combined sewer system? ☐ Yes ☑ No

If yes, provide the name of the combined sewer system entity _____

5.2 Does the discharge(s) for which you are seeking an exclusion discharge through a Municipal Separate Storm Sewer System (MS4)? ☐ Yes ☑ No

If yes, provide the name of the MS4 entity _____

5.3 Primary SIC Code of Facility 4952 Other SIC Codes _____ (Optional) Primary NAICS Code of Facility 221320

5.4 Provide an attached list of **any** materials that are stored outside and exposed to stormwater including wood pallets, empty storage barrels, waste disposal containers (except for a secured covered dumpster). Materials other than final product such as raw material or by-product of your industrial activities that can be mobilized by stormwater do not qualify for no exposure exclusion. NONE STORED OUTSIDE

5.5 Attach a 1:1,000 aerial photograph (preferred) or USGS topographic map showing the location of the facility. Indicate on the map the facility, the property boundaries of the facility, the receiving water body, any septic tanks/lateral lines, stormwater basins, the location of items stored outside and all outfall locations.

5.6 Is the facility causing an adverse impact on water quality due to major changes at the site to achieve no exposure? For example, constructing new buildings/shelters or constructing structures to prevent run-on in a formerly vegetated area.

☐ Yes ☑ No

If yes, please indicate approximately how much area was paved or roofed over. The department may use this information in considering whether stormwater discharges from your site are likely to have an adverse impact on water quality, in which you could be required to obtain permit coverage for land disturbance activities.

☐ Less than 1 acre ☐ 1 to 5 acres ☐ More than 5 acres

6. NO EXPOSURE CERTIFICATION CHECKLIST

The purpose of this checklist is to 1) help you determine whether the exposure of industrial activities, materials, or equipment to stormwater has been eliminated at the facility, and 2) help department staff evaluate the adequacy of your compliance activities and NEC. For the purpose of this checklist, "outdoors" are areas of the facility that are not beneath permanent roofed structures where stormwater cannot run into or out of.

Are any of the following materials or activities exposed to precipitation or occurring on-site, now or in the foreseeable future? Please answer all questions by checking "Yes" or "No."

Using, storing, or cleaning industrial machinery or equipment, and areas where residuals from using, storing, or cleaning industrial machinery or equipment remain and are exposed to stormwater.	☐ Yes ☑ No
Materials or residuals on the ground or in stormwater inlets from spills or leaks.	☐ Yes ☑ No
Materials or products from past industrial activity.	☐ Yes ☑ No
Material handling equipment (except adequately maintained vehicles).	☐ Yes ☑ No
Materials or products during loading/unloading or transporting activities.	☐ Yes ☑ No
Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to stormwater does not result in the discharge of pollutants).	☐ Yes ☑ No
Materials contained in open, deteriorated, or leaking storage drums, barrels, tanks, or similar containers.	☐ Yes ☑ No
Materials or products handled/stored on roads or railways owned or maintained by the facility.	☐ Yes ☑ No
Waste Material (except waste in covered, non-leaking containers [e.g., dumpsters]).	☐ Yes ☑ No
On-site land application or discharge of wastewater.	☐ Yes ☑ No
Particulate matter or visible deposits or residuals from roof stacks or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater outflow.	☐ Yes ☑ No

If you answered "Yes" to any of these questions, you are not eligible for the no exposure exclusion.

7. CERTIFICATION

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES stormwater permitting.

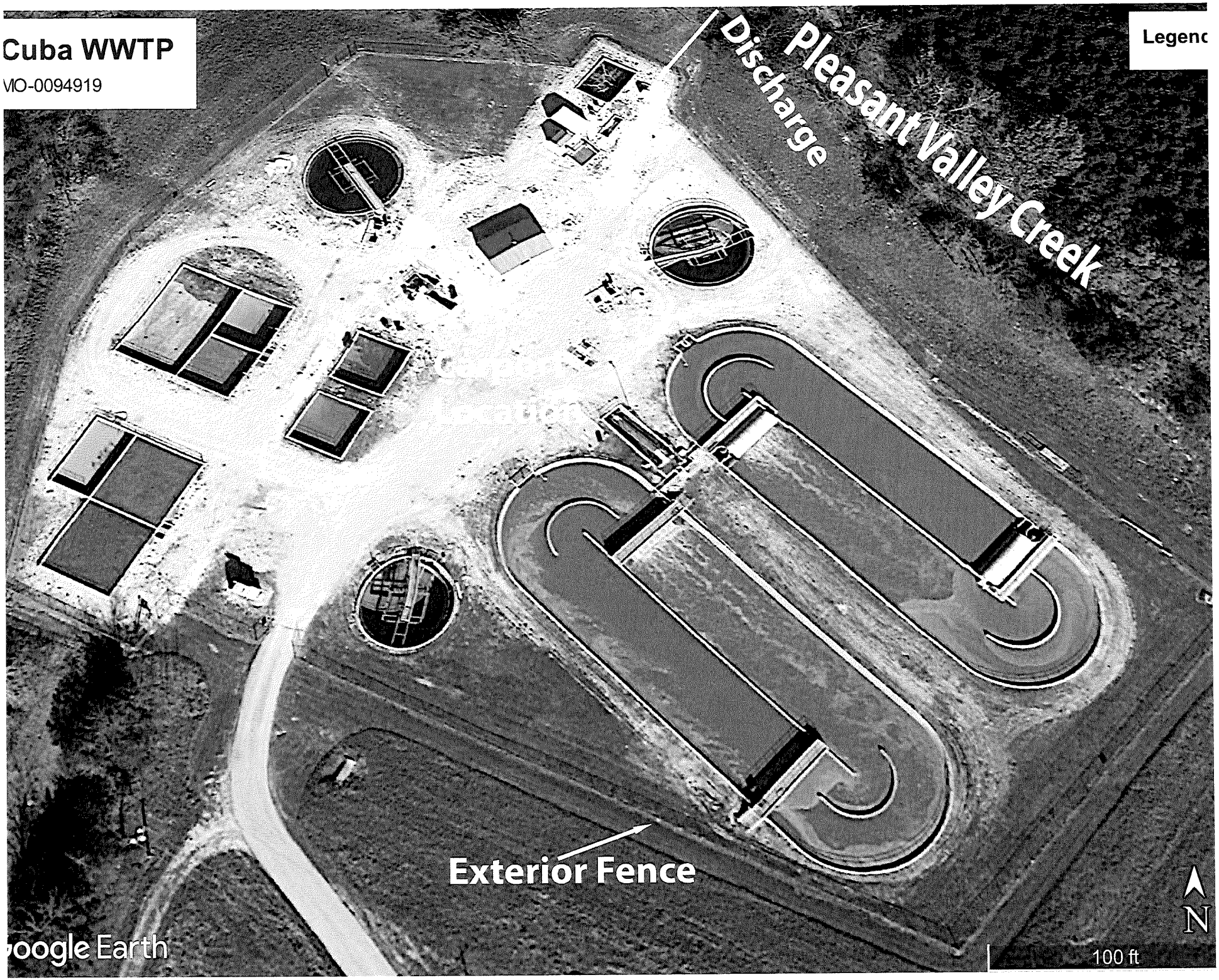
I certify under penalty of law that there are no discharges of stormwater contaminated by exposure to industrial activities or materials from the industrial facility or site identified in this document [except as allowed under 40 CFR 122.26(g)(2)].

I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of stormwater from the facility.

Additionally, 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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME (TYPE OR PRINT)	OFFICIAL TITLE
Steve Black	Operator
EMAIL	TELEPHONE NUMBER WITH AREA CODE
steveblack58@hotmail.com	573-259-2833
SIGNATURE	DATE SIGNED
	2-7-2020

780-2828 (08-19)


Cuba WWTP
VIO-0094919
Legend
Discharge
Pleasant Valley Creek
Exterior Fence
N
100 ft
Google Earth


Cuba Wastewater Treatment Plant MO-0094919 Roof over screen

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Cyanide	< 13	mg/kg dry		09/03/19 11:05	1	13	09/04/19 10:39	PMN	SW 9012
Solids - total solids (TS)	8.5	%		09/03/19 13:01	1	0.050	09/03/19 14:49	TMS	SM 2540G*
Phenolics	< 12	mg/kg dry		09/05/19 05:42	1	12	09/05/19 11:37	PMN	SW 9066
Herbicides - TCLP - PIA									
2,4-D	< 0.1	mg/L		09/05/19 08:06	1	0.1	09/06/19 23:46	ELS	SW 8151
Silvex	< 0.05	mg/L		09/05/19 08:06	1	0.05	09/06/19 23:46	ELS	SW 8151
Pesticides - PIA									
4,4'-DDD	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
4,4'-DDE	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
4,4'-DDT	< 5600	ug/kg dry	V	09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Aldrin	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Alpha-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Beta-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Chlordane (technical)	< 56000	ug/kg dry		09/03/19 13:43	10	56000	09/04/19 20:34	JMT	SW 8081
Delta-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Dieldrin	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endosulfan I	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Endosulfan II	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endosulfan sulfate	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endrin	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endrin aldehyde	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
gamma-BHC (Lindane)	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Heptachlor	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Heptachlor epoxide	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Toxaphene	< 28000	ug/kg dry		09/03/19 13:43	10	28000	09/04/19 20:34	JMT	SW 8081
Pesticides - TCLP - PIA									
Chlordane (technical)	< 0.010	mg/L		09/05/19 08:27	1	0.010	09/05/19 23:54	ELS	SW 8081
Endrin	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
gamma-BHC (Lindane)	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
Heptachlor	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
Heptachlor epoxide	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081

DLDL Consulting LLC
P.O. Box 1669
Rolla, MO 65402
(573) 465-3776
PRETREATMENT
and other
SERVICES

RECEIVED
FEB 21 2020
Water Protection Program

February 7, 2020

Department of Natural Resources
Water Protection Board
ATTN: Operating Permit Section
P.O. Box 176
Jefferson City, MO 65102-0176

Dear Department of Natural Resources:

Please find enclosed the 780-2828 (08-19) No Exposure Certification for Exclusion from NPDES Stormwater Permitting Under Missouri Clean Water Law, MO 780-1805 (02-19) 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 and a City of Cuba Check for $200.00.

The complete forms of 780-2828 (08-19) and MO 780-1805 (2-19) have been sent to:

Josh Wilkerson
Southeast Regional Office
2155 North Westwood Blvd.
Poplar Bluff, MO 63901

Sincerely;

J. B. Stephenson
Consultant

Enclosure: 3

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Methoxychlor	< 0.002	mg/L		09/05/19 08:27	1	0.002	09/05/19 23:54	ELS	SW 8081
Toxaphene	< 0.010	mg/L		09/05/19 08:27	1	0.010	09/05/19 23:54	ELS	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA									
Aroclor 1016	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1221	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclor 1232	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1242	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1248	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1254	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclor 1260	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclors - Total	< 28000	ug/kg dry		09/03/19 13:41	1	28000	09/06/19 21:11	ELS	SW 8082
Semivolatile Organics - PIA									
N-Nitrosodimethylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Phenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-chloroethyl) ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Chlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,3,7,8-TCDD Screen	< 56000	ug/kg dry		09/04/19 12:33	1	56000	09/06/19 11:01	CRS	SW 8270C*
Bis(2-chloroisopropyl) ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
N-Nitrosodi-n-propylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachloroethane	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Nitrobenzene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Isophorone	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Nitrophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dimethylphenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-chloroethoxy) methane	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dichlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Naphthalene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorobutadiene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Chloro-3-methylphenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorocyclopentadiene	< 12000	ug/kg dry	Q3	09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4,6-Trichlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Chloronaphthalene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dimethyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,6-Dinitrotoluene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Acenaphthylene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Acenaphthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dinitrophenol	< 60000	ug/kg dry	R	09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
4-Nitrophenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
2,4-Dinitrotoluene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Diethyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Fluorene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Chlorophenylphenyl ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4,6-Dinitro-2-methylphenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
N-Nitrosodiphenylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
1,2-Diphenylhydrazine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Bromophenyl phenyl ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorobenzene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Pentachlorophenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
Phenanthrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Di-n-butyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzidine	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
Pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Butyl benzyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(a)anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
3,3'-Dichlorobenzidine	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C*
Chrysene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-ethylhexyl) phthalate	13000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Di-n-octyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(b)fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(k)fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(a)pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Indeno(1,2,3-cd)pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dibenzo(a,h)anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(g,h,i)perylene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dinoseb	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/06/19 11:01	CRS	SW 8270C*
Semivolatile Organics - TCLP - PIA									
Pyridine	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Hexachloroethane	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
2,4,5-Trichlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
2,4-Dinitrotoluene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
TCLP Metals - PIA									
Final pH	5.23	pH Units		09/03/19 12:30	1		09/04/19 07:25	RC	SW 1311*
Final pH	5.23	pH Units		09/03/19 12:30	1		09/04/19 07:25	RC	SW 1311*
Arsenic	< 0.040	mg/L		09/04/19 06:00	20	0.040	09/04/19 10:37	JMW	SW 6020
Barium	< 2.0	mg/L		09/04/19 06:00	20	2.0	09/04/19 10:37	JMW	SW 6020
Cadmium	< 0.0040	mg/L		09/04/19 06:00	20	0.0040	09/04/19 10:37	JMW	SW 6020
Chromium	< 0.016	mg/L		09/04/19 06:00	20	0.016	09/04/19 10:37	JMW	SW 6020
Lead	< 0.020	mg/L		09/04/19 06:00	20	0.020	09/04/19 10:37	JMW	SW 6020
Selenium	< 0.010	mg/L		09/04/19 06:00	20	0.010	09/04/19 10:37	JMW	SW 6020
Silver	< 0.020	mg/L		09/04/19 06:00	20	0.020	09/04/19 10:37	JMW	SW 6020
Mercury	< 0.0020	mg/L		09/04/19 06:00	20	0.0020	09/04/19 10:37	JMW	SW 6020
Total Metals - PIA									
Antimony	< 35	mg/kg dry		09/04/19 10:00	1	35	09/06/19 15:58	tjj	SW 6010
Beryllium	14	mg/kg dry		09/04/19 10:00	1	5.9	09/06/19 15:58	tjj	SW 6010
Silver	< 12	mg/kg dry		09/04/19 10:00	1	12	09/06/19 15:57	tjj	SW 6010
Thallium	< 35	mg/kg dry		09/04/19 10:00	1	35	09/11/19 11:47	ZSA	SW 6010
Volatile Organics - PIA									
1,1,2,2-Tetrachloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1,2-Trichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1-Dichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1-Dichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2,4-Trichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,3-Dichloropropene - Total	< 780	ug/kg dry	R, Sc	09/06/19 08:21	1	780	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichloropropane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,3-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
1,4-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
2-Chloroethylvinyl ether	< 260	ug/kg dry	Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B*
Acetonitrile	< 5200	ug/kg dry	R, Sc	09/06/19 08:21	1	5200	09/06/19 16:55	MMF/JJI	SW 8260B
Acrolein	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Benzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromodichloromethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromoform	< 260	ug/kg dry	Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromomethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Carbon tetrachloride	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloroethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
cis-1,3-Dichloropropene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloroform	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloromethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Dibromochloromethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
trans-1,2-Dichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Ethylbenzene	< 100	ug/kg dry	R, Sc	09/06/19 08:21	1	100	09/06/19 16:55	MMF/JJI	SW 8260B
Methylene chloride	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Tetrachloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Toluene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Trichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Vinyl chloride	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Volatile Organics - TCLP - PIA									
1,1-Dichloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
2-Butanone	< 0.010	mg/L		09/06/19 08:12	1	0.010	09/06/19 16:24	MMF	SW 8260B
Benzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Chlorobenzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Chloroform	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Tetrachloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Trichloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Vinyl chloride	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919944 - No Prep - SW 9012									
Blank (B919944-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	< 1.2	mg/kg wet							
LCS (B919944-BS1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	2.58	mg/kg wet		2.500		103	85-115		
Matrix Spike (B919944-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	32.2	mg/kg dry		29.30	ND	110	75-125		
Matrix Spike Dup (B919944-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	30.1	mg/kg dry		27.90	ND	108	75-125	7	20
Batch B919960 - No Prep - SM 2540G									
Blank (B919960-BLK1)				Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	< 0.050	%							
Duplicate (B919960-DUP1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	8.64	%			8.53			1	5
Duplicate (B919960-DUP2)	**Sample: 9085999-01**			Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	87.8	%			83.7			5	5
Batch B919969 - EPA 608/8081/8082/8141 - SW 8082									
Blank (B919969-BLK1)				Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	< 80	ug/kg wet							
Aroclor 1221	< 160	ug/kg wet							
Aroclor 1232	< 80	ug/kg wet							
Aroclor 1242	< 80	ug/kg wet							
Aroclor 1248	< 80	ug/kg wet							
Aroclor 1254	< 160	ug/kg wet							
Aroclor 1260	< 160	ug/kg wet							
Aroclors - Total	< 800	ug/kg wet							
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*95*	*10-164*		
Surrogate: DCBP	*18*	*ug/kg wet*		*16.67*		*108*	*11.4-165*		
LCS (B919969-BS1)				Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	278	ug/kg wet		333.3		84	71-120		
Aroclor 1260	277	ug/kg wet		333.3		83	69.8-120		
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*97*	*10-164*		
Surrogate: DCBP	*17*	*ug/kg wet*		*16.67*		*104*	*11.4-165*		
Matrix Spike (B919969-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	9550	ug/kg dry		11670	ND	82	10-133		
Aroclor 1260	9420	ug/kg dry		11670	ND	81	10-140		
Surrogate: TCMX	*580*	*ug/kg dry*		*583.6*		*99*	*10-164*		
Surrogate: DCBP	*590*	*ug/kg dry*		*583.6*		*100*	*11.4-165*		
Matrix Spike Dup (B919969-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	10800	ug/kg dry		11750	ND	92	10-133	13	40
Aroclor 1260	10400	ug/kg dry		11750	ND	89	10-140	10	40
Surrogate: TCMX	*640*	*ug/kg dry*		*587.7*		*109*	*10-164*		
Surrogate: DCBP	*660*	*ug/kg dry*		*587.7*		*112*	*11.4-165*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919970 - EPA 608/8081/8082/8141 - SW 8081									
Blank (B919970-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	< 16	ug/kg wet							
4,4'-DDE	< 16	ug/kg wet							
4,4'-DDT	< 16	ug/kg wet	V						
Aldrin	< 8.0	ug/kg wet							
Alpha-BHC	< 8.0	ug/kg wet							
Beta-BHC	< 8.0	ug/kg wet							
Chlordane (technical)	< 160	ug/kg wet							
Delta-BHC	< 8.0	ug/kg wet							
Dieldrin	< 16	ug/kg wet							
Endosulfan I	< 8.0	ug/kg wet							
Endosulfan II	< 16	ug/kg wet							
Endosulfan sulfate	< 16	ug/kg wet							
Endrin	< 16	ug/kg wet							
Endrin aldehyde	< 16	ug/kg wet							
gamma-BHC (Lindane)	< 8.0	ug/kg wet							
Heptachlor	< 8.0	ug/kg wet							
Heptachlor epoxide	< 8.0	ug/kg wet							
Toxaphene	< 80	ug/kg wet							
LCS (B919970-BS1)				Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	25	ug/kg wet		26.67		93	47-155		
4,4'-DDE	24	ug/kg wet		26.67		91	49.4-146		
4,4'-DDT	26	ug/kg wet	V	26.67		98	43.7-155		
Aldrin	23	ug/kg wet		26.67		88	47.1-142		
Alpha-BHC	25	ug/kg wet		26.67		94	52-145		
Beta-BHC	26	ug/kg wet		26.67		97	50.1-140		
Delta-BHC	26	ug/kg wet		26.67		96	49.2-148		
Dieldrin	24	ug/kg wet		26.67		88	49.5-141		
Endosulfan I	24	ug/kg wet		26.67		92	49.6-141		
Endosulfan II	24	ug/kg wet		26.67		91	48.6-143		
Endosulfan sulfate	26	ug/kg wet		26.67		96	53.2-150		
Endrin	24	ug/kg wet		26.67		92	30.7-151		
Endrin aldehyde	22	ug/kg wet		26.67		82	28.1-128		
gamma-BHC (Lindane)	25	ug/kg wet		26.67		94	52.1-142		
Heptachlor	25	ug/kg wet		26.67		94	50.7-145		
Heptachlor epoxide	24	ug/kg wet		26.67		91	51-141		
Methoxychlor	102	ug/kg wet	V	106.7		95	50.3-146		
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*97*	*10-194*		
Surrogate: DCBP	*16*	*ug/kg wet*		*16.67*		*95*	*10-192*		
Matrix Spike (B919970-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	1020	ug/kg dry		937.6	ND	109	20.1-182		
4,4'-DDE	1080	ug/kg dry		937.6	ND	115	10-180		
4,4'-DDT	1190	ug/kg dry	V	937.6	ND	127	10-200		
Aldrin	921	ug/kg dry		937.6	ND	98	19.2-162		
Alpha-BHC	1220	ug/kg dry		937.6	ND	130	53.1-141		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919970 - EPA 608/8081/8082/8141 - SW 8081									
Matrix Spike (B919970-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Beta-BHC	1120	ug/kg dry		937.6	ND	119	22.1-190		
Delta-BHC	1200	ug/kg dry		937.6	ND	128	33.7-151		
Dieldrin	1130	ug/kg dry		937.6	ND	121	33.9-160		
Endosulfan I	1310	ug/kg dry		937.6	ND	140	10-196		
Endosulfan II	1110	ug/kg dry		937.6	ND	118	19.7-176		
Endosulfan sulfate	1120	ug/kg dry		937.6	ND	120	23.9-188		
Endrin	1120	ug/kg dry		937.6	ND	119	46.7-156		
Endrin aldehyde	982	ug/kg dry		937.6	ND	105	10-180		
gamma-BHC (Lindane)	1130	ug/kg dry		937.6	ND	120	28.8-157		
Heptachlor	1160	ug/kg dry		937.6	ND	124	10-200		
Heptachlor epoxide	1210	ug/kg dry		937.6	ND	129	49.3-152		
Methoxychlor	4710	ug/kg dry	V	3750	ND	126	10-200		
Surrogate: TCMX	*740*	*ug/kg dry*		*586.0*		*126*	*10-194*		
Surrogate: DCBP	*730*	*ug/kg dry*		*586.0*		*124*	*10-192*		
Matrix Spike Dup (B919970-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	1040	ug/kg dry		930.1	ND	112	20.1-182	2	40
4,4'-DDE	993	ug/kg dry		930.1	ND	107	10-180	8	40
4,4'-DDT	978	ug/kg dry	V	930.1	ND	105	10-200	20	40
Aldrin	824	ug/kg dry		930.1	ND	89	19.2-162	11	40
Alpha-BHC	1080	ug/kg dry		930.1	ND	116	53.1-141	12	40
Beta-BHC	1040	ug/kg dry		930.1	ND	112	22.1-190	7	40
Delta-BHC	1150	ug/kg dry		930.1	ND	123	33.7-151	4	40
Dieldrin	1120	ug/kg dry		930.1	ND	121	33.9-160	1	40
Endosulfan I	1270	ug/kg dry		930.1	ND	136	10-196	4	40
Endosulfan II	1090	ug/kg dry		930.1	ND	117	19.7-176	2	40
Endosulfan sulfate	1030	ug/kg dry		930.1	ND	111	23.9-188	9	40
Endrin	1070	ug/kg dry		930.1	ND	115	46.7-156		40
Endrin aldehyde	1060	ug/kg dry		930.1	ND	114	10-180	8	40
gamma-BHC (Lindane)	1100	ug/kg dry		930.1	ND	118	28.8-157	2	40
Heptachlor	1090	ug/kg dry		930.1	ND	117	10-200	7	40
Heptachlor epoxide	1160	ug/kg dry		930.1	ND	125	49.3-152	4	40
Methoxychlor	3990	ug/kg dry	V	3720	ND	107	10-200	16	40
Surrogate: TCMX	*680*	*ug/kg dry*		*581.3*		*118*	*10-194*		
Surrogate: DCBP	*700*	*ug/kg dry*		*581.3*		*121*	*10-192*		
Batch B920012 - TCLP Prep - SW 1311									
Blank (B920012-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Final pH	0.00	pH Units							
Final pH	0.00	pH Units							
Batch B920014 - SW 3015 TCLP - SW 6020									
Blank (B920014-BLK1)				Prepared & Analyzed: 09/04/19					
Arsenic	< 0.040	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920014 - SW 3015 TCLP - SW 6020									
Blank (B920014-BLK1)				Prepared & Analyzed: 09/04/19					
Barium	< 2.0	mg/L							
Cadmium	< 0.0040	mg/L							
Chromium	< 0.016	mg/L							
Lead	< 0.020	mg/L							
Selenium	< 0.010	mg/L							
Silver	< 0.020	mg/L							
Mercury	< 0.0020	mg/L							
Blank (B920014-BLK2)				Prepared & Analyzed: 09/04/19					
Arsenic	< 0.040	mg/L							
Barium	< 2.0	mg/L							
Cadmium	< 0.0040	mg/L							
Chromium	< 0.016	mg/L							
Lead	< 0.020	mg/L							
Selenium	0.0114	mg/L							
Silver	< 0.020	mg/L							
Mercury	< 0.0020	mg/L							
LCS (B920014-BS1)				Prepared & Analyzed: 09/04/19					
Arsenic	5.91	mg/L		5.556		106	80-120		
Barium	6.04	mg/L		5.556		109	80-120		
Cadmium	6.11	mg/L		5.556		110	80-120		
Chromium	6.01	mg/L		5.556		108	80-120		
Lead	6.14	mg/L		5.556		110	80-120		
Selenium	6.04	mg/L		5.556		109	80-120		
Silver	4.99	mg/L		5.556		90	80-120		
Mercury	0.0554	mg/L		0.05556		100	80-120		
LCS (B920014-BS2)				Prepared & Analyzed: 09/04/19					
Arsenic	5.83	mg/L		5.556		105	80-120		
Barium	5.85	mg/L		5.556		105	80-120		
Cadmium	5.97	mg/L		5.556		107	80-120		
Chromium	5.84	mg/L		5.556		105	80-120		
Lead	5.89	mg/L		5.556		106	80-120		
Selenium	6.02	mg/L		5.556		108	80-120		
Silver	5.62	mg/L		5.556		101	80-120		
Mercury	0.0551	mg/L		0.05556		99	80-120		
Matrix Spike (B920014-MS1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					
Arsenic	5.84	mg/L		5.556	ND	105	50-150		
Barium	6.27	mg/L		5.556	0.371	106	50-150		
Cadmium	5.82	mg/L		5.556	ND	105	50-150		
Chromium	5.84	mg/L		5.556	0.0574	104	50-150		
Lead	5.74	mg/L		5.556	ND	103	50-150		
Selenium	5.91	mg/L		5.556	0.00831	106	50-150		
Silver	6.15	mg/L		5.556	ND	111	50-150		
Mercury	0.0547	mg/L		0.05556	ND	98	50-150		
Matrix Spike Dup (B920014-MSD1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920014 - SW 3015 TCLP - SW 6020									
Matrix Spike Dup (B920014-MSD1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					
Arsenic	5.98	mg/L		5.556	ND	108	50-150	2	20
Barium	6.43	mg/L		5.556	0.371	109	50-150	2	20
Cadmium	5.98	mg/L		5.556	ND	108	50-150	3	20
Chromium	5.99	mg/L		5.556	0.0574	107	50-150	3	20
Lead	5.96	mg/L		5.556	ND	107	50-150	4	20
Selenium	6.05	mg/L		5.556	0.00831	109	50-150	2	20
Silver	5.37	mg/L		5.556	ND	97	50-150	13	20
Mercury	0.0567	mg/L		0.05556	ND	102	50-150	4	20
Batch B920023 - EPA 625/8270 - SW 8270C									
Blank (B920023-BLK1)				Prepared & Analyzed: 09/04/19					
Pyridine	< 0.010	mg/L							
2-Methylphenol	< 0.010	mg/L							
3- & 4-Methylphenol	< 0.010	mg/L							
Hexachloroethane	< 0.010	mg/L							
Nitrobenzene	< 0.010	mg/L							
Hexachlorobutadiene	< 0.010	mg/L							
2,4,6-Trichlorophenol	< 0.050	mg/L							
2,4,5-Trichlorophenol	< 0.050	mg/L							
2,4-Dinitrotoluene	< 0.010	mg/L							
Hexachlorobenzene	< 0.010	mg/L							
Pentachlorophenol	< 0.050	mg/L							
Surrogate: 2-Fluorophenol	*0.0346*	*mg/L*		*0.07500*		*46*	*14.4-120*		
Surrogate: Phenol-d6	*0.0238*	*mg/L*		*0.07500*		*32*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.0343*	*mg/L*		*0.05000*		*69*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.0312*	*mg/L*		*0.05000*		*62*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.0579*	*mg/L*		*0.07500*		*77*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.0347*	*mg/L*		*0.05000*		*69*	*42.8-121*		
LCS (B920023-BS1)				Prepared & Analyzed: 09/04/19					
Pyridine	0.023	mg/L		0.05000		47	10-120		
2-Methylphenol	0.060	mg/L		0.1000		60	47.5-120		
3- & 4-Methylphenol	0.057	mg/L		0.1000		57	42.9-120		
Hexachloroethane	0.030	mg/L		0.05000		60	20.3-120		
Nitrobenzene	0.039	mg/L		0.05000		79	54.1-120		
Hexachlorobutadiene	0.032	mg/L		0.05000		65	20.5-120		
2,4,6-Trichlorophenol	0.072	mg/L		0.1000		72	62.9-120		
2,4,5-Trichlorophenol	0.074	mg/L		0.1000		74	64.2-120		
2,4-Dinitrotoluene	0.040	mg/L		0.05000		81	66.5-120		
Hexachlorobenzene	0.040	mg/L		0.05000		81	67.2-120		
Pentachlorophenol	0.084	mg/L		0.1000		84	54.9-133		
Surrogate: 2-Fluorophenol	*0.0370*	*mg/L*		*0.07500*		*49*	*14.4-120*		
Surrogate: Phenol-d6	*0.0235*	*mg/L*		*0.07500*		*31*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.0377*	*mg/L*		*0.05000*		*75*	*34-120*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920023 - EPA 625/8270 - SW 8270C									
LCS (B920023-BS1)				Prepared & Analyzed: 09/04/19					
Surrogate: 2-Fluorobiphenyl	*0.0314*	*mg/L*		*0.05000*		*63*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.0686*	*mg/L*		*0.07500*		*91*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.0377*	*mg/L*		*0.05000*		*75*	*42.8-121*		
Matrix Spike (B920023-MS1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/04/19					
Pyridine	0.298	mg/L	R	0.5000	ND	60	10-120		
2-Methylphenol	0.637	mg/L		1.000	ND	64	34-120		
3- & 4-Methylphenol	0.626	mg/L		1.000	ND	63	38.8-120		
Hexachloroethane	0.323	mg/L		0.5000	ND	65	24.5-120		
Nitrobenzene	0.420	mg/L		0.5000	ND	84	47.7-120		
Hexachlorobutadiene	0.356	mg/L		0.5000	ND	71	28.7-120		
2,4,6-Trichlorophenol	0.781	mg/L		1.000	ND	78	35.8-127		
2,4,5-Trichlorophenol	0.777	mg/L		1.000	ND	78	44.2-121		
2,4-Dinitrotoluene	0.382	mg/L		0.5000	ND	76	48.7-120		
Hexachlorobenzene	0.455	mg/L		0.5000	ND	91	57.4-120		
Pentachlorophenol	1.04	mg/L		1.000	ND	104	10-168		
Surrogate: 2-Fluorophenol	*0.404*	*mg/L*		*0.7500*		*54*	*14.4-120*		
Surrogate: Phenol-d6	*0.257*	*mg/L*		*0.7500*		*34*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.400*	*mg/L*		*0.5000*		*80*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.345*	*mg/L*		*0.5000*		*69*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.700*	*mg/L*		*0.7500*		*93*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.382*	*mg/L*		*0.5000*		*76*	*42.8-121*		
Matrix Spike Dup (B920023-MSD1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/04/19					
Pyridine	0.183	mg/L	R	0.5000	ND	37	10-120	48	40
2-Methylphenol	0.556	mg/L		1.000	ND	56	34-120	14	40
3- & 4-Methylphenol	0.523	mg/L		1.000	ND	52	38.8-120	18	40
Hexachloroethane	0.239	mg/L		0.5000	ND	48	24.5-120	30	40
Nitrobenzene	0.325	mg/L		0.5000	ND	65	47.7-120	26	40
Hexachlorobutadiene	0.259	mg/L		0.5000	ND	52	28.7-120	32	40
2,4,6-Trichlorophenol	0.674	mg/L		1.000	ND	67	35.8-127	15	40
2,4,5-Trichlorophenol	0.670	mg/L		1.000	ND	67	44.2-121	15	40
2,4-Dinitrotoluene	0.371	mg/L		0.5000	ND	74	48.7-120	3	40
Hexachlorobenzene	0.384	mg/L		0.5000	ND	77	57.4-120	17	40
Pentachlorophenol	0.925	mg/L		1.000	ND	93	10-168	12	40
Surrogate: 2-Fluorophenol	*0.312*	*mg/L*		*0.7500*		*42*	*14.4-120*		
Surrogate: Phenol-d6	*0.208*	*mg/L*		*0.7500*		*28*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.302*	*mg/L*		*0.5000*		*60*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.278*	*mg/L*		*0.5000*		*56*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.612*	*mg/L*		*0.7500*		*82*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.349*	*mg/L*		*0.5000*		*70*	*42.8-121*		
Batch B920065 - SW 3051 - SW 6010									
Blank (B920065-BLK1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	< 3.0	mg/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920065 - SW 3051 - SW 6010									
Blank (B920065-BLK1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Beryllium	< 0.50	mg/kg wet							
Silver	< 1.0	mg/kg wet							
Thallium	< 3.0	mg/kg wet							
LCS (B920065-BS1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	53.8	mg/kg wet		50.00		108	80-120		
Beryllium	51.9	mg/kg wet		50.00		104	80-120		
Silver	52.2	mg/kg wet		50.00		104	80-120		
Thallium	54.1	mg/kg wet		50.00		108	80-120		
Matrix Spike (B920065-MS1)	Sample: 9084915-01			Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	112	mg/kg dry		117.3	4.54	91	75-125		
Beryllium	115	mg/kg dry		117.3	2.05	97	75-125		
Silver	134	mg/kg dry		117.3	12.6	104	75-125		
Matrix Spike Dup (B920065-MSD1)	Sample: 9084915-01			Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	124	mg/kg dry		116.9	4.54	102	75-125	10	20
Beryllium	126	mg/kg dry		116.9	2.05	106	75-125	9	20
Silver	136	mg/kg dry		116.9	12.6	105	75-125	0.8	20
Batch B920090 - EPA 625/8270 - SW 8270C									
Blank (B920090-BLK1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	< 330	ug/kg wet							
Phenol	< 330	ug/kg wet							
Bis(2-chloroethyl) ether	< 330	ug/kg wet							
2-Chlorophenol	< 330	ug/kg wet							
2,3,7,8-TCDD Screen	< 1600	ug/kg wet							
Bis(2-chloroisopropyl) ether	< 330	ug/kg wet							
N-Nitrosodi-n-propylamine	< 330	ug/kg wet							
Hexachloroethane	< 330	ug/kg wet							
Nitrobenzene	< 330	ug/kg wet							
Isophorone	< 330	ug/kg wet							
2-Nitrophenol	< 330	ug/kg wet							
2,4-Dimethylphenol	< 330	ug/kg wet							
Bis(2-chloroethoxy) methane	< 330	ug/kg wet							
2,4-Dichlorophenol	< 330	ug/kg wet							
Naphthalene	< 330	ug/kg wet							
Hexachlorobutadiene	< 330	ug/kg wet							
4-Chloro-3-methylphenol	< 330	ug/kg wet							
Hexachlorocyclopentadiene	< 330	ug/kg wet							
2,4,6-Trichlorophenol	< 330	ug/kg wet							
2-Chloronaphthalene	< 330	ug/kg wet							
Dimethyl phthalate	< 330	ug/kg wet							
2,6-Dinitrotoluene	< 330	ug/kg wet							
Acenaphthylene	< 330	ug/kg wet							
Acenaphthene	< 330	ug/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Blank (B920090-BLK1)				Prepared: 09/04/19 Analyzed: 09/05/19					
2,4-Dinitrophenol	< 1700	ug/kg wet							
4-Nitrophenol	< 1700	ug/kg wet							
2,4-Dinitrotoluene	< 330	ug/kg wet							
Diethyl phthalate	< 330	ug/kg wet							
Fluorene	< 330	ug/kg wet							
4-Chlorophenylphenyl ether	< 330	ug/kg wet							
4,6-Dinitro-2-methylphenol	< 1700	ug/kg wet							
N-Nitrosodiphenylamine	< 330	ug/kg wet							
1,2-Diphenylhydrazine	< 330	ug/kg wet							
4-Bromophenyl phenyl ether	< 330	ug/kg wet							
Hexachlorobenzene	< 330	ug/kg wet							
Pentachlorophenol	< 1700	ug/kg wet							
Phenanthrene	< 330	ug/kg wet							
Anthracene	< 330	ug/kg wet							
Di-n-butyl phthalate	< 330	ug/kg wet							
Fluoranthene	< 330	ug/kg wet							
Benzidine	< 1700	ug/kg wet							
Pyrene	< 330	ug/kg wet							
Butyl benzyl phthalate	< 330	ug/kg wet							
Benzo(a)anthracene	< 330	ug/kg wet							
3,3'-Dichlorobenzidine	< 1700	ug/kg wet							
Chrysene	< 330	ug/kg wet							
Bis(2-ethylhexyl) phthalate	< 330	ug/kg wet							
Di-n-octyl phthalate	< 330	ug/kg wet							
Benzo(b)fluoranthene	< 330	ug/kg wet							
Benzo(k)fluoranthene	< 330	ug/kg wet							
Benzo(a)pyrene	< 330	ug/kg wet							
Indeno(1,2,3-cd)pyrene	< 330	ug/kg wet							
Dibenzo(a,h)anthracene	< 330	ug/kg wet							
Benzo(g,h,i)perylene	< 330	ug/kg wet							
Dinoseb	< 330	ug/kg wet							
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	1360	ug/kg wet		1667		82	41.4-120		
Pyridine	1190	ug/kg wet		1667		71	26.6-120		
Phenol	2700	ug/kg wet		3333		81	24.3-129		
Aniline	1070	ug/kg wet		1667		64	32.4-120		
Bis(2-chloroethyl) ether	1430	ug/kg wet		1667		86	58.1-120		
2-Chlorophenol	2740	ug/kg wet		3333		82	61.9-120		
1,3-Dichlorobenzene	1310	ug/kg wet		1667		79	51.4-120		
1,4-Dichlorobenzene	1370	ug/kg wet		1667		82	52.2-120		
Benzyl alcohol	1640	ug/kg wet		1667		98	61.1-120		
1,2-Dichlorobenzene	1350	ug/kg wet		1667		81	53.1-120		
2-Methylphenol	2710	ug/kg wet		3333		81	58.7-120		
Bis(2-chloroisopropyl) ether	1360	ug/kg wet		1667		81	55.8-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodi-n-propylamine	1430	ug/kg wet		1667		86	60.7-120		
3- & 4-Methylphenol	2680	ug/kg wet		3333		80	54.1-120		
Hexachloroethane	1350	ug/kg wet		1667		81	49.9-120		
Nitrobenzene	1430	ug/kg wet		1667		86	60.5-120		
Isophorone	1450	ug/kg wet		1667		87	57.9-120		
2-Nitrophenol	3040	ug/kg wet		3333		91	64-120		
2,4-Dimethylphenol	2850	ug/kg wet		3333		85	53.7-120		
Bis(2-chloroethoxy) methane	1450	ug/kg wet		1667		87	64.1-120		
2,4-Dichlorophenol	3020	ug/kg wet		3333		91	63.2-120		
1,2,4-Trichlorobenzene	1400	ug/kg wet		1667		84	58.4-120		
Naphthalene	1290	ug/kg wet		1667		78	54.3-120		
4-Chloroaniline	620	ug/kg wet		1667		37	10-120		
Hexachlorobutadiene	1320	ug/kg wet		1667		79	54.8-120		
4-Chloro-3-methylphenol	3060	ug/kg wet		3333		92	63.4-120		
2-Methylnaphthalene	1340	ug/kg wet		1667		81	63.1-120		
Hexachlorocyclopentadiene	771	ug/kg wet		1667		46	19.1-120		
2,4,6-Trichlorophenol	3150	ug/kg wet		3333		94	56.6-126		
2,4,5-Trichlorophenol	3160	ug/kg wet		3333		95	54.4-128		
2-Chloronaphthalene	1280	ug/kg wet		1667		77	44.8-120		
2-Nitroaniline	1690	ug/kg wet		1667		101	59.2-122		
Dimethyl phthalate	1600	ug/kg wet		1667		96	61.4-120		
2,6-Dinitrotoluene	1680	ug/kg wet		1667		101	62.2-120		
Acenaphthylene	1370	ug/kg wet		1667		82	55.9-120		
3-Nitroaniline	1140	ug/kg wet		1667		68	18.1-120		
Acenaphthene	1440	ug/kg wet		1667		87	56.8-120		
2,4-Dinitrophenol	495	ug/kg wet		3333		15	10-120		
4-Nitrophenol	3250	ug/kg wet		3333		97	10-158		
Dibenzofuran	1500	ug/kg wet		1667		90	59.4-120		
2,4-Dinitrotoluene	1720	ug/kg wet		1667		103	62.1-120		
Diethyl phthalate	1570	ug/kg wet		1667		94	59.4-120		
Fluorene	1510	ug/kg wet		1667		91	58.1-120		
4-Chlorophenylphenyl ether	1560	ug/kg wet		1667		94	59.8-120		
4-Nitroaniline	1670	ug/kg wet		1667		100	40.5-120		
4,6-Dinitro-2-methylphenol	901	ug/kg wet		3333		27	10-142		
N-Nitrosodiphenylamine	1450	ug/kg wet		1667		87	57.1-120		
4-Bromophenyl phenyl ether	1590	ug/kg wet		1667		95	66.6-120		
Hexachlorobenzene	1530	ug/kg wet		1667		92	64.7-120		
Pentachlorophenol	2560	ug/kg wet		3333		77	26.3-133		
Phenanthrene	1500	ug/kg wet		1667		90	64.6-120		
Anthracene	1490	ug/kg wet		1667		89	66.4-120		
Di-n-butyl phthalate	1590	ug/kg wet		1667		95	65.8-120		
Fluoranthene	1570	ug/kg wet		1667		94	63-120		
Pyrene	1690	ug/kg wet		1667		102	57.8-129		
Butyl benzyl phthalate	1810	ug/kg wet		1667		109	62.8-123		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
Benzo(a)anthracene	1420	ug/kg wet		1667		85	61.9-120		
Chrysene	1690	ug/kg wet		1667		101	42.8-120		
Bis(2-ethylhexyl) phthalate	1860	ug/kg wet		1667		112	57.8-122		
Di-n-octyl phthalate	1780	ug/kg wet		1667		107	56-126		
Benzo(b)fluoranthene	1520	ug/kg wet		1667		91	57.1-122		
Benzo(k)fluoranthene	1560	ug/kg wet		1667		94	62.3-128		
Benzo(a)pyrene	1480	ug/kg wet		1667		89	62.6-120		
Indeno(1,2,3-cd)pyrene	1240	ug/kg wet		1667		74	44.7-132		
Dibenzo(a,h)anthracene	1210	ug/kg wet		1667		73	39.7-133		
Benzo(g,h,i)perylene	1260	ug/kg wet		1667		75	45.4-133		
Surrogate: 2-Fluorophenol	*2180*	*ug/kg wet*		*2500*		*87*	*10-136*		
Surrogate: Phenol-d6	*2090*	*ug/kg wet*		*2500*		*83*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*1370*	*ug/kg wet*		*1667*		*82*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*1310*	*ug/kg wet*		*1667*		*79*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*2380*	*ug/kg wet*		*2500*		*95*	*10-134*		
Surrogate: p-Terphenyl-d14	*1690*	*ug/kg wet*		*1667*		*102*	*10-161*		
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	38600	ug/kg dry		57730	ND	67	33.5-120		
Pyridine	31000	ug/kg dry		57730	ND	54	30.2-120		
Phenol	83300	ug/kg dry		115500	ND	72	27.6-120		
Aniline	24800	ug/kg dry		57730	ND	43	10-122		
Bis(2-chloroethyl) ether	40800	ug/kg dry		57730	ND	71	42.7-120		
2-Chlorophenol	78900	ug/kg dry		115500	ND	68	10-144		
1,3-Dichlorobenzene	36000	ug/kg dry		57730	ND	62	47.1-120		
1,4-Dichlorobenzene	36600	ug/kg dry		57730	ND	63	47.4-120		
Benzyl alcohol	48600	ug/kg dry		57730	ND	84	30.5-143		
1,2-Dichlorobenzene	36900	ug/kg dry		57730	ND	64	51.7-120		
2-Methylphenol	86400	ug/kg dry		115500	ND	75	42.4-120		
Bis(2-chloroisopropyl) ether	42100	ug/kg dry		57730	ND	73	45.1-120		
N-Nitrosodi-n-propylamine	37000	ug/kg dry		57730	ND	64	40.5-120		
3- & 4-Methylphenol	82700	ug/kg dry		115500	ND	72	10.7-147		
Hexachloroethane	33600	ug/kg dry		57730	ND	58	10-120		
Nitrobenzene	43300	ug/kg dry		57730	ND	75	41.3-122		
Isophorone	43300	ug/kg dry		57730	ND	75	38.5-121		
2-Nitrophenol	91000	ug/kg dry		115500	ND	79	10-173		
2,4-Dimethylphenol	96800	ug/kg dry		115500	ND	84	39.9-128		
Bis(2-chloroethoxy) methane	43800	ug/kg dry		57730	ND	76	55.4-120		
2,4-Dichlorophenol	93900	ug/kg dry		115500	ND	81	10-157		
1,2,4-Trichlorobenzene	42200	ug/kg dry		57730	ND	73	47.5-120		
Naphthalene	39200	ug/kg dry		57730	ND	68	56.2-120		
4-Chloroaniline	20000	ug/kg dry		57730	ND	35	10-120		
Hexachlorobutadiene	39400	ug/kg dry		57730	ND	68	47.8-120		
4-Chloro-3-methylphenol	92900	ug/kg dry		115500	ND	80	17.3-135		
2-Methylnaphthalene	42000	ug/kg dry		57730	ND	73	49.3-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Hexachlorocyclopentadiene	< 11000	ug/kg dry	Q3	57730	ND		10-120		
2,4,6-Trichlorophenol	98800	ug/kg dry		115500	ND	86	10-200		
2,4,5-Trichlorophenol	107000	ug/kg dry		115500	ND	92	10-189		
2-Chloronaphthalene	40300	ug/kg dry		57730	ND	70	41.4-120		
2-Nitroaniline	52000	ug/kg dry		57730	ND	90	47.6-128		
Dimethyl phthalate	46600	ug/kg dry		57730	ND	81	46.2-124		
2,6-Dinitrotoluene	49500	ug/kg dry		57730	ND	86	40.5-144		
Acenaphthylene	42100	ug/kg dry		57730	ND	73	47.2-120		
3-Nitroaniline	33700	ug/kg dry		57730	ND	58	26.3-120		
Acenaphthene	43800	ug/kg dry		57730	ND	76	40.3-129		
2,4-Dinitrophenol	31000	ug/kg dry	R	115500	ND	27	10-128		
4-Nitrophenol	87400	ug/kg dry		115500	ND	76	10-142		
Dibenzofuran	46100	ug/kg dry		57730	ND	80	45.4-121		
2,4-Dinitrotoluene	47000	ug/kg dry		57730	ND	81	46.6-120		
Diethyl phthalate	46200	ug/kg dry		57730	ND	80	43.3-120		
Fluorene	43700	ug/kg dry		57730	ND	76	40.7-120		
4-Chlorophenylphenyl ether	45100	ug/kg dry		57730	ND	78	43.4-120		
4-Nitroaniline	37500	ug/kg dry		57730	ND	65	19.5-120		
4,6-Dinitro-2-methylphenol	38100	ug/kg dry		115500	ND	33	10-166		
N-Nitrosodiphenylamine	47300	ug/kg dry		57730	ND	82	60.7-120		
4-Bromophenyl phenyl ether	49300	ug/kg dry		57730	ND	85	57.4-123		
Hexachlorobenzene	46800	ug/kg dry		57730	ND	81	52.8-123		
Pentachlorophenol	80000	ug/kg dry		115500	ND	69	10-149		
Phenanthrene	44800	ug/kg dry		57730	ND	78	47.8-122		
Anthracene	44100	ug/kg dry		57730	ND	76	50.8-120		
Di-n-butyl phthalate	46500	ug/kg dry		57730	ND	81	53.3-120		
Fluoranthene	39300	ug/kg dry		57730	ND	68	35.5-121		
Pyrene	51300	ug/kg dry		57730	ND	89	35-147		
Butyl benzyl phthalate	52700	ug/kg dry		57730	ND	91	43.8-136		
Benzo(a)anthracene	42900	ug/kg dry		57730	ND	74	42.6-122		
Chrysene	49800	ug/kg dry		57730	ND	86	23.5-120		
Bis(2-ethylhexyl) phthalate	67100	ug/kg dry		57730	13200	93	10-165		
Di-n-octyl phthalate	62600	ug/kg dry		57730	ND	108	33.7-163		
Benzo(b)fluoranthene	45400	ug/kg dry		57730	ND	79	24.5-130		
Benzo(k)fluoranthene	45200	ug/kg dry		57730	ND	78	33.9-133		
Benzo(a)pyrene	49200	ug/kg dry		57730	ND	85	30.8-134		
Indeno(1,2,3-cd)pyrene	41900	ug/kg dry		57730	ND	73	21.1-171		
Dibenzo(a,h)anthracene	41600	ug/kg dry		57730	ND	72	24.6-156		
Benzo(g,h,i)perylene	42300	ug/kg dry		57730	ND	73	10.7-187		
Surrogate: 2-Fluorophenol	*63700*	*ug/kg dry*		*86600*		*74*	*10-136*		
Surrogate: Phenol-d6	*63400*	*ug/kg dry*		*86600*		*73*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*40500*	*ug/kg dry*		*57730*		*70*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*40500*	*ug/kg dry*		*57730*		*70*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*66800*	*ug/kg dry*		*86600*		*77*	*10-134*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Surrogate: p-Terphenyl-d14	*48300*	*ug/kg dry*		*57730*		*84*	*10-161*		
Matrix Spike Dup (B920090-MSD1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	38600	ug/kg dry		57960	ND	67	33.5-120	0.04	40
Pyridine	31600	ug/kg dry		57960	ND	54	30.2-120	2	40
Phenol	80800	ug/kg dry		115900	ND	70	27.6-120	3	40
Aniline	26100	ug/kg dry		57960	ND	45	10-122	5	40
Bis(2-chloroethyl) ether	40200	ug/kg dry		57960	ND	69	42.7-120	1	40
2-Chlorophenol	76300	ug/kg dry		115900	ND	66	10-144	3	40
1,3-Dichlorobenzene	34400	ug/kg dry		57960	ND	59	47.1-120	4	40
1,4-Dichlorobenzene	35500	ug/kg dry		57960	ND	61	47.4-120	3	40
Benzyl alcohol	48800	ug/kg dry		57960	ND	84	30.5-143	0.5	40
1,2-Dichlorobenzene	36300	ug/kg dry		57960	ND	63	51.7-120	2	40
2-Methylphenol	79500	ug/kg dry		115900	ND	69	42.4-120	8	40
Bis(2-chloroisopropyl) ether	38500	ug/kg dry		57960	ND	66	45.1-120	9	40
N-Nitrosodi-n-propylamine	33600	ug/kg dry		57960	ND	58	40.5-120	10	40
3- & 4-Methylphenol	77600	ug/kg dry		115900	ND	67	10.7-147	6	40
Hexachloroethane	33900	ug/kg dry		57960	ND	58	10-120	0.8	40
Nitrobenzene	38400	ug/kg dry		57960	ND	66	41.3-122	12	40
Isophorone	38800	ug/kg dry		57960	ND	67	38.5-121	11	40
2-Nitrophenol	80700	ug/kg dry		115900	ND	70	10-173	12	40
2,4-Dimethylphenol	87000	ug/kg dry		115900	ND	75	39.9-128	11	40
Bis(2-chloroethoxy) methane	39900	ug/kg dry		57960	ND	69	55.4-120	9	40
2,4-Dichlorophenol	79300	ug/kg dry		115900	ND	68	10-157	17	40
1,2,4-Trichlorobenzene	37800	ug/kg dry		57960	ND	65	47.5-120	11	40
Naphthalene	35100	ug/kg dry		57960	ND	60	56.2-120	11	40
4-Chloroaniline	21100	ug/kg dry		57960	ND	36	10-120	5	40
Hexachlorobutadiene	34900	ug/kg dry		57960	ND	60	47.8-120	12	40
4-Chloro-3-methylphenol	76300	ug/kg dry		115900	ND	66	17.3-135	20	40
2-Methylnaphthalene	36700	ug/kg dry		57960	ND	63	49.3-120	13	40
Hexachlorocyclopentadiene	< 11000	ug/kg dry	Q3	57960	ND		10-120		40
2,4,6-Trichlorophenol	85000	ug/kg dry		115900	ND	73	10-200	15	40
2,4,5-Trichlorophenol	85900	ug/kg dry		115900	ND	74	10-189	21	40
2-Chloronaphthalene	35600	ug/kg dry		57960	ND	61	41.4-120	12	40
2-Nitroaniline	44300	ug/kg dry		57960	ND	76	47.6-128	16	40
Dimethyl phthalate	40000	ug/kg dry		57960	ND	69	46.2-124	15	40
2,6-Dinitrotoluene	40300	ug/kg dry		57960	ND	70	40.5-144	20	40
Acenaphthylene	36800	ug/kg dry		57960	ND	63	47.2-120	14	40
3-Nitroaniline	29800	ug/kg dry		57960	ND	51	26.3-120	12	40
Acenaphthene	37300	ug/kg dry		57960	ND	64	40.3-129	16	40
2,4-Dinitrophenol	20000	ug/kg dry	R	115900	ND	17	10-128	43	40
4-Nitrophenol	69500	ug/kg dry		115900	ND	60	10-142	23	40
Dibenzofuran	39700	ug/kg dry		57960	ND	69	45.4-121	15	40
2,4-Dinitrotoluene	38500	ug/kg dry		57960	ND	66	46.6-120	20	40
Diethyl phthalate	39400	ug/kg dry		57960	ND	68	43.3-120	16	40

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike Dup (B920090-MSD1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Fluorene	37000	ug/kg dry		57960	ND	64	40.7-120	17	40
4-Chlorophenylphenyl ether	37500	ug/kg dry		57960	ND	65	43.4-120	19	40
4-Nitroaniline	32400	ug/kg dry		57960	ND	56	19.5-120	15	40
4,6-Dinitro-2-methylphenol	26700	ug/kg dry		115900	ND	23	10-166	35	40
N-Nitrosodiphenylamine	40700	ug/kg dry		57960	ND	70	60.7-120	15	40
4-Bromophenyl phenyl ether	43300	ug/kg dry		57960	ND	75	57.4-123	13	40
Hexachlorobenzene	41800	ug/kg dry		57960	ND	72	52.8-123	11	40
Pentachlorophenol	62100	ug/kg dry		115900	ND	54	10-149	25	40
Phenanthrene	39300	ug/kg dry		57960	ND	68	47.8-122	13	40
Anthracene	39900	ug/kg dry		57960	ND	69	50.8-120	10	40
Di-n-butyl phthalate	39800	ug/kg dry		57960	ND	69	53.3-120	15	40
Fluoranthene	33600	ug/kg dry		57960	ND	58	35.5-121	15	40
Pyrene	42100	ug/kg dry		57960	ND	73	35-147	20	40
Butyl benzyl phthalate	46700	ug/kg dry		57960	ND	81	43.8-136	12	40
Benzo(a)anthracene	35900	ug/kg dry		57960	ND	62	42.6-122	18	40
Chrysene	39600	ug/kg dry		57960	ND	68	23.5-120	23	40
Bis(2-ethylhexyl) phthalate	52900	ug/kg dry		57960	13200	69	10-165	24	40
Di-n-octyl phthalate	52100	ug/kg dry		57960	ND	90	33.7-163	18	40
Benzo(b)fluoranthene	37800	ug/kg dry		57960	ND	65	24.5-130	18	40
Benzo(k)fluoranthene	38400	ug/kg dry		57960	ND	66	33.9-133	16	40
Benzo(a)pyrene	42800	ug/kg dry		57960	ND	74	30.8-134	14	40
Indeno(1,2,3-cd)pyrene	38200	ug/kg dry		57960	ND	66	21.1-171	9	40
Dibenzo(a,h)anthracene	37000	ug/kg dry		57960	ND	64	24.6-156	12	40
Benzo(g,h,i)perylene	38800	ug/kg dry		57960	ND	67	10.7-187	9	40
Surrogate: 2-Fluorophenol	*61800*	*ug/kg dry*		*86940*		*71*	*10-136*		
Surrogate: Phenol-d6	*60100*	*ug/kg dry*		*86940*		*69*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*35300*	*ug/kg dry*		*57960*		*61*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*34800*	*ug/kg dry*		*57960*		*60*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*55600*	*ug/kg dry*		*86940*		*64*	*10-134*		
Surrogate: p-Terphenyl-d14	*40700*	*ug/kg dry*		*57960*		*70*	*10-161*		
Batch B920136 - No Prep - SW 9066									
Blank (B920136-BLK1)				Prepared & Analyzed: 09/05/19					
Phenolics	< 0.25	mg/kg wet							
LCS (B920136-BS1)				Prepared & Analyzed: 09/05/19					
Phenolics	2.47	mg/kg wet		2.500		99	90-110		
Matrix Spike (B920136-MS1)	**Sample: 9090376-04**			Prepared & Analyzed: 09/05/19					
Phenolics	3.63	mg/kg dry	Q1, R	10.33	ND	35	75-125		
Matrix Spike Dup (B920136-MSD1)	**Sample: 9090376-04**			Prepared & Analyzed: 09/05/19					
Phenolics	1.86	mg/kg dry	Q2, R	10.33	ND	18	75-125	65	20
Batch B920152 - EPA 8151 - SW 8151									
Blank (B920152-BLK1)				Prepared: 09/05/19 Analyzed: 09/06/19					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920152 - EPA 8151 - SW 8151									
Blank (B920152-BLK1)				Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	< 0.01	mg/L							
Silvex	< 0.005	mg/L							
Surrogate: DCAA	*0.00220*	*mg/L*		*0.002000*		*110*	*11.2-172*		
LCS (B920152-BS1)				Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.001	mg/L		0.001500		92	51.2-178		
Silvex	0.001	mg/L		0.001500		88	51.4-139		
Surrogate: DCAA	*0.00234*	*mg/L*		*0.002000*		*117*	*11.2-172*		
Matrix Spike (B920152-MS1)	**Sample: 9085915-01**			Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.02	mg/L		0.01500	ND	136	65.2-138		
Silvex	0.01	mg/L		0.01500	ND	97	46.7-123		
Surrogate: DCAA	*0.0231*	*mg/L*		*0.02000*		*115*	*11.2-172*		
Matrix Spike Dup (B920152-MSD1)	**Sample: 9085915-01**			Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.02	mg/L		0.01500	ND	125	65.2-138	8	40
Silvex	0.01	mg/L		0.01500	ND	88	46.7-123	10	40
Surrogate: DCAA	*0.0211*	*mg/L*		*0.02000*		*106*	*11.2-172*		
Batch B920160 - EPA 608/8081/8082/8141 - SW 8081									
Blank (B920160-BLK1)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	< 0.001	mg/L							
Endrin	< 0.00005	mg/L							
gamma-BHC (Lindane)	< 0.00005	mg/L							
Heptachlor	< 0.00005	mg/L							
Heptachlor epoxide	< 0.00005	mg/L							
Methoxychlor	< 0.0002	mg/L							
Toxaphene	< 0.001	mg/L							
Surrogate: TCMX	*0.00038*	*mg/L*		*5.000E-4*		*75*	*40.9-120*		
Surrogate: DCBP	*0.00012*	*mg/L*		*5.000E-4*		*24*	*10-147*		
Blank (B920160-BLK2)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	< 0.001	mg/L							
Endrin	< 0.00005	mg/L							
gamma-BHC (Lindane)	< 0.00005	mg/L							
Heptachlor	< 0.00005	mg/L							
Heptachlor epoxide	< 0.00005	mg/L							
Methoxychlor	< 0.0002	mg/L							
Toxaphene	< 0.001	mg/L							
Surrogate: TCMX	*0.00040*	*mg/L*		*5.000E-4*		*80*	*40.9-120*		
Surrogate: DCBP	*0.00041*	*mg/L*		*5.000E-4*		*82*	*10-147*		
LCS (B920160-BS1)				Prepared & Analyzed: 09/05/19					
Endrin	0.0007	mg/L		8.000E-4		85	52.4-145		
gamma-BHC (Lindane)	0.0007	mg/L		8.000E-4		87	55.5-144		
Heptachlor	0.0007	mg/L		8.000E-4		83	49.2-138		
Heptachlor epoxide	0.0007	mg/L		8.000E-4		85	55-140		
Methoxychlor	0.003	mg/L		0.003200		85	64.3-139		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920160 - EPA 608/8081/8082/8141 - SW 8081									
LCS (B920160-BS1)				Prepared & Analyzed: 09/05/19					
Surrogate: TCMX	*0.00040*	*mg/L*		*5.000E-4*		*79*	*40.9-120*		
Surrogate: DCBP	*0.00030*	*mg/L*		*5.000E-4*		*61*	*10-147*		
Matrix Spike (B920160-MS1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/05/19					
Endrin	0.007	mg/L		0.008000	ND	93	42.6-164		
gamma-BHC (Lindane)	0.007	mg/L		0.008000	ND	89	43.5-154		
Heptachlor	0.007	mg/L		0.008000	0.0003	79	38.6-146		
Heptachlor epoxide	0.007	mg/L		0.008000	ND	84	43.7-148		
Methoxychlor	0.03	mg/L		0.03200	ND	89	42.2-157		
Surrogate: TCMX	*0.0037*	*mg/L*		*0.005000*		*73*	*40.9-120*		
Surrogate: DCBP	*0.0039*	*mg/L*		*0.005000*		*78*	*10-147*		
Matrix Spike Dup (B920160-MSD1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/05/19					
Endrin	0.008	mg/L		0.008000	ND	94	42.6-164	2	40
gamma-BHC (Lindane)	0.007	mg/L		0.008000	ND	89	43.5-154	0.7	40
Heptachlor	0.007	mg/L		0.008000	0.0003	79	38.6-146	0.03	40
Heptachlor epoxide	0.007	mg/L		0.008000	ND	88	43.7-148	4	40
Methoxychlor	0.03	mg/L		0.03200	ND	90	42.2-157	0.9	40
Surrogate: TCMX	*0.0038*	*mg/L*		*0.005000*		*75*	*40.9-120*		
Surrogate: DCBP	*0.0043*	*mg/L*		*0.005000*		*86*	*10-147*		
Reference (B920160-SRM1)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	0.002	mg/L		0.002000		113	0-200		
Toxaphene	0.003	mg/L		0.004000		86	0-200		
Batch B920419 - No Prep - VOA - SW 8260B									
Blank (B920419-BLK1)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*27.8*	*ug/L*		*30.00*		*93*	*72.4-124*		
Surrogate: Toluene-d8	*28.2*	*ug/L*		*30.00*		*94*	*77.5-120*		
Surrogate: Bromofluorobenzene	*29.8*	*ug/L*		*30.00*		*99*	*80-129*		
Blank (B920419-BLK2)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920419 - No Prep - VOA - SW 8260B									
Blank (B920419-BLK2)				Prepared & Analyzed: 09/06/19					
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*29.6*	*ug/L*		*30.00*		*99*	*72.4-124*		
Surrogate: Toluene-d8	*29.2*	*ug/L*		*30.00*		*97*	*77.5-120*		
Surrogate: Bromofluorobenzene	*31.3*	*ug/L*		*30.00*		*104*	*80-129*		
Blank (B920419-BLK3)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*29.0*	*ug/L*		*30.00*		*97*	*72.4-124*		
Surrogate: Toluene-d8	*28.9*	*ug/L*		*30.00*		*96*	*77.5-120*		
Surrogate: Bromofluorobenzene	*31.6*	*ug/L*		*30.00*		*105*	*80-129*		
LCS (B920419-BS1)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.022	mg/L		0.02000		109	80-131		
1,2-Dichloroethane	0.021	mg/L		0.02000		103	80-120		
1,4-Dichlorobenzene	0.020	mg/L		0.02000		98	80-120		
2-Butanone	0.020	mg/L		0.02000		102	76.7-138		
Benzene	0.020	mg/L		0.02000		102	80-120		
Carbon tetrachloride	0.020	mg/L		0.02000		100	80-124		
Chlorobenzene	0.020	mg/L		0.02000		101	80-120		
Chloroform	0.021	mg/L		0.02000		103	80-133		
Tetrachloroethene	0.020	mg/L		0.02000		98	80-120		
Trichloroethene	0.021	mg/L		0.02000		103	80-120		
Vinyl chloride	0.022	mg/L		0.02000		110	80-126		
Surrogate: 1,2-Dichloroethane-d4	*27.8*	*ug/L*		*30.00*		*93*	*72.4-124*		
Surrogate: Toluene-d8	*27.5*	*ug/L*		*30.00*		*92*	*77.5-120*		
Surrogate: Bromofluorobenzene	*30.1*	*ug/L*		*30.00*		*100*	*80-129*		
Matrix Spike (B920419-MS1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.030	mg/L		0.02000	ND	152	68.8-169		
1,2-Dichloroethane	0.018	mg/L		0.02000	ND	90	75.6-123		
1,4-Dichlorobenzene	0.017	mg/L		0.02000	ND	86	77.5-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920419 - No Prep - VOA - SW 8260B									
Matrix Spike (B920419-MS1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
2-Butanone	0.023	mg/L		0.02000	ND	113	49.9-163		
Benzene	0.018	mg/L		0.02000	ND	92	79.9-124		
Carbon tetrachloride	0.018	mg/L		0.02000	ND	90	75.5-138		
Chlorobenzene	0.018	mg/L		0.02000	ND	91	75.5-120		
Chloroform	0.019	mg/L		0.02000	ND	94	69.4-138		
Tetrachloroethene	0.018	mg/L		0.02000	ND	90	71.6-128		
Trichloroethene	0.035	mg/L		0.02000	ND	173	13.8-200		
Vinyl chloride	0.022	mg/L		0.02000	ND	109	73.7-137		
Surrogate: 1,2-Dichloroethane-d4	*28.4*	*ug/L*		*30.00*		*95*	*72.4-124*		
Surrogate: Toluene-d8	*28.2*	*ug/L*		*30.00*		*94*	*77.5-120*		
Surrogate: Bromofluorobenzene	*29.9*	*ug/L*		*30.00*		*100*	*80-129*		
Matrix Spike Dup (B920419-MSD1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.029	mg/L		0.02000	ND	145	68.8-169	4	40
1,2-Dichloroethane	0.018	mg/L		0.02000	ND	90	75.6-123	0.9	40
1,4-Dichlorobenzene	0.017	mg/L		0.02000	ND	86	77.5-120	0.07	40
2-Butanone	0.022	mg/L		0.02000	ND	111	49.9-163	2	40
Benzene	0.018	mg/L		0.02000	ND	89	79.9-124	3	40
Carbon tetrachloride	0.017	mg/L		0.02000	ND	87	75.5-138	3	40
Chlorobenzene	0.018	mg/L		0.02000	ND	88	75.5-120	3	40
Chloroform	0.018	mg/L		0.02000	ND	91	69.4-138	3	40
Tetrachloroethene	0.018	mg/L		0.02000	ND	89	71.6-128	2	40
Trichloroethene	0.033	mg/L		0.02000	ND	164	13.8-200	5	40
Vinyl chloride	0.021	mg/L		0.02000	ND	104	73.7-137	5	40
Surrogate: 1,2-Dichloroethane-d4	*28.3*	*ug/L*		*30.00*		*94*	*72.4-124*		
Surrogate: Toluene-d8	*28.0*	*ug/L*		*30.00*		*93*	*77.5-120*		
Surrogate: Bromofluorobenzene	*30.1*	*ug/L*		*30.00*		*100*	*80-129*		
Batch B920461 - No Prep - VOA - SW 8260B									
Blank (B920461-BLK1)				Prepared & Analyzed: 09/06/19					
1,1,2,2-Tetrachloroethane	< 5.0	ug/kg wet							
1,1,2-Trichloroethane	< 5.0	ug/kg wet							
1,1-Dichloroethane	< 5.0	ug/kg wet							
1,1-Dichloroethene	< 5.0	ug/kg wet							
1,2,4-Trichlorobenzene	< 5.0	ug/kg wet							
1,3-Dichloropropene - Total	< 15	ug/kg wet							
1,2-Dichlorobenzene	< 5.0	ug/kg wet							
1,2-Dichloroethane	< 5.0	ug/kg wet							
1,2-Dichloropropane	< 5.0	ug/kg wet							
1,3-Dichlorobenzene	< 5.0	ug/kg wet							
1,4-Dichlorobenzene	< 5.0	ug/kg wet							
2-Chloroethylvinyl ether	< 5.0	ug/kg wet							
Acetonitrile	< 100	ug/kg wet							
Acrolein	< 10	ug/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
Blank (B920461-BLK1)				Prepared & Analyzed: 09/06/19					
Benzene	< 5.0	ug/kg wet							
Bromodichloromethane	< 5.0	ug/kg wet							
Bromoform	< 5.0	ug/kg wet							
Bromomethane	< 10	ug/kg wet							
Carbon tetrachloride	< 5.0	ug/kg wet							
Chlorobenzene	< 5.0	ug/kg wet							
Chloroethane	< 10	ug/kg wet							
cis-1,3-Dichloropropene	< 5.0	ug/kg wet							
Chloroform	< 5.0	ug/kg wet							
Chloromethane	< 10	ug/kg wet							
Dibromochloromethane	< 5.0	ug/kg wet							
trans-1,2-Dichloroethene	< 5.0	ug/kg wet							
Ethylbenzene	< 2.0	ug/kg wet							
Methylene chloride	< 5.0	ug/kg wet							
Tetrachloroethene	< 5.0	ug/kg wet							
Toluene	< 5.0	ug/kg wet							
Trichloroethene	< 5.0	ug/kg wet							
Vinyl chloride	< 10	ug/kg wet							
LCS (B920461-BS1)				Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	17	ug/kg wet		20.00		87	76.9-122		
1,1,2,2-Tetrachloroethane	21	ug/kg wet		20.00		103	66.9-126		
1,1,2-Trichloroethane	19	ug/kg wet		20.00		97	80-120		
1,1-Dichloroethane	18	ug/kg wet		20.00		91	80-120		
1,1-Dichloroethene	19	ug/kg wet		20.00		95	76-132		
1,2-Dichlorobenzene	20	ug/kg wet		20.00		98	80-120		
1,2-Dichloroethane	20	ug/kg wet		20.00		102	80-120		
1,2-Dichloropropane	20	ug/kg wet		20.00		99	80-120		
1,3-Dichlorobenzene	19	ug/kg wet		20.00		93	79.4-120		
1,4-Dichlorobenzene	19	ug/kg wet		20.00		94	80-122		
2-Butanone	20	ug/kg wet		20.00		102	80-141		
4-Methyl-2-pentanone (MIBK)	21	ug/kg wet		20.00		106	80-120		
Benzene	19	ug/kg wet		20.00		94	80-120		
Bromodichloromethane	18	ug/kg wet		20.00		90	76.6-120		
Bromoform	16	ug/kg wet		20.00		78	62.9-120		
Bromomethane	18	ug/kg wet		20.00		89	27.3-120		
Carbon tetrachloride	18	ug/kg wet		20.00		88	76.9-126		
Chlorobenzene	19	ug/kg wet		20.00		95	80-120		
Chloroethane	22	ug/kg wet		20.00		109	61.8-133		
cis-1,3-Dichloropropene	17	ug/kg wet		20.00		86	74.7-120		
Chloroform	18	ug/kg wet		20.00		91	80-120		
Chloromethane	19	ug/kg wet		20.00		96	40.4-135		
Dibromochloromethane	18	ug/kg wet		20.00		90	80-120		
trans-1,2-Dichloroethene	19	ug/kg wet		20.00		93	75.5-121		
trans-1,3-Dichloropropene	16	ug/kg wet		20.00		80	65.7-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
LCS (B920461-BS1)				Prepared & Analyzed: 09/06/19					
Ethylbenzene	18	ug/kg wet		20.00		90	80-120		
Tetrachloroethene	18	ug/kg wet		20.00		90	80-121		
Toluene	19	ug/kg wet		20.00		93	79.9-120		
Trichloroethene	19	ug/kg wet		20.00		94	77.1-129		
Trichlorofluoromethane	18	ug/kg wet		20.00		91	70-133		
Vinyl chloride	20	ug/kg wet		20.00		99	57.7-138		
Surrogate: 1,2-Dichloroethane-d4	*39*	*ug/L*		*30.00*		*130*	*62.8-138*		
Surrogate: Toluene-d8	*39*	*ug/L*		*30.00*		*130*	*51.8-147*		
Surrogate: Bromofluorobenzene	*41*	*ug/L*		*30.00*		*138*	*54.4-175*		
Matrix Spike (B920461-MS1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	156	ug/kg dry	R	234.4	ND	67	44-125		
1,1,2,2-Tetrachloroethane	213	ug/kg dry	R	234.4	ND	91	34.9-187		
1,1,2-Trichloroethane	196	ug/kg dry	R	234.4	ND	84	10-151		
1,1-Dichloroethane	198	ug/kg dry	R	234.4	ND	84	60.8-130		
1,1-Dichloroethene	172	ug/kg dry	R	234.4	ND	73	35-165		
1,2-Dichlorobenzene	199	ug/kg dry	R	234.4	ND	85	10-148		
1,2-Dichloroethane	216	ug/kg dry	R	234.4	ND	92	60.9-125		
1,2-Dichloropropane	209	ug/kg dry	R	234.4	ND	89	54.5-130		
1,3-Dichlorobenzene	199	ug/kg dry	R	234.4	ND	85	19.6-135		
1,4-Dichlorobenzene	201	ug/kg dry	R	234.4	ND	86	13.5-144		
2-Butanone	135	ug/kg dry	R	234.4	ND	57	35.1-192		
4-Methyl-2-pentanone (MIBK)	179	ug/kg dry	R	234.4	ND	76	44.5-149		
Benzene	194	ug/kg dry	R	234.4	ND	83	53.1-127		
Bromodichloromethane	143	ug/kg dry	R	234.4	ND	61	10-134		
Bromoform	97	ug/kg dry		234.4	ND	41	10-120		
Bromomethane	118	ug/kg dry	R	234.4	ND	50	10-129		
Carbon tetrachloride	120	ug/kg dry	R	234.4	ND	51	10-138		
Chlorobenzene	199	ug/kg dry	R	234.4	ND	85	35.4-130		
Chloroethane	196	ug/kg dry	R	234.4	ND	84	26.3-165		
cis-1,3-Dichloropropene	132	ug/kg dry	R	234.4	ND	56	10-132		
Chloroform	192	ug/kg dry	R	234.4	ND	82	57.3-128		
Chloromethane	112	ug/kg dry	R	234.4	ND	48	22.4-137		
Dibromochloromethane	132	ug/kg dry	R	234.4	ND	56	10-138		
trans-1,2-Dichloroethene	176	ug/kg dry	R	234.4	ND	75	30.1-141		
trans-1,3-Dichloropropene	125	ug/kg dry	R	234.4	ND	54	10-120		
Ethylbenzene	185	ug/kg dry	R	234.4	ND	79	34.6-127		
Tetrachloroethene	173	ug/kg dry	R	234.4	ND	74	18.7-143		
Toluene	181	ug/kg dry	R	234.4	ND	77	17.7-147		
Trichloroethene	191	ug/kg dry	R	234.4	ND	82	35.1-153		
Trichlorofluoromethane	147	ug/kg dry	R	234.4	ND	63	38.9-142		
Vinyl chloride	141	ug/kg dry	R	234.4	ND	60	29.5-150		
Surrogate: 1,2-Dichloroethane-d4	*36*	*ug/L*		*30.00*		*119*	*62.8-138*		
Surrogate: Toluene-d8	*36*	*ug/L*		*30.00*		*122*	*51.8-147*		
Surrogate: Bromofluorobenzene	*43*	*ug/L*		*30.00*		*145*	*54.4-175*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
Matrix Spike Dup (B920461-MSD1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	1070	ug/kg dry	R	1247	ND	86	44-125	149	40
1,1,2,2-Tetrachloroethane	1200	ug/kg dry	R	1247	ND	96	34.9-187	140	40
1,1,2-Trichloroethane	1130	ug/kg dry	R	1247	ND	91	10-151	141	40
1,1-Dichloroethane	1160	ug/kg dry	R	1247	ND	93	60.8-130	142	40
1,1-Dichloroethene	1190	ug/kg dry	R	1247	ND	95	35-165	149	40
1,2-Dichlorobenzene	1140	ug/kg dry	R	1247	ND	91	10-148	140	40
1,2-Dichloroethane	1200	ug/kg dry	R	1247	ND	96	60.9-125	139	40
1,2-Dichloropropane	1200	ug/kg dry	R	1247	ND	96	54.5-130	141	40
1,3-Dichlorobenzene	1150	ug/kg dry	R	1247	ND	92	19.6-135	141	40
1,4-Dichlorobenzene	1150	ug/kg dry	R	1247	ND	92	13.5-144	140	40
2-Butanone	766	ug/kg dry	R	1247	ND	61	35.1-192	140	40
4-Methyl-2-pentanone (MIBK)	993	ug/kg dry	R	1247	ND	80	44.5-149	139	40
Benzene	1140	ug/kg dry	R	1247	ND	92	53.1-127	142	40
Bromodichloromethane	873	ug/kg dry	R	1247	ND	70	10-134	144	40
Bromoform	630	ug/kg dry		1247	ND	51	10-120		40
Bromomethane	610	ug/kg dry	R	1247	ND	49	10-129	135	40
Carbon tetrachloride	826	ug/kg dry	R	1247	ND	66	10-138	149	40
Chlorobenzene	1160	ug/kg dry	R	1247	ND	93	35.4-130	141	40
Chloroethane	1220	ug/kg dry	R	1247	ND	98	26.3-165	145	40
cis-1,3-Dichloropropene	769	ug/kg dry	R	1247	ND	62	10-132	142	40
Chloroform	1160	ug/kg dry	R	1247	ND	93	57.3-128	143	40
Chloromethane	547	ug/kg dry	R	1247	ND	44	22.4-137	132	40
Dibromochloromethane	811	ug/kg dry	R	1247	ND	65	10-138	144	40
trans-1,2-Dichloroethene	1030	ug/kg dry	R	1247	ND	82	30.1-141	142	40
trans-1,3-Dichloropropene	728	ug/kg dry	R	1247	ND	58	10-120	141	40
Ethylbenzene	1130	ug/kg dry	R	1247	ND	90	34.6-127	144	40
Tetrachloroethene	1130	ug/kg dry	R	1247	ND	91	18.7-143	147	40
Toluene	1070	ug/kg dry	R	1247	ND	86	17.7-147	142	40
Trichloroethene	1180	ug/kg dry	R	1247	ND	95	35.1-153	144	40
Trichlorofluoromethane	1120	ug/kg dry	R	1247	ND	90	38.9-142	153	40
Vinyl chloride	778	ug/kg dry	R	1247	ND	62	29.5-150	139	40
Surrogate: 1,2-Dichloroethane-d4	*35*	*ug/L*		*30.00*		*118*	*62.8-138*		
Surrogate: Toluene-d8	*36*	*ug/L*		*30.00*		*121*	*51.8-147*		
Surrogate: Bromofluorobenzene	*43*	*ug/L*		*30.00*		*143*	*54.4-175*		

NOTES

Specific method revisions used for analysis are available upon request.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Qualifiers

Q1	Matrix Spike failed % recovry acceptance limits. The associated blank spike recovery was acceptable.
Q2	Matrix Spike Duplicate failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q3	Matrix Spike/Matrix Spike Duplicate both failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference criterion.
Sc	Sample received in an inappropriate container.
V	Verification standard recovery failed to meet the required acceptance criteria on repeat instrumental analyses.

Karra McCarty

Certified by: Karra McCarty For Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: CITY OF CUBA W.W.T.P.	PROJECT NUMBER:	P.O. NUMBER:	MEANS SHIPPED: USPS	(4) (FOR LAB USE ONLY) LOGIN # 9085915
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 573-885-2263	FAX NUMBER: 573-885-3216	DATE SHIPPED: 8-27-19	LOGGED BY: SMW
CITY STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER; DW- DRINKING WATER; GW- GROUND WATER; WWSL- SLUDGE; NAS- SOLID; LCHT-LEACHATE; OTHER:	LAB PROJ. #: TEMPLATE:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: [signature]			PROJ. MGR.: CHAD COOPER

(3) ANALYSIS REQUESTED

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Metals TCLP	8081 TCLP	8151 TCLP	8260 TCLP	8270 TCLP	REMARKS
SLUDGE TCLP	8-27-19	9:10		X	NAS	2	X	X	X	X	X	1 - A, G, 1L, Unp 1 - C, G, 4oz jar

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED: 9-15-19

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature* ______

(7) RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
[signature: Steve Black]	8-27-19 / 13:00	[signature: Stacey Wolf]	8-28-19 / 1150
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 19.2 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9085915 DCW

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 9085915-01
Name: Annual Sludge

Sampled: 08/27/19 09:00
Matrix: Sludge
Preservative: Cool <6

Analysis	Due	Expires	Comments
Ag 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Ag 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
As 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Ba 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Be 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Cd 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
CN-T	09/09/19 16:00	09/10/19 09:00	
Cr 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Hg 6020 TCLP	09/09/19 16:00	09/24/19 09:00	
M8081	09/09/19 16:00	09/10/19 09:00	
M8081TCLP	09/09/19 16:00	09/03/19 09:00	
M8082	09/09/19 16:00	09/10/19 09:00	
M8151TCLP	09/09/19 16:00	09/03/19 09:00	
M8260	09/09/19 16:00	09/10/19 09:00	
M8260 Extended	09/09/19 16:00	09/10/19 09:00	
M8260 TCLP	09/09/19 16:00	09/10/19 09:00	
M8270	09/09/19 16:00	09/10/19 09:00	
M8270 Extended	09/09/19 16:00	09/10/19 09:00	
M8270 TCLP	09/09/19 16:00	09/03/19 09:00	
Pb 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Phenol	09/09/19 16:00	09/24/19 09:00	
Sb 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Se 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Solids-TS	09/09/19 16:00	09/03/19 09:00	
SW 1311 - TCLP Organics	09/09/19 16:00	09/10/19 09:00	
SW TCLP 1311	09/09/19 16:00	09/24/19 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9085915

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 9085915-01
Name: Annual Sludge

Sampled: 08/27/19 09:00
Matrix: Sludge
Preservative: Cool <6

Analysis	Due	Expires	Comments
TCLP_ZHE	09/09/19 16:00	09/10/19 09:00	
Tl 6010 Tot	09/09/19 16:00	02/23/20 09:00	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped: 8-28-19 Total # of Containers: 2 Sample Origin (State): MO PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
Stacey Wolf	8-28-19 1400		
		[illegible]	8/29/19 1000

Sample Temperature Upon Receipt 5 °C
Sample(s) Received on Ice (Y) or N
Proper Bottles Received in Good Condition (Y) or N
Bottles Filled with Adequate Volume (Y) or N
Samples Received Within Hold Time (Y) or N
Date/Time Taken From Sample Bottle Y or (N)

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Cyanide	< 34	mg/kg dry	Q3	01/03/17 09:48	01/03/17 14:14	LAM	SW 9010 - 9012
Phenolics	19	mg/kg dry		01/05/17 09:06	01/06/17 09:55	LAM	SW 9066 - EPA 420.4 - QC 10-210-00-1-A
Solids - total solids (TS)	3.7	%		12/30/16 12:45	12/30/16 13:18	KNS/A	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Silvex	< 0.05	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Pesticides - PIA							
4,4'-DDD	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDE	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDT	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Aldrin	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Alpha-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Beta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Chlordane (technical)	< 43000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Delta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Dieldrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan I	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan II	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan sulfate	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin aldehyde	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
gamma-BHC (Lindane)	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor epoxide	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Methoxychlor	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Toxaphene	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Pesticides - TCLP - PIA							
Chlordane (technical) [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Endrin [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
gamma-BHC (Lindane) [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor epoxide [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Methoxychlor [2C]	< 0.002	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Toxaphene [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA							
Aroclor 1016	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1221	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Aroclor 1232	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1242	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1248	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1254	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1260	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclors - Total	< 22000	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Semivolatile Organics - PIA							
1,2,4,5-Tetrachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2,4-Trichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Diphenylhydrazine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,3-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,4-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,3,4,6-Tetrachlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,5-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,6-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dimethylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chloronaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylnaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitrophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3,3'-Dichlorobenzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C*
3-Methylcholanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4,6-Dinitro-2-methylphenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Bromophenyl phenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloro-3-methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloroaniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chlorophenylphenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Aniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Benzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(b)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(g,h,i)perylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(k)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzyl alcohol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethoxy) methane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroisopropyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-ethylhexyl) phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Butyl benzyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Chrysene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Cresols- Total	< 18000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzo(a,h)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzofuran	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dimethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-butyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-octyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluorene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobutadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorocyclopentadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachloroethane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Indeno(1,2,3-cd)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Isophorone	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Naphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Nitrobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodimethylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodi-n-propylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodiphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pentachlorophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyridine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
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(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrotoluene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachloroethane	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pyridine	< 0.10	mg/L	R	01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Barium	< 2.0	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Cadmium	0.0049	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Chromium	< 0.0080	mg/L		01/04/17 05:30	01/04/17 10:24	KMC	SW 6020
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Lead	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Mercury	< 0.0020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Selenium	< 0.010	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Silver	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Total Metals - PIA							
Antimony	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Beryllium	< 12	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Silver	< 25	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Thallium	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Volatile Organics - PIA							
1,1,1,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,1-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dibromoethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethene- Total	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
1,2-Dichloropropane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3,5-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,3-Dichloropropene - Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,4-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Butanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Hexanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
4-Methyl-2-pentanone (MIBK)	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetonitrile	< 140000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrolein	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrylonitrile	< 68000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Benzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromodichloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromoform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromomethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon disulfide	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon tetrachloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
DBCP	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dibromochloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorodifluoromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
Ethylbenzene	< 2700	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
m,p-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Methylene chloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
MTBE	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
n-Butanol	< 1400000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
o-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Styrene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Tetrachloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Toluene	27000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl acetate	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl chloride	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Xylenes- Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
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ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
2-Butanone	0.012	mg/L	B	01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Benzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chloroform	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

B	Present in the method blank at 9.
C	The blank spike failed to meet the required acceptance criteria.
Pc	Chemical preservation discrepancy noted at the time of analysis
Pt	Thermal preservation discrepancy noted
Q3	Matrix Spike/Matrix Spike Duplicate both failed % Recovery
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA			USPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 417-532-3030	FAX NUMBER: 417-532-8388	DATE SHIPPED: 12-28-16
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: Metals, Herbicide	Pesticide, PCB,	Phenol, Volatiles	Semi Volatiles	Full TCLP			REMARKS
PRIORITY POLLUTANTS/TCLP SLUDGE	12-28-16	9:10	X		WWSL	3	X	X	X	X	X			

4 (FOR LAB USE ONLY)
LOGIN # 6123583
LOGGED BY: J MO
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 1-15-17

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Steve Black	12-28-16	13:10	Jason Sin	12-29-16	1137
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 9.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

X:\COC Templates\Cuba_Sludge Annual.doc

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 6123583 Completed By: JMD

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total	(1)							
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH								
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)								
Glass								
Unpreserved								
½ Gallon Amber, Unpreserved	(1)							
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	(1)							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

SENDING LABORATORY

PDC Laboratories, Inc.
3278 N Highway 67
Florissant, MO 63033
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 6123583-01
Name: Annual Sludge

Sampled: 12/28/16 09:00
Matrix: Sludge

Analysis	Due	Expires	Comments
Ag 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Ag 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
As 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Ba 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Be 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Cd 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
CN-T	01/11/17 16:00	01/11/17 09:00	
Cr 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Hg 6020 TCLP	01/11/17 16:00	01/25/17 09:00	
M8081	01/11/17 16:00	01/11/17 09:00	
M8081TCLP	01/11/17 16:00	01/04/17 09:00	
M8082	01/11/17 16:00	01/11/17 09:00	
M8151TCLP	01/11/17 16:00	01/04/17 09:00	
M8260	01/11/17 16:00	01/11/17 09:00	
M8260 TCLP	01/11/17 16:00	01/11/17 09:00	
M8270	01/11/17 16:00	01/11/17 09:00	
M8270 TCLP	01/11/17 16:00	01/04/17 09:00	
Pb 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Phenol	01/11/17 16:00	01/25/17 09:00	
Sb 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Se 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Solids-TS	01/11/17 16:00	01/04/17 09:00	
SW 1311 - TCLP Organics	01/11/17 16:00	01/11/17 09:00	
SW TCLP 1311	01/11/17 16:00	01/25/17 09:00	
TCLP_ZHE	01/11/17 16:00	01/11/17 09:00	
Tl 6010 Tot	01/11/17 16:00	06/26/17 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

Please email results to Barb Pandolfo at bpandolfo@pdclab.com

Date Shipped: 12-29-16 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested: ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	1400 12-29-16		
		[illegible]	12/30/16 1015

Sample Temperature Upon Receipt	8 °C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or (N)

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Cyanide	< 34	mg/kg dry	Q3	01/03/17 09:48	01/03/17 14:14	LAM	SW 9010 - 9012
Phenolics	19	mg/kg dry		01/05/17 09:06	01/06/17 09:55	LAM	SW 9066 - EPA 420.4 - QC 10-210-00-1-A
Solids - total solids (TS)	3.7	%		12/30/16 12:45	12/30/16 13:18	KNS/A	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Silvex	< 0.05	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Pesticides - PIA							
4,4'-DDD	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDE	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDT	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Aldrin	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Alpha-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Beta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Chlordane (technical)	< 43000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Delta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Dieldrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan I	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan II	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan sulfate	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin aldehyde	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
gamma-BHC (Lindane)	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor epoxide	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Methoxychlor	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Toxaphene	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Pesticides - TCLP - PIA							
Chlordane (technical) [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Endrin [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
gamma-BHC (Lindane) [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor epoxide [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Methoxychlor [2C]	< 0.002	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Toxaphene [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA							
Aroclor 1016	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1221	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Aroclor 1232	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1242	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1248	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1254	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1260	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclors - Total	< 22000	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Semivolatile Organics - PIA							
1,2,4,5-Tetrachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2,4-Trichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Diphenylhydrazine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,3-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,4-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,3,4,6-Tetrachlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,5-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,6-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dimethylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chloronaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylnaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitrophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3,3'-Dichlorobenzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C*
3-Methylcholanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4,6-Dinitro-2-methylphenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Bromophenyl phenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloro-3-methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloroaniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chlorophenylphenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Aniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Benzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(b)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(g,h,i)perylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(k)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzyl alcohol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethoxy) methane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroisopropyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-ethylhexyl) phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Butyl benzyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Chrysene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Cresols- Total	< 18000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzo(a,h)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzofuran	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dimethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-butyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-octyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluorene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobutadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorocyclopentadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachloroethane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Indeno(1,2,3-cd)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Isophorone	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Naphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Nitrobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodimethylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodi-n-propylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodiphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pentachlorophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyridine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrotoluene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachloroethane	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pyridine	< 0.10	mg/L	R	01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Barium	< 2.0	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Cadmium	0.0049	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Chromium	< 0.0080	mg/L		01/04/17 05:30	01/04/17 10:24	KMC	SW 6020
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Lead	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Mercury	< 0.0020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Selenium	< 0.010	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Silver	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Total Metals - PIA							
Antimony	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Beryllium	< 12	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Silver	< 25	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Thallium	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Volatile Organics - PIA							
1,1,1,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,1-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dibromoethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethene- Total	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
1,2-Dichloropropane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3,5-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,3-Dichloropropene - Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,4-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Butanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Hexanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
4-Methyl-2-pentanone (MIBK)	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetonitrile	< 140000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrolein	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrylonitrile	< 68000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Benzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromodichloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromoform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromomethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon disulfide	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon tetrachloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
DBCP	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dibromochloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorodifluoromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
Ethylbenzene	< 2700	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
m,p-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Methylene chloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
MTBE	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
n-Butanol	< 1400000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
o-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Styrene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Tetrachloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Toluene	27000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl acetate	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl chloride	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Xylenes- Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
2-Butanone	0.012	mg/L	B	01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Benzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chloroform	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

B	Present in the method blank at 9.
C	The blank spike failed to meet the required acceptance criteria.
Pc	Chemical preservation discrepancy noted at the time of analysis
Pt	Thermal preservation discrepancy noted
Q3	Matrix Spike/Matrix Spike Duplicate both failed % Recovery
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA			USPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 417-532-3030	FAX NUMBER: 417-532-8388	DATE SHIPPED: 12-28-16
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 6123523
LOGGED BY: TMD
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Metals, Herbicide,	Pesticide, PCB,	Phenol, Volatiles	Semi Volatiles.	Full TCLP			REMARKS
PRIORITY POLLUTANTS/TCLP SLUDGE	12-28-16	9:10	X		WWSL	3	X	X	X	X	X			

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 1-15-17

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Steve Black	12-28-16	13:10	Jason Sin	12-29-16	1137
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 9.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

X:\COC Templates\Cuba_Sludge Annual.doc

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 6123583 Completed By: JMD

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total	0							
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH								
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)								
Glass								
Unpreserved								
½ Gallon Amber, Unpreserved	0							
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	0							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

SENDING LABORATORY

PDC Laboratories, Inc.
3278 N Highway 67
Florissant, MO 63033
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 6123583-01
Name: Annual Sludge

Sampled: 12/28/16 09:00
Matrix: Sludge

Analysis	Due	Expires	Comments
Ag 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Ag 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
As 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Ba 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Be 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Cd 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
CN-T	01/11/17 16:00	01/11/17 09:00	
Cr 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Hg 6020 TCLP	01/11/17 16:00	01/25/17 09:00	
M8081	01/11/17 16:00	01/11/17 09:00	
M8081TCLP	01/11/17 16:00	01/04/17 09:00	
M8082	01/11/17 16:00	01/11/17 09:00	
M8151TCLP	01/11/17 16:00	01/04/17 09:00	
M8260	01/11/17 16:00	01/11/17 09:00	
M8260 TCLP	01/11/17 16:00	01/11/17 09:00	
M8270	01/11/17 16:00	01/11/17 09:00	
M8270 TCLP	01/11/17 16:00	01/04/17 09:00	
Pb 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Phenol	01/11/17 16:00	01/25/17 09:00	
Sb 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Se 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Solids-TS	01/11/17 16:00	01/04/17 09:00	
SW 1311 - TCLP Organics	01/11/17 16:00	01/11/17 09:00	
SW TCLP 1311	01/11/17 16:00	01/25/17 09:00	
TCLP_ZHE	01/11/17 16:00	01/11/17 09:00	
Tl 6010 Tot	01/11/17 16:00	06/26/17 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

Please email results to Barb Pandolfo at bpandolfo@pdclab.com

Date Shipped: 12-29-16 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested: ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
Jason G	1400 12-29-16		
Relinquished By	Date/Time	Received By	Date/Time
		[signature]	12/30/16 1015

Sample Temperature Upon Receipt	8 °C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or (N)

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 5071036-01
Name: Sludge TCLP
Matrix: Sludge - Composite

Sampled: 07/07/15 11:00
Received: 07/08/15 09:42

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Solids - total solids (TS)	7.3	%	H	07/15/15 17:10	07/15/15 17:10	KBB	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		07/17/15 08:20	07/22/15 00:03	ELS	SW 8151
Silvex	< 0.05	mg/L		07/17/15 08:20	07/22/15 00:03	ELS	SW 8151
Pesticides - TCLP - PIA							
Chlordane (technical)	< 0.010	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Endrin	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
gamma-BHC (Lindane)	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Heptachlor	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Heptachlor epoxide	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Methoxychlor	< 0.002	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Toxaphene	< 0.010	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2,4-Dinitrotoluene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2-Methylphenol	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachloroethane	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Nitrobenzene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Pentachlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Pyridine	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Barium	< 2.0	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Cadmium	< 0.0040	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Chromium	0.028	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Final pH	5.30			07/13/15 12:15	07/14/15 07:19	JEM	SW 1311*
Final pH	5.30			07/13/15 12:15	07/14/15 07:19	JEM	SW 1311*
Lead	0.023	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Mercury	< 0.0020	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Selenium	< 0.010	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Silver	< 0.020	mg/L		07/14/15 05:35	07/14/15 09:08	KMC	SW 6020
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 5071036-01
Name: Sludge TCLP
Matrix: Sludge - Composite

Sampled: 07/07/15 11:00
Received: 07/08/15 09:42

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,2-Dichloroethane	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
2-Butanone	< 0.010	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Benzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Chloroform	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
- TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
- Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
- Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
- Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
- Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
- USEPA DMR-QA Program

STL - St. Louis, MO
- TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
- Drinking Water Certifications: Missouri (1050)
- Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA W.W.T.P.			COURIER
ADDRESS	**PHONE NUMBER**	**FAX NUMBER**	**DATE SHIPPED**
202 NORTH SMITH	573-885-2263	573-885-3216	
CITY, STATE ZIP	**SAMPLER (PLEASE PRINT)**	**MATRIX TYPES:**	
CUBA, MO 65453	STEVE BLACK	WW- WASTEWATER DW- DRINKING WATER GW- GROUND WATER WWSL- SLUDGE NAS- SOLID LCHT-LEACHATE	
CONTACT PERSON	**SAMPLER'S SIGNATURE**	**OTHER:**	
STEVE BLACK	Steve Black		

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: Metals, Nutrients	SOUR, PAN	Fecal, TS	Priority Pollutants			REMARKS
SLUDGE COMPOSITE	7-7-15	11:00		X	SLUDGE	2	X	X		X			Priority-5071036
SLUDGE GRAB 1	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 2	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 3	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 4	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 5	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 6	7-7-15	11:00	X		SLUDGE	1			X				
SLUDGE GRAB 7	7-7-15	11:00	X		SLUDGE	1			X				

4 (FOR LAB USE ONLY)
LOGIN # 5071027
LOGGED BY: KBB
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED 8-15-15

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7		DATE			DATE
RELINQUISHED BY: (SIGNATURE)	Steve Black	7-7-15	RECEIVED BY: (SIGNATURE)	Kaitlin Brucke	7-8-15
		TIME 1300			TIME 0942
~~RELINQUISHED BY: (SIGNATURE)~~		~~DATE~~	~~RECEIVED BY: (SIGNATURE)~~		~~DATE~~
		~~TIME~~			~~TIME~~
RELINQUISHED BY: (SIGNATURE)		DATE	RECEIVED BY: (SIGNATURE)		DATE
		TIME			TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11.3 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	(Y) OR N
SAMPLE(S) RECEIVED ON ICE	(Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	(Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	(Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	(Y) OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 507127/507126 Completed By: KBB

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total								
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH	(2)							
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)		(1)	(1)	(1)	(1)	(1)	(1)	(1)
Glass								
Unpreserved 1 L	(1)							
½ Gallon Amber, Unpreserved								
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	(1)							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER

PDC Laboratories, Inc.

5071036

SENDING LABORATORY:

___ PDC Laboratories, Inc, 2231 W Altorfer Peoria, IL 61615

_X_ PDC Laboratories, Inc, 1805 W Sunset, Springfield, MO 65807

___ PDC Laboratories, Inc, 3278 N Highway 67, Florissant, MO 63033

Project Manager: Chad Cooper ccooper@pdclab.com Phone: 417-864-8924 7-8-15 FRB

Date Shipped 7-8-15

Sample Origin (State) MO

PO# _____

Total # of Containers 2

RECEIVING LABORATORY:

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
Phone :(309) 692-9688

Analysis	Due	Expires	Comments
Sample ID: 5071036-01	**Solid**	**Sampled:07/07/15 11:00**	
TCLP_ZHE	07/20/15 16:00	07/21/15 11:00	
SW TCLP 1311	07/20/15 16:00	08/04/15 11:00	
Se 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Pb 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
SW 1311 - TCLP Organics	07/20/15 16:00	07/21/15 11:00	
M8270 TCLP	07/20/15 16:00	07/14/15 11:00	
M8260 TCLP	07/20/15 16:00	07/21/15 11:00	
M8151TCLP	07/20/15 16:00	07/14/15 11:00	
M8081TCLP	07/20/15 16:00	07/14/15 11:00	
Hg 6020 TCLP	07/20/15 16:00	08/04/15 11:00	
Cr 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Cd 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Ba 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
As 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Ag 6020 TCLP	07/20/15 16:00	01/03/16 11:00	

Turn-Around Time Requested (circle one): (NORMAL) RUSH Date Results Needed: _____

Kristin Brueske	7-8-15 1018			Sample Temperature Upon Receipt	15 C
Relinquished By	Date/Time	Received By	Date/Time	Sample(s) Received on Ice	(Y) or N
				Proper Bottles Received in Good Condition	(Y) or N
				Bottles Filled with Adequate Volume	(Y) or N
Relinquished By	Date/Time	Received By	7/10/15 1000 Date/Time	Samples Received Within Hold Time	(Y) or N
				Date/Time Taken From Sample Bottle	Y or (N)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Cuba WWTF	PERMIT NO. MO- 0094919	OUTFALL NO. 1

PART E – TOXICITY TESTING DATA

19. 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 _____ 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			
Final Report Number			
Outfall Number			
Dates Sample Collected			
Date Test Started			
Duration			
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			
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	☐	☐	☐
After Disinfection	☐	☐	☐
After Dechlorination	☐	☐	☐
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:			
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	☐	☐	☐
Acute Toxicity	☐	☐	☐
G. Provide the type of test performed			
Static	☐	☐	☐
Static-renewal	☐	☐	☐
Flow-through	☐	☐	☐
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	☐	☐	☐
Receiving Water	☐	☐	☐

PDC Laboratories, Inc.
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ANALYTICAL RESULTS

Sample: 5071036-01
Name: Sludge TCLP
Matrix: Sludge - Composite

Sampled: 07/07/15 11:00
Received: 07/08/15 09:42

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Solids - total solids (TS)	7.3	%	H	07/15/15 17:10	07/15/15 17:10	KBB	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		07/17/15 08:20	07/22/15 00:03	ELS	SW 8151
Silvex	< 0.05	mg/L		07/17/15 08:20	07/22/15 00:03	ELS	SW 8151
Pesticides - TCLP - PIA							
Chlordane (technical)	< 0.010	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Endrin	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
gamma-BHC (Lindane)	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Heptachlor	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Heptachlor epoxide	< 0.0005	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Methoxychlor	< 0.002	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Toxaphene	< 0.010	mg/L		07/15/15 07:28	07/20/15 17:20	JMT	SW 8081
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2,4-Dinitrotoluene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
2-Methylphenol	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Hexachloroethane	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Nitrobenzene	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Pentachlorophenol	< 0.50	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
Pyridine	< 0.10	mg/L		07/15/15 07:33	07/16/15 16:52	PSB/K	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Barium	< 2.0	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Cadmium	< 0.0040	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Chromium	0.028	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Final pH	5.30			07/13/15 12:15	07/14/15 07:19	JEM	SW 1311*
Final pH	5.30			07/13/15 12:15	07/14/15 07:19	JEM	SW 1311*
Lead	0.023	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Mercury	< 0.0020	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Selenium	< 0.010	mg/L		07/14/15 05:35	07/14/15 10:16	KMC	SW 6020
Silver	< 0.020	mg/L		07/14/15 05:35	07/14/15 09:08	KMC	SW 6020
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 5071036-01
Name: Sludge TCLP
Matrix: Sludge - Composite

Sampled: 07/07/15 11:00
Received: 07/08/15 09:42

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,2-Dichloroethane	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
2-Butanone	< 0.010	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Benzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Chloroform	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		07/17/15 00:00	07/17/15 14:58	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
- TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
- Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
- Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
- Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
- Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
- USEPA DMR-QA Program

STL - St. Louis, MO
- TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
- Drinking Water Certifications: Missouri (1050)
- Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA W.W.T.P.			COURIER
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 573-885-2263	FAX NUMBER: 573-885-3216	DATE SHIPPED
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE Black	MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:	
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: Metals, Nutrients	SOUR, PAN	Fecal, TS	Priority Pollutants				4 (FOR LAB USE ONLY) REMARKS
SLUDGE COMPOSITE	7-7-15	11:00		X	SLUDGE	2	X	X		X				Priority-5071C3-6
SLUDGE GRAB 1	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 2	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 3	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 4	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 5	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 6	7-7-15	11:00	X		SLUDGE	1			X					
SLUDGE GRAB 7	7-7-15	11:00	X		SLUDGE	1			X					

4 (FOR LAB USE ONLY)
LOGIN # 5071027
LOGGED BY: KBB
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 8-15-15

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Steve Black	7-7-15	13:00	Kaitlin Burnside	7-8-15	0942
~~RELINQUISHED BY: (SIGNATURE)~~	~~DATE~~		~~RECEIVED BY: (SIGNATURE)~~	~~DATE~~	
	TIME			TIME	
RELINQUISHED BY: (SIGNATURE)	DATE		RECEIVED BY: (SIGNATURE)	DATE	
	TIME			TIME	

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11.3 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	(Y) OR N
SAMPLE(S) RECEIVED ON ICE	(Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	(Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	(Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	(Y) OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 5071027/5071036 Completed By: KBB

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total								
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH	(2)							
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)		(1)	(1)	(1)	(1)	(1)	(1)	(1)
Glass								
Unpreserved 1 L	(1)							
½ Gallon Amber, Unpreserved								
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	(1)							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER

PDC Laboratories, Inc.

5071036

SENDING LABORATORY:

___ PDC Laboratories, Inc, 2231 W Altorfer Peoria, IL 61615

_X_ PDC Laboratories, Inc, 1805 W Sunset, Springfield, MO 65807

___ PDC Laboratories, Inc, 3278 N Highway 67, Florissant, MO 63033

Project Manager: Chad Cooper ccooper@pdclab.com Phone: 417-864-8924 7-8-15 KRB

Date Shipped 7-8-15

Sample Origin (State) MO

PO# _____

Total # of Containers 2

RECEIVING LABORATORY:

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
Phone :(309) 692-9688

Analysis	Due	Expires	Comments
Sample ID: 5071036-01	**Solid**	**Sampled:07/07/15 11:00**	
TCLP_ZHE	07/20/15 16:00	07/21/15 11:00	
SW TCLP 1311	07/20/15 16:00	08/04/15 11:00	
Se 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Pb 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
SW 1311 - TCLP Organics	07/20/15 16:00	07/21/15 11:00	
M8270 TCLP	07/20/15 16:00	07/14/15 11:00	
M8260 TCLP	07/20/15 16:00	07/21/15 11:00	
M8151TCLP	07/20/15 16:00	07/14/15 11:00	
M8081TCLP	07/20/15 16:00	07/14/15 11:00	
Hg 6020 TCLP	07/20/15 16:00	08/04/15 11:00	
Cr 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Cd 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Ba 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
As 6020 TCLP	07/20/15 16:00	01/03/16 11:00	
Ag 6020 TCLP	07/20/15 16:00	01/03/16 11:00	

Turn-Around Time Requested (circle one): (NORMAL) RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
Kristin Burcede	7-8-15 1618		
Relinquished By	Date/Time	Received By	Date/Time
			7/10/15 1000

Sample Temperature Upon Receipt	15 C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	(Y) or N
Bottles Filled with Adequate Volume	(Y) or N
Samples Received Within Hold Time	(Y) or N
Date/Time Taken From Sample Bottle	Y or (N)

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Cyanide	< 34	mg/kg dry	Q3	01/03/17 09:48	01/03/17 14:14	LAM	SW 9010 - 9012
Phenolics	19	mg/kg dry		01/05/17 09:06	01/06/17 09:55	LAM	SW 9066 - EPA 420.4 - QC 10-210-00-1-A
Solids - total solids (TS)	3.7	%		12/30/16 12:45	12/30/16 13:18	KNS/A	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Silvex	< 0.05	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Pesticides - PIA							
4,4'-DDD	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDE	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDT	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Aldrin	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Alpha-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Beta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Chlordane (technical)	< 43000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Delta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Dieldrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan I	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan II	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan sulfate	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin aldehyde	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
gamma-BHC (Lindane)	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor epoxide	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Methoxychlor	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Toxaphene	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Pesticides - TCLP - PIA							
Chlordane (technical) [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Endrin [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
gamma-BHC (Lindane) [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor epoxide [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Methoxychlor [2C]	< 0.002	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Toxaphene [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA							
Aroclor 1016	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1221	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Aroclor 1232	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1242	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1248	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1254	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1260	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclors - Total	< 22000	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Semivolatile Organics - PIA							
1,2,4,5-Tetrachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2,4-Trichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Diphenylhydrazine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,3-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,4-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,3,4,6-Tetrachlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,5-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,6-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dimethylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chloronaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylnaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitrophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3,3'-Dichlorobenzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C*
3-Methylcholanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4,6-Dinitro-2-methylphenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Bromophenyl phenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloro-3-methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloroaniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chlorophenylphenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Aniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Benzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(b)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(g,h,i)perylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(k)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzyl alcohol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethoxy) methane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroisopropyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-ethylhexyl) phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Butyl benzyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Chrysene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Cresols- Total	< 18000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzo(a,h)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzofuran	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dimethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-butyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-octyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluorene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobutadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorocyclopentadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachloroethane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Indeno(1,2,3-cd)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Isophorone	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Naphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Nitrobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodimethylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodi-n-propylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodiphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pentachlorophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyridine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrotoluene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachloroethane	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pyridine	< 0.10	mg/L	R	01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Barium	< 2.0	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Cadmium	0.0049	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Chromium	< 0.0080	mg/L		01/04/17 05:30	01/04/17 10:24	KMC	SW 6020
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Lead	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Mercury	< 0.0020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Selenium	< 0.010	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Silver	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Total Metals - PIA							
Antimony	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Beryllium	< 12	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Silver	< 25	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Thallium	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Volatile Organics - PIA							
1,1,1,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,1-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dibromoethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethene- Total	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
1,2-Dichloropropane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3,5-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,3-Dichloropropene - Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,4-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Butanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Hexanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
4-Methyl-2-pentanone (MIBK)	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetonitrile	< 140000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrolein	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrylonitrile	< 68000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Benzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromodichloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromoform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromomethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon disulfide	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon tetrachloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
DBCP	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dibromochloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorodifluoromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
Ethylbenzene	< 2700	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
m,p-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Methylene chloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
MTBE	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
n-Butanol	< 1400000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
o-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Styrene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Tetrachloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Toluene	27000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl acetate	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl chloride	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Xylenes- Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
2-Butanone	0.012	mg/L	B	01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Benzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chloroform	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
- TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
- Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
- Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
- Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
- Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
- USEPA DMR-QA Program

STL - St. Louis, MO
- TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
- Drinking Water Certifications: Missouri (1050)
- Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

B	Present in the method blank at 9.
C	The blank spike failed to meet the required acceptance criteria.
Pc	Chemical preservation discrepancy noted at the time of analysis
Pt	Thermal preservation discrepancy noted
Q3	Matrix Spike/Matrix Spike Duplicate both failed % Recovery
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807
PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA			USPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 417-532-3030	FAX NUMBER: 417-532-8388	DATE SHIPPED: 12-28-16
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 6123583
LOGGED BY: TMD
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Metals, Herbicide,	Pesticide, PCB,	Phenol, Volatiles	Semi Volatiles.	Full TCLP			REMARKS
PRIORITY POLLUTANTS/TCLP SLUDGE	12-28-16	9:10	X		WWSL	3	X	X	X	X	X			

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 1-15-17

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Steve Black	12-28-16	13:10	Jason Sin	12-29-16	1137
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 9.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	(Y) OR N
SAMPLE(S) RECEIVED ON ICE	(Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	(Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	(Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	(Y) OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 6123583 Completed By: JMD

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total	(1)							
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH								
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)								
Glass								
Unpreserved								
½ Gallon Amber, Unpreserved	(1)							
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	(1)							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

SENDING LABORATORY

PDC Laboratories, Inc.
3278 N Highway 67
Florissant, MO 63033
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 6123583-01
Name: Annual Sludge

Sampled: 12/28/16 09:00
Matrix: Sludge

Analysis	Due	Expires	Comments
Ag 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Ag 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
As 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Ba 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Be 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Cd 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
CN-T	01/11/17 16:00	01/11/17 09:00	
Cr 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Hg 6020 TCLP	01/11/17 16:00	01/25/17 09:00	
M8081	01/11/17 16:00	01/11/17 09:00	
M8081TCLP	01/11/17 16:00	01/04/17 09:00	
M8082	01/11/17 16:00	01/11/17 09:00	
M8151TCLP	01/11/17 16:00	01/04/17 09:00	
M8260	01/11/17 16:00	01/11/17 09:00	
M8260 TCLP	01/11/17 16:00	01/11/17 09:00	
M8270	01/11/17 16:00	01/11/17 09:00	
M8270 TCLP	01/11/17 16:00	01/04/17 09:00	
Pb 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Phenol	01/11/17 16:00	01/25/17 09:00	
Sb 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Se 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Solids-TS	01/11/17 16:00	01/04/17 09:00	
SW 1311 - TCLP Organics	01/11/17 16:00	01/11/17 09:00	
SW TCLP 1311	01/11/17 16:00	01/25/17 09:00	
TCLP_ZHE	01/11/17 16:00	01/11/17 09:00	
Tl 6010 Tot	01/11/17 16:00	06/26/17 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

Please email results to Barb Pandolfo at bpandolfo@pdclab.com

Date Shipped: 12-29-16 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested: [X] NORMAL [ ] RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	1400 12-29-16		
		[illegible]	12/30/16 1015

Sample Temperature Upon Receipt	°C
Sample(s) Received on Ice	Y or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or N

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Cyanide	< 34	mg/kg dry	Q3	01/03/17 09:48	01/03/17 14:14	LAM	SW 9010 - 9012
Phenolics	19	mg/kg dry		01/05/17 09:06	01/06/17 09:55	LAM	SW 9066 - EPA 420.4 - QC 10-210-00-1-A
Solids - total solids (TS)	3.7	%		12/30/16 12:45	12/30/16 13:18	KNS/A	SM 2540G*
Herbicides - TCLP - PIA							
2,4-D	< 0.1	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Silvex	< 0.05	mg/L		01/04/17 15:08	01/09/17 22:03	JMT	SW 8151
Pesticides - PIA							
4,4'-DDD	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDE	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
4,4'-DDT	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Aldrin	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Alpha-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Beta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Chlordane (technical)	< 43000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Delta-BHC	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Dieldrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan I	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan II	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endosulfan sulfate	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Endrin aldehyde	< 4300	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
gamma-BHC (Lindane)	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Heptachlor epoxide	< 2200	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Methoxychlor	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Toxaphene	< 22000	ug/kg dry		01/03/17 08:15	01/06/17 19:43	JMT	SW 8081
Pesticides - TCLP - PIA							
Chlordane (technical) [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Endrin [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
gamma-BHC (Lindane) [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Heptachlor epoxide [2C]	< 0.0005	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Methoxychlor [2C]	< 0.002	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Toxaphene [2C]	< 0.010	mg/L		01/09/17 08:09	01/11/17 11:59	JMT	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA							
Aroclor 1016	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1221	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082

PDC Laboratories, Inc.
1805 West Sunset Street
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ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Aroclor 1232	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1242	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1248	< 2200	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1254	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclor 1260	< 4300	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Aroclors - Total	< 22000	ug/kg dry		01/03/17 08:22	01/05/17 01:46	JMT	SW 8082
Semivolatile Organics - PIA							
1,2,4,5-Tetrachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2,4-Trichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,2-Diphenylhydrazine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,3-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
1,4-Dichlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,3,4,6-Tetrachlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,5-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4,6-Trichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dimethylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,4-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dichlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2,6-Dinitrotoluene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chloronaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Chlorophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylnaphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
2-Nitrophenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3,3'-Dichlorobenzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C*
3-Methylcholanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
3-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4,6-Dinitro-2-methylphenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Bromophenyl phenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloro-3-methylphenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chloroaniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Chlorophenylphenyl ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitroaniline	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
4-Nitrophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Acenaphthylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Aniline	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C

PDC Laboratories, Inc.
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ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Benzidine	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(a)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(b)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(g,h,i)perylene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzo(k)fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Benzyl alcohol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethoxy) methane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroethyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-chloroisopropyl) ether	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Bis(2-ethylhexyl) phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Butyl benzyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Chrysene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Cresols- Total	< 18000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzo(a,h)anthracene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dibenzofuran	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Dimethyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-butyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Di-n-octyl phthalate	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Diphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluoranthene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Fluorene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorobutadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachlorocyclopentadiene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Hexachloroethane	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Indeno(1,2,3-cd)pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Isophorone	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Naphthalene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Nitrobenzene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodimethylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodi-n-propylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
N-Nitrosodiphenylamine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pentachlorophenol	< 46000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenanthrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Phenol	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyrene	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Pyridine	< 9000	ug/kg dry		01/04/17 08:27	01/06/17 19:30	KAF	SW 8270C
Semivolatile Organics - TCLP - PIA							
2,4,5-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C

PDC Laboratories, Inc.
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ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrotoluene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Hexachloroethane	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
Pyridine	< 0.10	mg/L	R	01/04/17 08:20	01/05/17 18:46	KAF	SW 8270C
TCLP Metals - PIA							
Arsenic	< 0.040	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Barium	< 2.0	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Cadmium	0.0049	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Chromium	< 0.0080	mg/L		01/04/17 05:30	01/04/17 10:24	KMC	SW 6020
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Final pH	5.27			01/03/17 12:30	01/04/17 07:25	JEM	SW 1311*
Lead	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Mercury	< 0.0020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Selenium	< 0.010	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Silver	< 0.020	mg/L		01/04/17 05:30	01/04/17 09:35	KMC	SW 6020
Total Metals - PIA							
Antimony	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Beryllium	< 12	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Silver	< 25	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Thallium	< 74	mg/kg dry		01/09/17 09:36	01/11/17 15:27	KJP	SW 6010
Volatile Organics - PIA							
1,1,1,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,1-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2,2-Tetrachloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1,2-Trichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,1-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2,4-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dibromoethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,2-Dichloroethene- Total	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
1,2-Dichloropropane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3,5-Trimethylbenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,3-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

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ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
1,3-Dichloropropene - Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
1,4-Dichlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Butanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
2-Hexanone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
4-Methyl-2-pentanone (MIBK)	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetone	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acetonitrile	< 140000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrolein	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Acrylonitrile	< 68000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Benzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromodichloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromoform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Bromomethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon disulfide	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Carbon tetrachloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chlorobenzene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloroform	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Chloromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
cis-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
DBCP	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dibromochloromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorodifluoromethane	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Dichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
Ethylbenzene	< 2700	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
m,p-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Methylene chloride	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
MTBE	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
n-Butanol	< 1400000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B*
o-Xylene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Styrene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Tetrachloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Toluene	27000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,2-Dichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
trans-1,3-Dichloropropene	< 6800	ug/kg dry	C, Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichloroethene	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Trichlorofluoromethane	< 6800	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl acetate	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Vinyl chloride	< 14000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B
Xylenes- Total	< 20000	ug/kg dry	Pc, Pt	01/11/17 08:26	01/11/17 15:37	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6123583-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 12/28/16 09:00
Received: 12/29/16 11:37

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Volatile Organics - TCLP - PIA							
1,1-Dichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
2-Butanone	0.012	mg/L	B	01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Benzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chlorobenzene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Chloroform	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Tetrachloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Trichloroethene	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B
Vinyl chloride	< 0.005	mg/L		01/06/17 08:27	01/06/17 15:08	MAB	SW 8260B

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

B	Present in the method blank at 9.
C	The blank spike failed to meet the required acceptance criteria.
Pc	Chemical preservation discrepancy noted at the time of analysis
Pt	Thermal preservation discrepancy noted
Q3	Matrix Spike/Matrix Spike Duplicate both failed % Recovery
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA			USPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 417-532-3030	FAX NUMBER: 417-532-8388	DATE SHIPPED: 12-28-16
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 6123583
LOGGED BY: T Mo
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Metals, Herbicide,	Pesticide, PCB,	Phenol, Volatiles	Semi Volatiles.	Full TCLP			REMARKS
PRIORITY POLLUTANTS/TCLP SLUDGE	12-28-16	9:00	X		WWSL	3	X	X	X	X	X			

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 1-15-17

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Steve Black	12-28-16	3:00		12-29-16	1137
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT: 9.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

PDC Laboratories, Inc.

Bottle Receipt Form

Login Number: 6123583 Completed By: JMD

TYPE	QUANTITY PER SAMPLE							
	-1	-2	-3	-4	-5	-6	-7	-8
Plastic								
Plastic Shipper, Total	(1)							
Plastic Shipper, Diss								
Unpreserved, Total								
Unpreserved, Diss								
Ammonia, Total, H_2SO_4 Pres.								
Ammonia, Diss, H_2SO_4 Pres.								
Cyanide, NaOH Pres.								
Metals, Total, HNO_3 Pres.								
Metals, Diss., HNO_3 Pres.								
Sulfide, NaOH + ZnAc Pres.								
pH								
Diquat, $Na_2S_2O_3$ + H_2SO_4 Pres.								
Coliform (purple, white, black)								
Glass								
Unpreserved								
½ Gallon Amber, Unpreserved	(1)							
½ Gallon Amber, $Na_2S_2O_3$ Pres.								
½ Gallon Amber, $Na_2S_2O_3$ + HCL								
HAA, NH_4Cl Pres.								
G&O, H_2SO_4 or HCl Pres.								
Vial, 40ml, Tsp								
Vial, 40ml, Unp.								
Vial, 40ml, $Na_2S_2O_3$ (THM)								
Vial, 40ml, HCl, (VOC)								
Vial, 40ml, $Na_2S_2O_3$, (EDB, DBCP)								
Vial, 40ml, Methanol								
Vial, 40ml, DI Water								
Vial, 40ml, Sodium Bisulfate								
Carbamates, $Na_2S_2O_3$ + MCAA								
Glyphosate, 60ml, $Na_2S_2O_3$								
Phenolics, H_2SO_4								
TOC, 40ml, H_2SO_4								
TOX, 250ml, H_2SO_4								
Soil Jar (16 oz PB)								
Soil Jar (9 oz)	(1)							
Soil Jar (4 oz)								
Soil Jar (2 oz)								
Other								
Plastic Bag								
Other								

Notes

B - Broken
E - Empty

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

SENDING LABORATORY

PDC Laboratories, Inc.
3278 N Highway 67
Florissant, MO 63033
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 6123583-01
Name: Annual Sludge

Sampled: 12/28/16 09:00
Matrix: Sludge

Analysis	Due	Expires	Comments
Ag 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Ag 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
As 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Ba 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Be 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Cd 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
CN-T	01/11/17 16:00	01/11/17 09:00	
Cr 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Hg 6020 TCLP	01/11/17 16:00	01/25/17 09:00	
M8081	01/11/17 16:00	01/11/17 09:00	
M8081TCLP	01/11/17 16:00	01/04/17 09:00	
M8082	01/11/17 16:00	01/11/17 09:00	
M8151TCLP	01/11/17 16:00	01/04/17 09:00	
M8260	01/11/17 16:00	01/11/17 09:00	
M8260 TCLP	01/11/17 16:00	01/11/17 09:00	
M8270	01/11/17 16:00	01/11/17 09:00	
M8270 TCLP	01/11/17 16:00	01/04/17 09:00	
Pb 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Phenol	01/11/17 16:00	01/25/17 09:00	
Sb 6010 Tot	01/11/17 16:00	06/26/17 09:00	
Se 6020 TCLP	01/11/17 16:00	06/26/17 09:00	
Solids-TS	01/11/17 16:00	01/04/17 09:00	
SW 1311 - TCLP Organics	01/11/17 16:00	01/11/17 09:00	
SW TCLP 1311	01/11/17 16:00	01/25/17 09:00	
TCLP_ZHE	01/11/17 16:00	01/11/17 09:00	
Tl 6010 Tot	01/11/17 16:00	06/26/17 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6123583

Please email results to Barb Pandolfo at bpandolfo@pdclab.com

Date Shipped: 12-29-16 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested: [X] NORMAL [ ] RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	1400 12-29-16		
		[illegible]	12/30/16 1015

Sample Temperature Upon Receipt	8 °C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or (N)

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Cyanide	< 13	mg/kg dry		09/03/19 11:05	1	13	09/04/19 10:39	PMN	SW 9012
Solids - total solids (TS)	8.5	%		09/03/19 13:01	1	0.050	09/03/19 14:49	TMS	SM 2540G*
Phenolics	< 12	mg/kg dry		09/05/19 05:42	1	12	09/05/19 11:37	PMN	SW 9066
Herbicides - TCLP - PIA									
2,4-D	< 0.1	mg/L		09/05/19 08:06	1	0.1	09/06/19 23:46	ELS	SW 8151
Silvex	< 0.05	mg/L		09/05/19 08:06	1	0.05	09/06/19 23:46	ELS	SW 8151
Pesticides - PIA									
4,4'-DDD	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
4,4'-DDE	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
4,4'-DDT	< 5600	ug/kg dry	V	09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Aldrin	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Alpha-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Beta-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Chlordane (technical)	< 56000	ug/kg dry		09/03/19 13:43	10	56000	09/04/19 20:34	JMT	SW 8081
Delta-BHC	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Dieldrin	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endosulfan I	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Endosulfan II	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endosulfan sulfate	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endrin	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
Endrin aldehyde	< 5600	ug/kg dry		09/03/19 13:43	10	5600	09/04/19 20:34	JMT	SW 8081
gamma-BHC (Lindane)	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Heptachlor	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Heptachlor epoxide	< 2800	ug/kg dry		09/03/19 13:43	10	2800	09/04/19 20:34	JMT	SW 8081
Toxaphene	< 28000	ug/kg dry		09/03/19 13:43	10	28000	09/04/19 20:34	JMT	SW 8081
Pesticides - TCLP - PIA									
Chlordane (technical)	< 0.010	mg/L		09/05/19 08:27	1	0.010	09/05/19 23:54	ELS	SW 8081
Endrin	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
gamma-BHC (Lindane)	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
Heptachlor	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081
Heptachlor epoxide	< 0.0005	mg/L		09/05/19 08:27	1	0.0005	09/05/19 23:54	ELS	SW 8081

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Methoxychlor	< 0.002	mg/L		09/05/19 08:27	1	0.002	09/05/19 23:54	ELS	SW 8081
Toxaphene	< 0.010	mg/L		09/05/19 08:27	1	0.010	09/05/19 23:54	ELS	SW 8081
Polychlorinated Biphenyls (PCBs) - PIA									
Aroclor 1016	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1221	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclor 1232	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1242	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1248	< 2800	ug/kg dry		09/03/19 13:41	1	2800	09/06/19 21:11	ELS	SW 8082
Aroclor 1254	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclor 1260	< 5600	ug/kg dry		09/03/19 13:41	1	5600	09/06/19 21:11	ELS	SW 8082
Aroclors - Total	< 28000	ug/kg dry		09/03/19 13:41	1	28000	09/06/19 21:11	ELS	SW 8082
Semivolatile Organics - PIA									
N-Nitrosodimethylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Phenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-chloroethyl) ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Chlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,3,7,8-TCDD Screen	< 56000	ug/kg dry		09/04/19 12:33	1	56000	09/06/19 11:01	CRS	SW 8270C*
Bis(2-chloroisopropyl) ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
N-Nitrosodi-n-propylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachloroethane	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Nitrobenzene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Isophorone	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Nitrophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dimethylphenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-chloroethoxy) methane	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dichlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Naphthalene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorobutadiene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Chloro-3-methylphenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorocyclopentadiene	< 12000	ug/kg dry	Q3	09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4,6-Trichlorophenol	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2-Chloronaphthalene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dimethyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,6-Dinitrotoluene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Acenaphthylene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Acenaphthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
2,4-Dinitrophenol	< 60000	ug/kg dry	R	09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
4-Nitrophenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
2,4-Dinitrotoluene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Diethyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Fluorene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Chlorophenylphenyl ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4,6-Dinitro-2-methylphenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
N-Nitrosodiphenylamine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
1,2-Diphenylhydrazine	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
4-Bromophenyl phenyl ether	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Hexachlorobenzene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Pentachlorophenol	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
Phenanthrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Di-n-butyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzidine	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C
Pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Butyl benzyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(a)anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
3,3'-Dichlorobenzidine	< 60000	ug/kg dry		09/04/19 12:33	1	60000	09/05/19 14:06	CRS	SW 8270C*
Chrysene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Bis(2-ethylhexyl) phthalate	13000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Di-n-octyl phthalate	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(b)fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(k)fluoranthene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(a)pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Indeno(1,2,3-cd)pyrene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dibenzo(a,h)anthracene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Benzo(g,h,i)perylene	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/05/19 14:06	CRS	SW 8270C
Dinoseb	< 12000	ug/kg dry		09/04/19 12:33	1	12000	09/06/19 11:01	CRS	SW 8270C*
Semivolatile Organics - TCLP - PIA									
Pyridine	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
2-Methylphenol	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
3- & 4-Methylphenol	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Hexachloroethane	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Nitrobenzene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Hexachlorobutadiene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
2,4,6-Trichlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
2,4,5-Trichlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
2,4-Dinitrotoluene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Hexachlorobenzene	< 0.10	mg/L		09/04/19 08:01	1	0.10	09/04/19 17:03	KAF	SW 8270C
Pentachlorophenol	< 0.50	mg/L		09/04/19 08:01	1	0.50	09/04/19 17:03	KAF	SW 8270C
TCLP Metals - PIA									
Final pH	5.23	pH Units		09/03/19 12:30	1		09/04/19 07:25	RC	SW 1311*
Final pH	5.23	pH Units		09/03/19 12:30	1		09/04/19 07:25	RC	SW 1311*
Arsenic	< 0.040	mg/L		09/04/19 06:00	20	0.040	09/04/19 10:37	JMW	SW 6020
Barium	< 2.0	mg/L		09/04/19 06:00	20	2.0	09/04/19 10:37	JMW	SW 6020
Cadmium	< 0.0040	mg/L		09/04/19 06:00	20	0.0040	09/04/19 10:37	JMW	SW 6020
Chromium	< 0.016	mg/L		09/04/19 06:00	20	0.016	09/04/19 10:37	JMW	SW 6020
Lead	< 0.020	mg/L		09/04/19 06:00	20	0.020	09/04/19 10:37	JMW	SW 6020
Selenium	< 0.010	mg/L		09/04/19 06:00	20	0.010	09/04/19 10:37	JMW	SW 6020
Silver	< 0.020	mg/L		09/04/19 06:00	20	0.020	09/04/19 10:37	JMW	SW 6020
Mercury	< 0.0020	mg/L		09/04/19 06:00	20	0.0020	09/04/19 10:37	JMW	SW 6020
Total Metals - PIA									
Antimony	< 35	mg/kg dry		09/04/19 10:00	1	35	09/06/19 15:58	tjj	SW 6010
Beryllium	14	mg/kg dry		09/04/19 10:00	1	5.9	09/06/19 15:58	tjj	SW 6010
Silver	< 12	mg/kg dry		09/04/19 10:00	1	12	09/06/19 15:57	tjj	SW 6010
Thallium	< 35	mg/kg dry		09/04/19 10:00	1	35	09/11/19 11:47	ZSA	SW 6010
Volatile Organics - PIA									
1,1,2,2-Tetrachloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1,2-Trichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1-Dichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,1-Dichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2,4-Trichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,3-Dichloropropene - Total	< 780	ug/kg dry	R, Sc	09/06/19 08:21	1	780	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichloroethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,2-Dichloropropane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
1,3-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B

ANALYTICAL RESULTS

Sample: 9085915-01
Name: Annual Sludge
Matrix: Sludge - Grab

Sampled: 08/27/19 09:00
Received: 08/28/19 11:50
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
1,4-Dichlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
2-Chloroethylvinyl ether	< 260	ug/kg dry	Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B[e]
Acetonitrile	< 5200	ug/kg dry	R, Sc	09/06/19 08:21	1	5200	09/06/19 16:55	MMF/JJI	SW 8260B
Acrolein	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Benzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromodichloromethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromoform	< 260	ug/kg dry	Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Bromomethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Carbon tetrachloride	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chlorobenzene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloroethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
cis-1,3-Dichloropropene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloroform	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Chloromethane	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Dibromochloromethane	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
trans-1,2-Dichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Ethylbenzene	< 100	ug/kg dry	R, Sc	09/06/19 08:21	1	100	09/06/19 16:55	MMF/JJI	SW 8260B
Methylene chloride	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Tetrachloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Toluene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Trichloroethene	< 260	ug/kg dry	R, Sc	09/06/19 08:21	1	260	09/06/19 16:55	MMF/JJI	SW 8260B
Vinyl chloride	< 520	ug/kg dry	R, Sc	09/06/19 08:21	1	520	09/06/19 16:55	MMF/JJI	SW 8260B
Volatile Organics - TCLP - PIA									
1,1-Dichloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
1,2-Dichloroethane	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
1,4-Dichlorobenzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
2-Butanone	< 0.010	mg/L		09/06/19 08:12	1	0.010	09/06/19 16:24	MMF	SW 8260B
Benzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Carbon tetrachloride	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Chlorobenzene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Chloroform	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Tetrachloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Trichloroethene	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B
Vinyl chloride	< 0.005	mg/L		09/06/19 08:12	1	0.005	09/06/19 16:24	MMF	SW 8260B

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919944 - No Prep - SW 9012									
Blank (B919944-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	< 1.2	mg/kg wet							
LCS (B919944-BS1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	2.58	mg/kg wet		2.500		103	85-115		
Matrix Spike (B919944-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	32.2	mg/kg dry		29.30	ND	110	75-125		
Matrix Spike Dup (B919944-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Cyanide	30.1	mg/kg dry		27.90	ND	108	75-125	7	20
Batch B919960 - No Prep - SM 2540G									
Blank (B919960-BLK1)				Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	< 0.050	%							
Duplicate (B919960-DUP1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	8.64	%			8.53			1	5
Duplicate (B919960-DUP2)	**Sample: 9085999-01**			Prepared & Analyzed: 09/03/19					
Solids - total solids (TS)	87.8	%			83.7			5	5
Batch B919969 - EPA 608/8081/8082/8141 - SW 8082									
Blank (B919969-BLK1)				Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	< 80	ug/kg wet							
Aroclor 1221	< 160	ug/kg wet							
Aroclor 1232	< 80	ug/kg wet							
Aroclor 1242	< 80	ug/kg wet							
Aroclor 1248	< 80	ug/kg wet							
Aroclor 1254	< 160	ug/kg wet							
Aroclor 1260	< 160	ug/kg wet							
Aroclors - Total	< 800	ug/kg wet							
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*95*	*10-164*		
Surrogate: DCBP	*18*	*ug/kg wet*		*16.67*		*108*	*11.4-165*		
LCS (B919969-BS1)				Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	278	ug/kg wet		333.3		84	71-120		
Aroclor 1260	277	ug/kg wet		333.3		83	69.8-120		
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*97*	*10-164*		
Surrogate: DCBP	*17*	*ug/kg wet*		*16.67*		*104*	*11.4-165*		
Matrix Spike (B919969-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	9550	ug/kg dry		11670	ND	82	10-133		
Aroclor 1260	9420	ug/kg dry		11670	ND	81	10-140		
Surrogate: TCMX	*580*	*ug/kg dry*		*583.6*		*99*	*10-164*		
Surrogate: DCBP	*590*	*ug/kg dry*		*583.6*		*100*	*11.4-165*		
Matrix Spike Dup (B919969-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/06/19					
Aroclor 1016	10800	ug/kg dry		11750	ND	92	10-133	13	40
Aroclor 1260	10400	ug/kg dry		11750	ND	89	10-140	10	40
Surrogate: TCMX	*640*	*ug/kg dry*		*587.7*		*109*	*10-164*		
Surrogate: DCBP	*660*	*ug/kg dry*		*587.7*		*112*	*11.4-165*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919970 - EPA 608/8081/8082/8141 - SW 8081									
Blank (B919970-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	< 16	ug/kg wet							
4,4'-DDE	< 16	ug/kg wet							
4,4'-DDT	< 16	ug/kg wet	V						
Aldrin	< 8.0	ug/kg wet							
Alpha-BHC	< 8.0	ug/kg wet							
Beta-BHC	< 8.0	ug/kg wet							
Chlordane (technical)	< 160	ug/kg wet							
Delta-BHC	< 8.0	ug/kg wet							
Dieldrin	< 16	ug/kg wet							
Endosulfan I	< 8.0	ug/kg wet							
Endosulfan II	< 16	ug/kg wet							
Endosulfan sulfate	< 16	ug/kg wet							
Endrin	< 16	ug/kg wet							
Endrin aldehyde	< 16	ug/kg wet							
gamma-BHC (Lindane)	< 8.0	ug/kg wet							
Heptachlor	< 8.0	ug/kg wet							
Heptachlor epoxide	< 8.0	ug/kg wet							
Toxaphene	< 80	ug/kg wet							
LCS (B919970-BS1)				Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	25	ug/kg wet		26.67		93	47-155		
4,4'-DDE	24	ug/kg wet		26.67		91	49.4-146		
4,4'-DDT	26	ug/kg wet	V	26.67		98	43.7-155		
Aldrin	23	ug/kg wet		26.67		88	47.1-142		
Alpha-BHC	25	ug/kg wet		26.67		94	52-145		
Beta-BHC	26	ug/kg wet		26.67		97	50.1-140		
Delta-BHC	26	ug/kg wet		26.67		96	49.2-148		
Dieldrin	24	ug/kg wet		26.67		88	49.5-141		
Endosulfan I	24	ug/kg wet		26.67		92	49.6-141		
Endosulfan II	24	ug/kg wet		26.67		91	48.6-143		
Endosulfan sulfate	26	ug/kg wet		26.67		96	53.2-150		
Endrin	24	ug/kg wet		26.67		92	30.7-151		
Endrin aldehyde	22	ug/kg wet		26.67		82	28.1-128		
gamma-BHC (Lindane)	25	ug/kg wet		26.67		94	52.1-142		
Heptachlor	25	ug/kg wet		26.67		94	50.7-145		
Heptachlor epoxide	24	ug/kg wet		26.67		91	51-141		
Methoxychlor	102	ug/kg wet	V	106.7		95	50.3-146		
Surrogate: TCMX	*16*	*ug/kg wet*		*16.67*		*97*	*10-194*		
Surrogate: DCBP	*16*	*ug/kg wet*		*16.67*		*95*	*10-192*		
Matrix Spike (B919970-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	1020	ug/kg dry		937.6	ND	109	20.1-182		
4,4'-DDE	1080	ug/kg dry		937.6	ND	115	10-180		
4,4'-DDT	1190	ug/kg dry	V	937.6	ND	127	10-200		
Aldrin	921	ug/kg dry		937.6	ND	98	19.2-162		
Alpha-BHC	1220	ug/kg dry		937.6	ND	130	53.1-141		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B919970 - EPA 608/8081/8082/8141 - SW 8081									
Matrix Spike (B919970-MS1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
Beta-BHC	1120	ug/kg dry		937.6	ND	119	22.1-190		
Delta-BHC	1200	ug/kg dry		937.6	ND	128	33.7-151		
Dieldrin	1130	ug/kg dry		937.6	ND	121	33.9-160		
Endosulfan I	1310	ug/kg dry		937.6	ND	140	10-196		
Endosulfan II	1110	ug/kg dry		937.6	ND	118	19.7-176		
Endosulfan sulfate	1120	ug/kg dry		937.6	ND	120	23.9-188		
Endrin	1120	ug/kg dry		937.6	ND	119	46.7-156		
Endrin aldehyde	982	ug/kg dry		937.6	ND	105	10-180		
gamma-BHC (Lindane)	1130	ug/kg dry		937.6	ND	120	28.8-157		
Heptachlor	1160	ug/kg dry		937.6	ND	124	10-200		
Heptachlor epoxide	1210	ug/kg dry		937.6	ND	129	49.3-152		
Methoxychlor	4710	ug/kg dry	V	3750	ND	126	10-200		
Surrogate: TCMX	*740*	*ug/kg dry*		*586.0*		*126*	*10-194*		
Surrogate: DCBP	*730*	*ug/kg dry*		*586.0*		*124*	*10-192*		
Matrix Spike Dup (B919970-MSD1)	**Sample: 9085915-01**			Prepared: 09/03/19 Analyzed: 09/04/19					
4,4'-DDD	1040	ug/kg dry		930.1	ND	112	20.1-182	2	40
4,4'-DDE	993	ug/kg dry		930.1	ND	107	10-180	8	40
4,4'-DDT	978	ug/kg dry	V	930.1	ND	105	10-200	20	40
Aldrin	824	ug/kg dry		930.1	ND	89	19.2-162	11	40
Alpha-BHC	1080	ug/kg dry		930.1	ND	116	53.1-141	12	40
Beta-BHC	1040	ug/kg dry		930.1	ND	112	22.1-190	7	40
Delta-BHC	1150	ug/kg dry		930.1	ND	123	33.7-151	4	40
Dieldrin	1120	ug/kg dry		930.1	ND	121	33.9-160	1	40
Endosulfan I	1270	ug/kg dry		930.1	ND	136	10-196	4	40
Endosulfan II	1090	ug/kg dry		930.1	ND	117	19.7-176	2	40
Endosulfan sulfate	1030	ug/kg dry		930.1	ND	111	23.9-188	9	40
Endrin	1070	ug/kg dry		930.1	ND	115	46.7-156		40
Endrin aldehyde	1060	ug/kg dry		930.1	ND	114	10-180	8	40
gamma-BHC (Lindane)	1100	ug/kg dry		930.1	ND	118	28.8-157	2	40
Heptachlor	1090	ug/kg dry		930.1	ND	117	10-200	7	40
Heptachlor epoxide	1160	ug/kg dry		930.1	ND	125	49.3-152	4	40
Methoxychlor	3990	ug/kg dry	V	3720	ND	107	10-200	16	40
Surrogate: TCMX	*680*	*ug/kg dry*		*581.3*		*118*	*10-194*		
Surrogate: DCBP	*700*	*ug/kg dry*		*581.3*		*121*	*10-192*		
Batch B920012 - TCLP Prep - SW 1311									
Blank (B920012-BLK1)				Prepared: 09/03/19 Analyzed: 09/04/19					
Final pH	0.00	pH Units							
Final pH	0.00	pH Units							
Batch B920014 - SW 3015 TCLP - SW 6020									
Blank (B920014-BLK1)				Prepared & Analyzed: 09/04/19					
Arsenic	< 0.040	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920014 - SW 3015 TCLP - SW 6020									
Blank (B920014-BLK1)				Prepared & Analyzed: 09/04/19					
Barium	< 2.0	mg/L							
Cadmium	< 0.0040	mg/L							
Chromium	< 0.016	mg/L							
Lead	< 0.020	mg/L							
Selenium	< 0.010	mg/L							
Silver	< 0.020	mg/L							
Mercury	< 0.0020	mg/L							
Blank (B920014-BLK2)				Prepared & Analyzed: 09/04/19					
Arsenic	< 0.040	mg/L							
Barium	< 2.0	mg/L							
Cadmium	< 0.0040	mg/L							
Chromium	< 0.016	mg/L							
Lead	< 0.020	mg/L							
Selenium	0.0114	mg/L							
Silver	< 0.020	mg/L							
Mercury	< 0.0020	mg/L							
LCS (B920014-BS1)				Prepared & Analyzed: 09/04/19					
Arsenic	5.91	mg/L		5.556		106	80-120		
Barium	6.04	mg/L		5.556		109	80-120		
Cadmium	6.11	mg/L		5.556		110	80-120		
Chromium	6.01	mg/L		5.556		108	80-120		
Lead	6.14	mg/L		5.556		110	80-120		
Selenium	6.04	mg/L		5.556		109	80-120		
Silver	4.99	mg/L		5.556		90	80-120		
Mercury	0.0554	mg/L		0.05556		100	80-120		
LCS (B920014-BS2)				Prepared & Analyzed: 09/04/19					
Arsenic	5.83	mg/L		5.556		105	80-120		
Barium	5.85	mg/L		5.556		105	80-120		
Cadmium	5.97	mg/L		5.556		107	80-120		
Chromium	5.84	mg/L		5.556		105	80-120		
Lead	5.89	mg/L		5.556		106	80-120		
Selenium	6.02	mg/L		5.556		108	80-120		
Silver	5.62	mg/L		5.556		101	80-120		
Mercury	0.0551	mg/L		0.05556		99	80-120		
Matrix Spike (B920014-MS1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					
Arsenic	5.84	mg/L		5.556	ND	105	50-150		
Barium	6.27	mg/L		5.556	0.371	106	50-150		
Cadmium	5.82	mg/L		5.556	ND	105	50-150		
Chromium	5.84	mg/L		5.556	0.0574	104	50-150		
Lead	5.74	mg/L		5.556	ND	103	50-150		
Selenium	5.91	mg/L		5.556	0.00831	106	50-150		
Silver	6.15	mg/L		5.556	ND	111	50-150		
Mercury	0.0547	mg/L		0.05556	ND	98	50-150		
Matrix Spike Dup (B920014-MSD1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920014 - SW 3015 TCLP - SW 6020									
Matrix Spike Dup (B920014-MSD1)	**Sample: 9090032-02**			Prepared & Analyzed: 09/04/19					
Arsenic	5.98	mg/L		5.556	ND	108	50-150	2	20
Barium	6.43	mg/L		5.556	0.371	109	50-150	2	20
Cadmium	5.98	mg/L		5.556	ND	108	50-150	3	20
Chromium	5.99	mg/L		5.556	0.0574	107	50-150	3	20
Lead	5.96	mg/L		5.556	ND	107	50-150	4	20
Selenium	6.05	mg/L		5.556	0.00831	109	50-150	2	20
Silver	5.37	mg/L		5.556	ND	97	50-150	13	20
Mercury	0.0567	mg/L		0.05556	ND	102	50-150	4	20
Batch B920023 - EPA 625/8270 - SW 8270C									
Blank (B920023-BLK1)				Prepared & Analyzed: 09/04/19					
Pyridine	< 0.010	mg/L							
2-Methylphenol	< 0.010	mg/L							
3- & 4-Methylphenol	< 0.010	mg/L							
Hexachloroethane	< 0.010	mg/L							
Nitrobenzene	< 0.010	mg/L							
Hexachlorobutadiene	< 0.010	mg/L							
2,4,6-Trichlorophenol	< 0.050	mg/L							
2,4,5-Trichlorophenol	< 0.050	mg/L							
2,4-Dinitrotoluene	< 0.010	mg/L							
Hexachlorobenzene	< 0.010	mg/L							
Pentachlorophenol	< 0.050	mg/L							
Surrogate: 2-Fluorophenol	*0.0346*	*mg/L*		*0.07500*		*46*	*14.4-120*		
Surrogate: Phenol-d6	*0.0238*	*mg/L*		*0.07500*		*32*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.0343*	*mg/L*		*0.05000*		*69*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.0312*	*mg/L*		*0.05000*		*62*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.0579*	*mg/L*		*0.07500*		*77*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.0347*	*mg/L*		*0.05000*		*69*	*42.8-121*		
LCS (B920023-BS1)				Prepared & Analyzed: 09/04/19					
Pyridine	0.023	mg/L		0.05000		47	10-120		
2-Methylphenol	0.060	mg/L		0.1000		60	47.5-120		
3- & 4-Methylphenol	0.057	mg/L		0.1000		57	42.9-120		
Hexachloroethane	0.030	mg/L		0.05000		60	20.3-120		
Nitrobenzene	0.039	mg/L		0.05000		79	54.1-120		
Hexachlorobutadiene	0.032	mg/L		0.05000		65	20.5-120		
2,4,6-Trichlorophenol	0.072	mg/L		0.1000		72	62.9-120		
2,4,5-Trichlorophenol	0.074	mg/L		0.1000		74	64.2-120		
2,4-Dinitrotoluene	0.040	mg/L		0.05000		81	66.5-120		
Hexachlorobenzene	0.040	mg/L		0.05000		81	67.2-120		
Pentachlorophenol	0.084	mg/L		0.1000		84	54.9-133		
Surrogate: 2-Fluorophenol	*0.0370*	*mg/L*		*0.07500*		*49*	*14.4-120*		
Surrogate: Phenol-d6	*0.0235*	*mg/L*		*0.07500*		*31*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.0377*	*mg/L*		*0.05000*		*75*	*34-120*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920023 - EPA 625/8270 - SW 8270C									
LCS (B920023-BS1)				Prepared & Analyzed: 09/04/19					
Surrogate: 2-Fluorobiphenyl	*0.0314*	*mg/L*		*0.05000*		*63*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.0686*	*mg/L*		*0.07500*		*91*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.0377*	*mg/L*		*0.05000*		*75*	*42.8-121*		
Matrix Spike (B920023-MS1)	Sample: 9085916-01			Prepared & Analyzed: 09/04/19					
Pyridine	0.298	mg/L	R	0.5000	ND	60	10-120		
2-Methylphenol	0.637	mg/L		1.000	ND	64	34-120		
3- & 4-Methylphenol	0.626	mg/L		1.000	ND	63	38.8-120		
Hexachloroethane	0.323	mg/L		0.5000	ND	65	24.5-120		
Nitrobenzene	0.420	mg/L		0.5000	ND	84	47.7-120		
Hexachlorobutadiene	0.356	mg/L		0.5000	ND	71	28.7-120		
2,4,6-Trichlorophenol	0.781	mg/L		1.000	ND	78	35.8-127		
2,4,5-Trichlorophenol	0.777	mg/L		1.000	ND	78	44.2-121		
2,4-Dinitrotoluene	0.382	mg/L		0.5000	ND	76	48.7-120		
Hexachlorobenzene	0.455	mg/L		0.5000	ND	91	57.4-120		
Pentachlorophenol	1.04	mg/L		1.000	ND	104	10-168		
Surrogate: 2-Fluorophenol	*0.404*	*mg/L*		*0.7500*		*54*	*14.4-120*		
Surrogate: Phenol-d6	*0.257*	*mg/L*		*0.7500*		*34*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.400*	*mg/L*		*0.5000*		*80*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.345*	*mg/L*		*0.5000*		*69*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.700*	*mg/L*		*0.7500*		*93*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.382*	*mg/L*		*0.5000*		*76*	*42.8-121*		
Matrix Spike Dup (B920023-MSD1)	Sample: 9085916-01			Prepared & Analyzed: 09/04/19					
Pyridine	0.183	mg/L	R	0.5000	ND	37	10-120	48	40
2-Methylphenol	0.556	mg/L		1.000	ND	56	34-120	14	40
3- & 4-Methylphenol	0.523	mg/L		1.000	ND	52	38.8-120	18	40
Hexachloroethane	0.239	mg/L		0.5000	ND	48	24.5-120	30	40
Nitrobenzene	0.325	mg/L		0.5000	ND	65	47.7-120	26	40
Hexachlorobutadiene	0.259	mg/L		0.5000	ND	52	28.7-120	32	40
2,4,6-Trichlorophenol	0.674	mg/L		1.000	ND	67	35.8-127	15	40
2,4,5-Trichlorophenol	0.670	mg/L		1.000	ND	67	44.2-121	15	40
2,4-Dinitrotoluene	0.371	mg/L		0.5000	ND	74	48.7-120	3	40
Hexachlorobenzene	0.384	mg/L		0.5000	ND	77	57.4-120	17	40
Pentachlorophenol	0.925	mg/L		1.000	ND	93	10-168	12	40
Surrogate: 2-Fluorophenol	*0.312*	*mg/L*		*0.7500*		*42*	*14.4-120*		
Surrogate: Phenol-d6	*0.208*	*mg/L*		*0.7500*		*28*	*13.4-120*		
Surrogate: Nitrobenzene-d5	*0.302*	*mg/L*		*0.5000*		*60*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*0.278*	*mg/L*		*0.5000*		*56*	*33.9-120*		
Surrogate: 2,4,6-Tribromophenol	*0.612*	*mg/L*		*0.7500*		*82*	*11.4-133*		
Surrogate: p-Terphenyl-d14	*0.349*	*mg/L*		*0.5000*		*70*	*42.8-121*		
Batch B920065 - SW 3051 - SW 6010									
Blank (B920065-BLK1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	< 3.0	mg/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920065 - SW 3051 - SW 6010									
Blank (B920065-BLK1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Beryllium	< 0.50	mg/kg wet							
Silver	< 1.0	mg/kg wet							
Thallium	< 3.0	mg/kg wet							
LCS (B920065-BS1)				Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	53.8	mg/kg wet		50.00		108	80-120		
Beryllium	51.9	mg/kg wet		50.00		104	80-120		
Silver	52.2	mg/kg wet		50.00		104	80-120		
Thallium	54.1	mg/kg wet		50.00		108	80-120		
Matrix Spike (B920065-MS1)	Sample: 9084915-01			Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	112	mg/kg dry		117.3	4.54	91	75-125		
Beryllium	115	mg/kg dry		117.3	2.05	97	75-125		
Silver	134	mg/kg dry		117.3	12.6	104	75-125		
Matrix Spike Dup (B920065-MSD1)	Sample: 9084915-01			Prepared: 09/04/19 Analyzed: 09/06/19					
Antimony	124	mg/kg dry		116.9	4.54	102	75-125	10	20
Beryllium	126	mg/kg dry		116.9	2.05	106	75-125	9	20
Silver	136	mg/kg dry		116.9	12.6	105	75-125	0.8	20
Batch B920090 - EPA 625/8270 - SW 8270C									
Blank (B920090-BLK1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	< 330	ug/kg wet							
Phenol	< 330	ug/kg wet							
Bis(2-chloroethyl) ether	< 330	ug/kg wet							
2-Chlorophenol	< 330	ug/kg wet							
2,3,7,8-TCDD Screen	< 1600	ug/kg wet							
Bis(2-chloroisopropyl) ether	< 330	ug/kg wet							
N-Nitrosodi-n-propylamine	< 330	ug/kg wet							
Hexachloroethane	< 330	ug/kg wet							
Nitrobenzene	< 330	ug/kg wet							
Isophorone	< 330	ug/kg wet							
2-Nitrophenol	< 330	ug/kg wet							
2,4-Dimethylphenol	< 330	ug/kg wet							
Bis(2-chloroethoxy) methane	< 330	ug/kg wet							
2,4-Dichlorophenol	< 330	ug/kg wet							
Naphthalene	< 330	ug/kg wet							
Hexachlorobutadiene	< 330	ug/kg wet							
4-Chloro-3-methylphenol	< 330	ug/kg wet							
Hexachlorocyclopentadiene	< 330	ug/kg wet							
2,4,6-Trichlorophenol	< 330	ug/kg wet							
2-Chloronaphthalene	< 330	ug/kg wet							
Dimethyl phthalate	< 330	ug/kg wet							
2,6-Dinitrotoluene	< 330	ug/kg wet							
Acenaphthylene	< 330	ug/kg wet							
Acenaphthene	< 330	ug/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Blank (B920090-BLK1)				Prepared: 09/04/19 Analyzed: 09/05/19					
2,4-Dinitrophenol	< 1700	ug/kg wet							
4-Nitrophenol	< 1700	ug/kg wet							
2,4-Dinitrotoluene	< 330	ug/kg wet							
Diethyl phthalate	< 330	ug/kg wet							
Fluorene	< 330	ug/kg wet							
4-Chlorophenylphenyl ether	< 330	ug/kg wet							
4,6-Dinitro-2-methylphenol	< 1700	ug/kg wet							
N-Nitrosodiphenylamine	< 330	ug/kg wet							
1,2-Diphenylhydrazine	< 330	ug/kg wet							
4-Bromophenyl phenyl ether	< 330	ug/kg wet							
Hexachlorobenzene	< 330	ug/kg wet							
Pentachlorophenol	< 1700	ug/kg wet							
Phenanthrene	< 330	ug/kg wet							
Anthracene	< 330	ug/kg wet							
Di-n-butyl phthalate	< 330	ug/kg wet							
Fluoranthene	< 330	ug/kg wet							
Benzidine	< 1700	ug/kg wet							
Pyrene	< 330	ug/kg wet							
Butyl benzyl phthalate	< 330	ug/kg wet							
Benzo(a)anthracene	< 330	ug/kg wet							
3,3'-Dichlorobenzidine	< 1700	ug/kg wet							
Chrysene	< 330	ug/kg wet							
Bis(2-ethylhexyl) phthalate	< 330	ug/kg wet							
Di-n-octyl phthalate	< 330	ug/kg wet							
Benzo(b)fluoranthene	< 330	ug/kg wet							
Benzo(k)fluoranthene	< 330	ug/kg wet							
Benzo(a)pyrene	< 330	ug/kg wet							
Indeno(1,2,3-cd)pyrene	< 330	ug/kg wet							
Dibenzo(a,h)anthracene	< 330	ug/kg wet							
Benzo(g,h,i)perylene	< 330	ug/kg wet							
Dinoseb	< 330	ug/kg wet							
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	1360	ug/kg wet		1667		82	41.4-120		
Pyridine	1190	ug/kg wet		1667		71	26.6-120		
Phenol	2700	ug/kg wet		3333		81	24.3-129		
Aniline	1070	ug/kg wet		1667		64	32.4-120		
Bis(2-chloroethyl) ether	1430	ug/kg wet		1667		86	58.1-120		
2-Chlorophenol	2740	ug/kg wet		3333		82	61.9-120		
1,3-Dichlorobenzene	1310	ug/kg wet		1667		79	51.4-120		
1,4-Dichlorobenzene	1370	ug/kg wet		1667		82	52.2-120		
Benzyl alcohol	1640	ug/kg wet		1667		98	61.1-120		
1,2-Dichlorobenzene	1350	ug/kg wet		1667		81	53.1-120		
2-Methylphenol	2710	ug/kg wet		3333		81	58.7-120		
Bis(2-chloroisopropyl) ether	1360	ug/kg wet		1667		81	55.8-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodi-n-propylamine	1430	ug/kg wet		1667		86	60.7-120		
3- & 4-Methylphenol	2680	ug/kg wet		3333		80	54.1-120		
Hexachloroethane	1350	ug/kg wet		1667		81	49.9-120		
Nitrobenzene	1430	ug/kg wet		1667		86	60.5-120		
Isophorone	1450	ug/kg wet		1667		87	57.9-120		
2-Nitrophenol	3040	ug/kg wet		3333		91	64-120		
2,4-Dimethylphenol	2850	ug/kg wet		3333		85	53.7-120		
Bis(2-chloroethoxy) methane	1450	ug/kg wet		1667		87	64.1-120		
2,4-Dichlorophenol	3020	ug/kg wet		3333		91	63.2-120		
1,2,4-Trichlorobenzene	1400	ug/kg wet		1667		84	58.4-120		
Naphthalene	1290	ug/kg wet		1667		78	54.3-120		
4-Chloroaniline	620	ug/kg wet		1667		37	10-120		
Hexachlorobutadiene	1320	ug/kg wet		1667		79	54.8-120		
4-Chloro-3-methylphenol	3060	ug/kg wet		3333		92	63.4-120		
2-Methylnaphthalene	1340	ug/kg wet		1667		81	63.1-120		
Hexachlorocyclopentadiene	771	ug/kg wet		1667		46	19.1-120		
2,4,6-Trichlorophenol	3150	ug/kg wet		3333		94	56.6-126		
2,4,5-Trichlorophenol	3160	ug/kg wet		3333		95	54.4-128		
2-Chloronaphthalene	1280	ug/kg wet		1667		77	44.8-120		
2-Nitroaniline	1690	ug/kg wet		1667		101	59.2-122		
Dimethyl phthalate	1600	ug/kg wet		1667		96	61.4-120		
2,6-Dinitrotoluene	1680	ug/kg wet		1667		101	62.2-120		
Acenaphthylene	1370	ug/kg wet		1667		82	55.9-120		
3-Nitroaniline	1140	ug/kg wet		1667		68	18.1-120		
Acenaphthene	1440	ug/kg wet		1667		87	56.8-120		
2,4-Dinitrophenol	495	ug/kg wet		3333		15	10-120		
4-Nitrophenol	3250	ug/kg wet		3333		97	10-158		
Dibenzofuran	1500	ug/kg wet		1667		90	59.4-120		
2,4-Dinitrotoluene	1720	ug/kg wet		1667		103	62.1-120		
Diethyl phthalate	1570	ug/kg wet		1667		94	59.4-120		
Fluorene	1510	ug/kg wet		1667		91	58.1-120		
4-Chlorophenylphenyl ether	1560	ug/kg wet		1667		94	59.8-120		
4-Nitroaniline	1670	ug/kg wet		1667		100	40.5-120		
4,6-Dinitro-2-methylphenol	901	ug/kg wet		3333		27	10-142		
N-Nitrosodiphenylamine	1450	ug/kg wet		1667		87	57.1-120		
4-Bromophenyl phenyl ether	1590	ug/kg wet		1667		95	66.6-120		
Hexachlorobenzene	1530	ug/kg wet		1667		92	64.7-120		
Pentachlorophenol	2560	ug/kg wet		3333		77	26.3-133		
Phenanthrene	1500	ug/kg wet		1667		90	64.6-120		
Anthracene	1490	ug/kg wet		1667		89	66.4-120		
Di-n-butyl phthalate	1590	ug/kg wet		1667		95	65.8-120		
Fluoranthene	1570	ug/kg wet		1667		94	63-120		
Pyrene	1690	ug/kg wet		1667		102	57.8-129		
Butyl benzyl phthalate	1810	ug/kg wet		1667		109	62.8-123		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
LCS (B920090-BS1)				Prepared: 09/04/19 Analyzed: 09/05/19					
Benzo(a)anthracene	1420	ug/kg wet		1667		85	61.9-120		
Chrysene	1690	ug/kg wet		1667		101	42.8-120		
Bis(2-ethylhexyl) phthalate	1860	ug/kg wet		1667		112	57.8-122		
Di-n-octyl phthalate	1780	ug/kg wet		1667		107	56-126		
Benzo(b)fluoranthene	1520	ug/kg wet		1667		91	57.1-122		
Benzo(k)fluoranthene	1560	ug/kg wet		1667		94	62.3-128		
Benzo(a)pyrene	1480	ug/kg wet		1667		89	62.6-120		
Indeno(1,2,3-cd)pyrene	1240	ug/kg wet		1667		74	44.7-132		
Dibenzo(a,h)anthracene	1210	ug/kg wet		1667		73	39.7-133		
Benzo(g,h,i)perylene	1260	ug/kg wet		1667		75	45.4-133		
Surrogate: 2-Fluorophenol	*2180*	*ug/kg wet*		*2500*		*87*	*10-136*		
Surrogate: Phenol-d6	*2090*	*ug/kg wet*		*2500*		*83*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*1370*	*ug/kg wet*		*1667*		*82*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*1310*	*ug/kg wet*		*1667*		*79*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*2380*	*ug/kg wet*		*2500*		*95*	*10-134*		
Surrogate: p-Terphenyl-d14	*1690*	*ug/kg wet*		*1667*		*102*	*10-161*		
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	38600	ug/kg dry		57730	ND	67	33.5-120		
Pyridine	31000	ug/kg dry		57730	ND	54	30.2-120		
Phenol	83300	ug/kg dry		115500	ND	72	27.6-120		
Aniline	24800	ug/kg dry		57730	ND	43	10-122		
Bis(2-chloroethyl) ether	40800	ug/kg dry		57730	ND	71	42.7-120		
2-Chlorophenol	78900	ug/kg dry		115500	ND	68	10-144		
1,3-Dichlorobenzene	36000	ug/kg dry		57730	ND	62	47.1-120		
1,4-Dichlorobenzene	36600	ug/kg dry		57730	ND	63	47.4-120		
Benzyl alcohol	48600	ug/kg dry		57730	ND	84	30.5-143		
1,2-Dichlorobenzene	36900	ug/kg dry		57730	ND	64	51.7-120		
2-Methylphenol	86400	ug/kg dry		115500	ND	75	42.4-120		
Bis(2-chloroisopropyl) ether	42100	ug/kg dry		57730	ND	73	45.1-120		
N-Nitrosodi-n-propylamine	37000	ug/kg dry		57730	ND	64	40.5-120		
3- & 4-Methylphenol	82700	ug/kg dry		115500	ND	72	10.7-147		
Hexachloroethane	33600	ug/kg dry		57730	ND	58	10-120		
Nitrobenzene	43300	ug/kg dry		57730	ND	75	41.3-122		
Isophorone	43300	ug/kg dry		57730	ND	75	38.5-121		
2-Nitrophenol	91000	ug/kg dry		115500	ND	79	10-173		
2,4-Dimethylphenol	96800	ug/kg dry		115500	ND	84	39.9-128		
Bis(2-chloroethoxy) methane	43800	ug/kg dry		57730	ND	76	55.4-120		
2,4-Dichlorophenol	93900	ug/kg dry		115500	ND	81	10-157		
1,2,4-Trichlorobenzene	42200	ug/kg dry		57730	ND	73	47.5-120		
Naphthalene	39200	ug/kg dry		57730	ND	68	56.2-120		
4-Chloroaniline	20000	ug/kg dry		57730	ND	35	10-120		
Hexachlorobutadiene	39400	ug/kg dry		57730	ND	68	47.8-120		
4-Chloro-3-methylphenol	92900	ug/kg dry		115500	ND	80	17.3-135		
2-Methylnaphthalene	42000	ug/kg dry		57730	ND	73	49.3-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Hexachlorocyclopentadiene	< 11000	ug/kg dry	Q3	57730	ND		10-120		
2,4,6-Trichlorophenol	98800	ug/kg dry		115500	ND	86	10-200		
2,4,5-Trichlorophenol	107000	ug/kg dry		115500	ND	92	10-189		
2-Chloronaphthalene	40300	ug/kg dry		57730	ND	70	41.4-120		
2-Nitroaniline	52000	ug/kg dry		57730	ND	90	47.6-128		
Dimethyl phthalate	46600	ug/kg dry		57730	ND	81	46.2-124		
2,6-Dinitrotoluene	49500	ug/kg dry		57730	ND	86	40.5-144		
Acenaphthylene	42100	ug/kg dry		57730	ND	73	47.2-120		
3-Nitroaniline	33700	ug/kg dry		57730	ND	58	26.3-120		
Acenaphthene	43800	ug/kg dry		57730	ND	76	40.3-129		
2,4-Dinitrophenol	31000	ug/kg dry	R	115500	ND	27	10-128		
4-Nitrophenol	87400	ug/kg dry		115500	ND	76	10-142		
Dibenzofuran	46100	ug/kg dry		57730	ND	80	45.4-121		
2,4-Dinitrotoluene	47000	ug/kg dry		57730	ND	81	46.6-120		
Diethyl phthalate	46200	ug/kg dry		57730	ND	80	43.3-120		
Fluorene	43700	ug/kg dry		57730	ND	76	40.7-120		
4-Chlorophenylphenyl ether	45100	ug/kg dry		57730	ND	78	43.4-120		
4-Nitroaniline	37500	ug/kg dry		57730	ND	65	19.5-120		
4,6-Dinitro-2-methylphenol	38100	ug/kg dry		115500	ND	33	10-166		
N-Nitrosodiphenylamine	47300	ug/kg dry		57730	ND	82	60.7-120		
4-Bromophenyl phenyl ether	49300	ug/kg dry		57730	ND	85	57.4-123		
Hexachlorobenzene	46800	ug/kg dry		57730	ND	81	52.8-123		
Pentachlorophenol	80000	ug/kg dry		115500	ND	69	10-149		
Phenanthrene	44800	ug/kg dry		57730	ND	78	47.8-122		
Anthracene	44100	ug/kg dry		57730	ND	76	50.8-120		
Di-n-butyl phthalate	46500	ug/kg dry		57730	ND	81	53.3-120		
Fluoranthene	39300	ug/kg dry		57730	ND	68	35.5-121		
Pyrene	51300	ug/kg dry		57730	ND	89	35-147		
Butyl benzyl phthalate	52700	ug/kg dry		57730	ND	91	43.8-136		
Benzo(a)anthracene	42900	ug/kg dry		57730	ND	74	42.6-122		
Chrysene	49800	ug/kg dry		57730	ND	86	23.5-120		
Bis(2-ethylhexyl) phthalate	67100	ug/kg dry		57730	13200	93	10-165		
Di-n-octyl phthalate	62600	ug/kg dry		57730	ND	108	33.7-163		
Benzo(b)fluoranthene	45400	ug/kg dry		57730	ND	79	24.5-130		
Benzo(k)fluoranthene	45200	ug/kg dry		57730	ND	78	33.9-133		
Benzo(a)pyrene	49200	ug/kg dry		57730	ND	85	30.8-134		
Indeno(1,2,3-cd)pyrene	41900	ug/kg dry		57730	ND	73	21.1-171		
Dibenzo(a,h)anthracene	41600	ug/kg dry		57730	ND	72	24.6-156		
Benzo(g,h,i)perylene	42300	ug/kg dry		57730	ND	73	10.7-187		
Surrogate: 2-Fluorophenol	*63700*	*ug/kg dry*		*86600*		*74*	*10-136*		
Surrogate: Phenol-d6	*63400*	*ug/kg dry*		*86600*		*73*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*40500*	*ug/kg dry*		*57730*		*70*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*40500*	*ug/kg dry*		*57730*		*70*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*66800*	*ug/kg dry*		*86600*		*77*	*10-134*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike (B920090-MS1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Surrogate: p-Terphenyl-d14	*48300*	*ug/kg dry*		*57730*		*84*	*10-161*		
Matrix Spike Dup (B920090-MSD1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
N-Nitrosodimethylamine	38600	ug/kg dry		57960	ND	67	33.5-120	0.04	40
Pyridine	31600	ug/kg dry		57960	ND	54	30.2-120	2	40
Phenol	80800	ug/kg dry		115900	ND	70	27.6-120	3	40
Aniline	26100	ug/kg dry		57960	ND	45	10-122	5	40
Bis(2-chloroethyl) ether	40200	ug/kg dry		57960	ND	69	42.7-120	1	40
2-Chlorophenol	76300	ug/kg dry		115900	ND	66	10-144	3	40
1,3-Dichlorobenzene	34400	ug/kg dry		57960	ND	59	47.1-120	4	40
1,4-Dichlorobenzene	35500	ug/kg dry		57960	ND	61	47.4-120	3	40
Benzyl alcohol	48800	ug/kg dry		57960	ND	84	30.5-143	0.5	40
1,2-Dichlorobenzene	36300	ug/kg dry		57960	ND	63	51.7-120	2	40
2-Methylphenol	79500	ug/kg dry		115900	ND	69	42.4-120	8	40
Bis(2-chloroisopropyl) ether	38500	ug/kg dry		57960	ND	66	45.1-120	9	40
N-Nitrosodi-n-propylamine	33600	ug/kg dry		57960	ND	58	40.5-120	10	40
3- & 4-Methylphenol	77600	ug/kg dry		115900	ND	67	10.7-147	6	40
Hexachloroethane	33900	ug/kg dry		57960	ND	58	10-120	0.8	40
Nitrobenzene	38400	ug/kg dry		57960	ND	66	41.3-122	12	40
Isophorone	38800	ug/kg dry		57960	ND	67	38.5-121	11	40
2-Nitrophenol	80700	ug/kg dry		115900	ND	70	10-173	12	40
2,4-Dimethylphenol	87000	ug/kg dry		115900	ND	75	39.9-128	11	40
Bis(2-chloroethoxy) methane	39900	ug/kg dry		57960	ND	69	55.4-120	9	40
2,4-Dichlorophenol	79300	ug/kg dry		115900	ND	68	10-157	17	40
1,2,4-Trichlorobenzene	37800	ug/kg dry		57960	ND	65	47.5-120	11	40
Naphthalene	35100	ug/kg dry		57960	ND	60	56.2-120	11	40
4-Chloroaniline	21100	ug/kg dry		57960	ND	36	10-120	5	40
Hexachlorobutadiene	34900	ug/kg dry		57960	ND	60	47.8-120	12	40
4-Chloro-3-methylphenol	76300	ug/kg dry		115900	ND	66	17.3-135	20	40
2-Methylnaphthalene	36700	ug/kg dry		57960	ND	63	49.3-120	13	40
Hexachlorocyclopentadiene	< 11000	ug/kg dry	Q3	57960	ND		10-120		40
2,4,6-Trichlorophenol	85000	ug/kg dry		115900	ND	73	10-200	15	40
2,4,5-Trichlorophenol	85900	ug/kg dry		115900	ND	74	10-189	21	40
2-Chloronaphthalene	35600	ug/kg dry		57960	ND	61	41.4-120	12	40
2-Nitroaniline	44300	ug/kg dry		57960	ND	76	47.6-128	16	40
Dimethyl phthalate	40000	ug/kg dry		57960	ND	69	46.2-124	15	40
2,6-Dinitrotoluene	40300	ug/kg dry		57960	ND	70	40.5-144	20	40
Acenaphthylene	36800	ug/kg dry		57960	ND	63	47.2-120	14	40
3-Nitroaniline	29800	ug/kg dry		57960	ND	51	26.3-120	12	40
Acenaphthene	37300	ug/kg dry		57960	ND	64	40.3-129	16	40
2,4-Dinitrophenol	20000	ug/kg dry	R	115900	ND	17	10-128	43	40
4-Nitrophenol	69500	ug/kg dry		115900	ND	60	10-142	23	40
Dibenzofuran	39700	ug/kg dry		57960	ND	69	45.4-121	15	40
2,4-Dinitrotoluene	38500	ug/kg dry		57960	ND	66	46.6-120	20	40
Diethyl phthalate	39400	ug/kg dry		57960	ND	68	43.3-120	16	40

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920090 - EPA 625/8270 - SW 8270C									
Matrix Spike Dup (B920090-MSD1)	**Sample: 9085915-01**			Prepared: 09/04/19 Analyzed: 09/05/19					
Fluorene	37000	ug/kg dry		57960	ND	64	40.7-120	17	40
4-Chlorophenylphenyl ether	37500	ug/kg dry		57960	ND	65	43.4-120	19	40
4-Nitroaniline	32400	ug/kg dry		57960	ND	56	19.5-120	15	40
4,6-Dinitro-2-methylphenol	26700	ug/kg dry		115900	ND	23	10-166	35	40
N-Nitrosodiphenylamine	40700	ug/kg dry		57960	ND	70	60.7-120	15	40
4-Bromophenyl phenyl ether	43300	ug/kg dry		57960	ND	75	57.4-123	13	40
Hexachlorobenzene	41800	ug/kg dry		57960	ND	72	52.8-123	11	40
Pentachlorophenol	62100	ug/kg dry		115900	ND	54	10-149	25	40
Phenanthrene	39300	ug/kg dry		57960	ND	68	47.8-122	13	40
Anthracene	39900	ug/kg dry		57960	ND	69	50.8-120	10	40
Di-n-butyl phthalate	39800	ug/kg dry		57960	ND	69	53.3-120	15	40
Fluoranthene	33600	ug/kg dry		57960	ND	58	35.5-121	15	40
Pyrene	42100	ug/kg dry		57960	ND	73	35-147	20	40
Butyl benzyl phthalate	46700	ug/kg dry		57960	ND	81	43.8-136	12	40
Benzo(a)anthracene	35900	ug/kg dry		57960	ND	62	42.6-122	18	40
Chrysene	39600	ug/kg dry		57960	ND	68	23.5-120	23	40
Bis(2-ethylhexyl) phthalate	52900	ug/kg dry		57960	13200	69	10-165	24	40
Di-n-octyl phthalate	52100	ug/kg dry		57960	ND	90	33.7-163	18	40
Benzo(b)fluoranthene	37800	ug/kg dry		57960	ND	65	24.5-130	18	40
Benzo(k)fluoranthene	38400	ug/kg dry		57960	ND	66	33.9-133	16	40
Benzo(a)pyrene	42800	ug/kg dry		57960	ND	74	30.8-134	14	40
Indeno(1,2,3-cd)pyrene	38200	ug/kg dry		57960	ND	66	21.1-171	9	40
Dibenzo(a,h)anthracene	37000	ug/kg dry		57960	ND	64	24.6-156	12	40
Benzo(g,h,i)perylene	38800	ug/kg dry		57960	ND	67	10.7-187	9	40
Surrogate: 2-Fluorophenol	*61800*	*ug/kg dry*		*86940*		*71*	*10-136*		
Surrogate: Phenol-d6	*60100*	*ug/kg dry*		*86940*		*69*	*28.7-120*		
Surrogate: Nitrobenzene-d5	*35300*	*ug/kg dry*		*57960*		*61*	*34-120*		
Surrogate: 2-Fluorobiphenyl	*34800*	*ug/kg dry*		*57960*		*60*	*33.8-120*		
Surrogate: 2,4,6-Tribromophenol	*55600*	*ug/kg dry*		*86940*		*64*	*10-134*		
Surrogate: p-Terphenyl-d14	*40700*	*ug/kg dry*		*57960*		*70*	*10-161*		
Batch B920136 - No Prep - SW 9066									
Blank (B920136-BLK1)				Prepared & Analyzed: 09/05/19					
Phenolics	< 0.25	mg/kg wet							
LCS (B920136-BS1)				Prepared & Analyzed: 09/05/19					
Phenolics	2.47	mg/kg wet		2.500		99	90-110		
Matrix Spike (B920136-MS1)	**Sample: 9090376-04**			Prepared & Analyzed: 09/05/19					
Phenolics	3.63	mg/kg dry	Q1, R	10.33	ND	35	75-125		
Matrix Spike Dup (B920136-MSD1)	**Sample: 9090376-04**			Prepared & Analyzed: 09/05/19					
Phenolics	1.86	mg/kg dry	Q2, R	10.33	ND	18	75-125	65	20
Batch B920152 - EPA 8151 - SW 8151									
Blank (B920152-BLK1)				Prepared: 09/05/19 Analyzed: 09/06/19					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920152 - EPA 8151 - SW 8151									
Blank (B920152-BLK1)				Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	< 0.01	mg/L							
Silvex	< 0.005	mg/L							
Surrogate: DCAA	*0.00220*	*mg/L*		*0.002000*		*110*	*11.2-172*		
LCS (B920152-BS1)				Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.001	mg/L		0.001500		92	51.2-178		
Silvex	0.001	mg/L		0.001500		88	51.4-139		
Surrogate: DCAA	*0.00234*	*mg/L*		*0.002000*		*117*	*11.2-172*		
Matrix Spike (B920152-MS1)	**Sample: 9085915-01**			Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.02	mg/L		0.01500	ND	136	65.2-138		
Silvex	0.01	mg/L		0.01500	ND	97	46.7-123		
Surrogate: DCAA	*0.0231*	*mg/L*		*0.02000*		*115*	*11.2-172*		
Matrix Spike Dup (B920152-MSD1)	**Sample: 9085915-01**			Prepared: 09/05/19 Analyzed: 09/06/19					
2,4-D	0.02	mg/L		0.01500	ND	125	65.2-138	8	40
Silvex	0.01	mg/L		0.01500	ND	88	46.7-123	10	40
Surrogate: DCAA	*0.0211*	*mg/L*		*0.02000*		*106*	*11.2-172*		
Batch B920160 - EPA 608/8081/8082/8141 - SW 8081									
Blank (B920160-BLK1)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	< 0.001	mg/L							
Endrin	< 0.00005	mg/L							
gamma-BHC (Lindane)	< 0.00005	mg/L							
Heptachlor	< 0.00005	mg/L							
Heptachlor epoxide	< 0.00005	mg/L							
Methoxychlor	< 0.0002	mg/L							
Toxaphene	< 0.001	mg/L							
Surrogate: TCMX	*0.00038*	*mg/L*		*5.000E-4*		*75*	*40.9-120*		
Surrogate: DCBP	*0.00012*	*mg/L*		*5.000E-4*		*24*	*10-147*		
Blank (B920160-BLK2)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	< 0.001	mg/L							
Endrin	< 0.00005	mg/L							
gamma-BHC (Lindane)	< 0.00005	mg/L							
Heptachlor	< 0.00005	mg/L							
Heptachlor epoxide	< 0.00005	mg/L							
Methoxychlor	< 0.0002	mg/L							
Toxaphene	< 0.001	mg/L							
Surrogate: TCMX	*0.00040*	*mg/L*		*5.000E-4*		*80*	*40.9-120*		
Surrogate: DCBP	*0.00041*	*mg/L*		*5.000E-4*		*82*	*10-147*		
LCS (B920160-BS1)				Prepared & Analyzed: 09/05/19					
Endrin	0.0007	mg/L		8.000E-4		85	52.4-145		
gamma-BHC (Lindane)	0.0007	mg/L		8.000E-4		87	55.5-144		
Heptachlor	0.0007	mg/L		8.000E-4		83	49.2-138		
Heptachlor epoxide	0.0007	mg/L		8.000E-4		85	55-140		
Methoxychlor	0.003	mg/L		0.003200		85	64.3-139		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920160 - EPA 608/8081/8082/8141 - SW 8081									
LCS (B920160-BS1)				Prepared & Analyzed: 09/05/19					
Surrogate: TCMX	*0.00040*	*mg/L*		*5.000E-4*		*79*	*40.9-120*		
Surrogate: DCBP	*0.00030*	*mg/L*		*5.000E-4*		*61*	*10-147*		
Matrix Spike (B920160-MS1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/05/19					
Endrin	0.007	mg/L		0.008000	ND	93	42.6-164		
gamma-BHC (Lindane)	0.007	mg/L		0.008000	ND	89	43.5-154		
Heptachlor	0.007	mg/L		0.008000	0.0003	79	38.6-146		
Heptachlor epoxide	0.007	mg/L		0.008000	ND	84	43.7-148		
Methoxychlor	0.03	mg/L		0.03200	ND	89	42.2-157		
Surrogate: TCMX	*0.0037*	*mg/L*		*0.005000*		*73*	*40.9-120*		
Surrogate: DCBP	*0.0039*	*mg/L*		*0.005000*		*78*	*10-147*		
Matrix Spike Dup (B920160-MSD1)	**Sample: 9085916-01**			Prepared & Analyzed: 09/05/19					
Endrin	0.008	mg/L		0.008000	ND	94	42.6-164	2	40
gamma-BHC (Lindane)	0.007	mg/L		0.008000	ND	89	43.5-154	0.7	40
Heptachlor	0.007	mg/L		0.008000	0.0003	79	38.6-146	0.03	40
Heptachlor epoxide	0.007	mg/L		0.008000	ND	88	43.7-148	4	40
Methoxychlor	0.03	mg/L		0.03200	ND	90	42.2-157	0.9	40
Surrogate: TCMX	*0.0038*	*mg/L*		*0.005000*		*75*	*40.9-120*		
Surrogate: DCBP	*0.0043*	*mg/L*		*0.005000*		*86*	*10-147*		
Reference (B920160-SRM1)				Prepared & Analyzed: 09/05/19					
Chlordane (technical)	0.002	mg/L		0.002000		113	0-200		
Toxaphene	0.003	mg/L		0.004000		86	0-200		
Batch B920419 - No Prep - VOA - SW 8260B									
Blank (B920419-BLK1)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*27.8*	*ug/L*		*30.00*		*93*	*72.4-124*		
Surrogate: Toluene-d8	*28.2*	*ug/L*		*30.00*		*94*	*77.5-120*		
Surrogate: Bromofluorobenzene	*29.8*	*ug/L*		*30.00*		*99*	*80-129*		
Blank (B920419-BLK2)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920419 - No Prep - VOA - SW 8260B									
Blank (B920419-BLK2)				Prepared & Analyzed: 09/06/19					
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*29.6*	*ug/L*		*30.00*		*99*	*72.4-124*		
Surrogate: Toluene-d8	*29.2*	*ug/L*		*30.00*		*97*	*77.5-120*		
Surrogate: Bromofluorobenzene	*31.3*	*ug/L*		*30.00*		*104*	*80-129*		
Blank (B920419-BLK3)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	< 0.005	mg/L							
1,2-Dichloroethane	< 0.005	mg/L							
1,4-Dichlorobenzene	< 0.005	mg/L							
2-Butanone	< 0.010	mg/L							
Benzene	< 0.005	mg/L							
Carbon tetrachloride	< 0.005	mg/L							
Chlorobenzene	< 0.005	mg/L							
Chloroform	< 0.005	mg/L							
Tetrachloroethene	< 0.005	mg/L							
Trichloroethene	< 0.005	mg/L							
Vinyl chloride	< 0.005	mg/L							
Surrogate: 1,2-Dichloroethane-d4	*29.0*	*ug/L*		*30.00*		*97*	*72.4-124*		
Surrogate: Toluene-d8	*28.9*	*ug/L*		*30.00*		*96*	*77.5-120*		
Surrogate: Bromofluorobenzene	*31.6*	*ug/L*		*30.00*		*105*	*80-129*		
LCS (B920419-BS1)				Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.022	mg/L		0.02000		109	80-131		
1,2-Dichloroethane	0.021	mg/L		0.02000		103	80-120		
1,4-Dichlorobenzene	0.020	mg/L		0.02000		98	80-120		
2-Butanone	0.020	mg/L		0.02000		102	76.7-138		
Benzene	0.020	mg/L		0.02000		102	80-120		
Carbon tetrachloride	0.020	mg/L		0.02000		100	80-124		
Chlorobenzene	0.020	mg/L		0.02000		101	80-120		
Chloroform	0.021	mg/L		0.02000		103	80-133		
Tetrachloroethene	0.020	mg/L		0.02000		98	80-120		
Trichloroethene	0.021	mg/L		0.02000		103	80-120		
Vinyl chloride	0.022	mg/L		0.02000		110	80-126		
Surrogate: 1,2-Dichloroethane-d4	*27.8*	*ug/L*		*30.00*		*93*	*72.4-124*		
Surrogate: Toluene-d8	*27.5*	*ug/L*		*30.00*		*92*	*77.5-120*		
Surrogate: Bromofluorobenzene	*30.1*	*ug/L*		*30.00*		*100*	*80-129*		
Matrix Spike (B920419-MS1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.030	mg/L		0.02000	ND	152	68.8-169		
1,2-Dichloroethane	0.018	mg/L		0.02000	ND	90	75.6-123		
1,4-Dichlorobenzene	0.017	mg/L		0.02000	ND	86	77.5-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920419 - No Prep - VOA - SW 8260B									
Matrix Spike (B920419-MS1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
2-Butanone	0.023	mg/L		0.02000	ND	113	49.9-163		
Benzene	0.018	mg/L		0.02000	ND	92	79.9-124		
Carbon tetrachloride	0.018	mg/L		0.02000	ND	90	75.5-138		
Chlorobenzene	0.018	mg/L		0.02000	ND	91	75.5-120		
Chloroform	0.019	mg/L		0.02000	ND	94	69.4-138		
Tetrachloroethene	0.018	mg/L		0.02000	ND	90	71.6-128		
Trichloroethene	0.035	mg/L		0.02000	ND	173	13.8-200		
Vinyl chloride	0.022	mg/L		0.02000	ND	109	73.7-137		
Surrogate: 1,2-Dichloroethane-d4	*28.4*	*ug/L*		*30.00*		*95*	*72.4-124*		
Surrogate: Toluene-d8	*28.2*	*ug/L*		*30.00*		*94*	*77.5-120*		
Surrogate: Bromofluorobenzene	*29.9*	*ug/L*		*30.00*		*100*	*80-129*		
Matrix Spike Dup (B920419-MSD1)	**Sample: 9090032-01**			Prepared & Analyzed: 09/06/19					
1,1-Dichloroethene	0.029	mg/L		0.02000	ND	145	68.8-169	4	40
1,2-Dichloroethane	0.018	mg/L		0.02000	ND	90	75.6-123	0.9	40
1,4-Dichlorobenzene	0.017	mg/L		0.02000	ND	86	77.5-120	0.07	40
2-Butanone	0.022	mg/L		0.02000	ND	111	49.9-163	2	40
Benzene	0.018	mg/L		0.02000	ND	89	79.9-124	3	40
Carbon tetrachloride	0.017	mg/L		0.02000	ND	87	75.5-138	3	40
Chlorobenzene	0.018	mg/L		0.02000	ND	88	75.5-120	3	40
Chloroform	0.018	mg/L		0.02000	ND	91	69.4-138	3	40
Tetrachloroethene	0.018	mg/L		0.02000	ND	89	71.6-128	2	40
Trichloroethene	0.033	mg/L		0.02000	ND	164	13.8-200	5	40
Vinyl chloride	0.021	mg/L		0.02000	ND	104	73.7-137	5	40
Surrogate: 1,2-Dichloroethane-d4	*28.3*	*ug/L*		*30.00*		*94*	*72.4-124*		
Surrogate: Toluene-d8	*28.0*	*ug/L*		*30.00*		*93*	*77.5-120*		
Surrogate: Bromofluorobenzene	*30.1*	*ug/L*		*30.00*		*100*	*80-129*		
Batch B920461 - No Prep - VOA - SW 8260B									
Blank (B920461-BLK1)				Prepared & Analyzed: 09/06/19					
1,1,2,2-Tetrachloroethane	< 5.0	ug/kg wet							
1,1,2-Trichloroethane	< 5.0	ug/kg wet							
1,1-Dichloroethane	< 5.0	ug/kg wet							
1,1-Dichloroethene	< 5.0	ug/kg wet							
1,2,4-Trichlorobenzene	< 5.0	ug/kg wet							
1,3-Dichloropropene - Total	< 15	ug/kg wet							
1,2-Dichlorobenzene	< 5.0	ug/kg wet							
1,2-Dichloroethane	< 5.0	ug/kg wet							
1,2-Dichloropropane	< 5.0	ug/kg wet							
1,3-Dichlorobenzene	< 5.0	ug/kg wet							
1,4-Dichlorobenzene	< 5.0	ug/kg wet							
2-Chloroethylvinyl ether	< 5.0	ug/kg wet							
Acetonitrile	< 100	ug/kg wet							
Acrolein	< 10	ug/kg wet							

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
Blank (B920461-BLK1)				Prepared & Analyzed: 09/06/19					
Benzene	< 5.0	ug/kg wet							
Bromodichloromethane	< 5.0	ug/kg wet							
Bromoform	< 5.0	ug/kg wet							
Bromomethane	< 10	ug/kg wet							
Carbon tetrachloride	< 5.0	ug/kg wet							
Chlorobenzene	< 5.0	ug/kg wet							
Chloroethane	< 10	ug/kg wet							
cis-1,3-Dichloropropene	< 5.0	ug/kg wet							
Chloroform	< 5.0	ug/kg wet							
Chloromethane	< 10	ug/kg wet							
Dibromochloromethane	< 5.0	ug/kg wet							
trans-1,2-Dichloroethene	< 5.0	ug/kg wet							
Ethylbenzene	< 2.0	ug/kg wet							
Methylene chloride	< 5.0	ug/kg wet							
Tetrachloroethene	< 5.0	ug/kg wet							
Toluene	< 5.0	ug/kg wet							
Trichloroethene	< 5.0	ug/kg wet							
Vinyl chloride	< 10	ug/kg wet							
LCS (B920461-BS1)				Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	17	ug/kg wet		20.00		87	76.9-122		
1,1,2,2-Tetrachloroethane	21	ug/kg wet		20.00		103	66.9-126		
1,1,2-Trichloroethane	19	ug/kg wet		20.00		97	80-120		
1,1-Dichloroethane	18	ug/kg wet		20.00		91	80-120		
1,1-Dichloroethene	19	ug/kg wet		20.00		95	76-132		
1,2-Dichlorobenzene	20	ug/kg wet		20.00		98	80-120		
1,2-Dichloroethane	20	ug/kg wet		20.00		102	80-120		
1,2-Dichloropropane	20	ug/kg wet		20.00		99	80-120		
1,3-Dichlorobenzene	19	ug/kg wet		20.00		93	79.4-120		
1,4-Dichlorobenzene	19	ug/kg wet		20.00		94	80-122		
2-Butanone	20	ug/kg wet		20.00		102	80-141		
4-Methyl-2-pentanone (MIBK)	21	ug/kg wet		20.00		106	80-120		
Benzene	19	ug/kg wet		20.00		94	80-120		
Bromodichloromethane	18	ug/kg wet		20.00		90	76.6-120		
Bromoform	16	ug/kg wet		20.00		78	62.9-120		
Bromomethane	18	ug/kg wet		20.00		89	27.3-120		
Carbon tetrachloride	18	ug/kg wet		20.00		88	76.9-126		
Chlorobenzene	19	ug/kg wet		20.00		95	80-120		
Chloroethane	22	ug/kg wet		20.00		109	61.8-133		
cis-1,3-Dichloropropene	17	ug/kg wet		20.00		86	74.7-120		
Chloroform	18	ug/kg wet		20.00		91	80-120		
Chloromethane	19	ug/kg wet		20.00		96	40.4-135		
Dibromochloromethane	18	ug/kg wet		20.00		90	80-120		
trans-1,2-Dichloroethene	19	ug/kg wet		20.00		93	75.5-121		
trans-1,3-Dichloropropene	16	ug/kg wet		20.00		80	65.7-120		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
LCS (B920461-BS1)				Prepared & Analyzed: 09/06/19					
Ethylbenzene	18	ug/kg wet		20.00		90	80-120		
Tetrachloroethene	18	ug/kg wet		20.00		90	80-121		
Toluene	19	ug/kg wet		20.00		93	79.9-120		
Trichloroethene	19	ug/kg wet		20.00		94	77.1-129		
Trichlorofluoromethane	18	ug/kg wet		20.00		91	70-133		
Vinyl chloride	20	ug/kg wet		20.00		99	57.7-138		
Surrogate: 1,2-Dichloroethane-d4	*39*	*ug/L*		*30.00*		*130*	*62.8-138*		
Surrogate: Toluene-d8	*39*	*ug/L*		*30.00*		*130*	*51.8-147*		
Surrogate: Bromofluorobenzene	*41*	*ug/L*		*30.00*		*138*	*54.4-175*		
Matrix Spike (B920461-MS1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	156	ug/kg dry	R	234.4	ND	67	44-125		
1,1,2,2-Tetrachloroethane	213	ug/kg dry	R	234.4	ND	91	34.9-187		
1,1,2-Trichloroethane	196	ug/kg dry	R	234.4	ND	84	10-151		
1,1-Dichloroethane	198	ug/kg dry	R	234.4	ND	84	60.8-130		
1,1-Dichloroethene	172	ug/kg dry	R	234.4	ND	73	35-165		
1,2-Dichlorobenzene	199	ug/kg dry	R	234.4	ND	85	10-148		
1,2-Dichloroethane	216	ug/kg dry	R	234.4	ND	92	60.9-125		
1,2-Dichloropropane	209	ug/kg dry	R	234.4	ND	89	54.5-130		
1,3-Dichlorobenzene	199	ug/kg dry	R	234.4	ND	85	19.6-135		
1,4-Dichlorobenzene	201	ug/kg dry	R	234.4	ND	86	13.5-144		
2-Butanone	135	ug/kg dry	R	234.4	ND	57	35.1-192		
4-Methyl-2-pentanone (MIBK)	179	ug/kg dry	R	234.4	ND	76	44.5-149		
Benzene	194	ug/kg dry	R	234.4	ND	83	53.1-127		
Bromodichloromethane	143	ug/kg dry	R	234.4	ND	61	10-134		
Bromoform	97	ug/kg dry		234.4	ND	41	10-120		
Bromomethane	118	ug/kg dry	R	234.4	ND	50	10-129		
Carbon tetrachloride	120	ug/kg dry	R	234.4	ND	51	10-138		
Chlorobenzene	199	ug/kg dry	R	234.4	ND	85	35.4-130		
Chloroethane	196	ug/kg dry	R	234.4	ND	84	26.3-165		
cis-1,3-Dichloropropene	132	ug/kg dry	R	234.4	ND	56	10-132		
Chloroform	192	ug/kg dry	R	234.4	ND	82	57.3-128		
Chloromethane	112	ug/kg dry	R	234.4	ND	48	22.4-137		
Dibromochloromethane	132	ug/kg dry	R	234.4	ND	56	10-138		
trans-1,2-Dichloroethene	176	ug/kg dry	R	234.4	ND	75	30.1-141		
trans-1,3-Dichloropropene	125	ug/kg dry	R	234.4	ND	54	10-120		
Ethylbenzene	185	ug/kg dry	R	234.4	ND	79	34.6-127		
Tetrachloroethene	173	ug/kg dry	R	234.4	ND	74	18.7-143		
Toluene	181	ug/kg dry	R	234.4	ND	77	17.7-147		
Trichloroethene	191	ug/kg dry	R	234.4	ND	82	35.1-153		
Trichlorofluoromethane	147	ug/kg dry	R	234.4	ND	63	38.9-142		
Vinyl chloride	141	ug/kg dry	R	234.4	ND	60	29.5-150		
Surrogate: 1,2-Dichloroethane-d4	*36*	*ug/L*		*30.00*		*119*	*62.8-138*		
Surrogate: Toluene-d8	*36*	*ug/L*		*30.00*		*122*	*51.8-147*		
Surrogate: Bromofluorobenzene	*43*	*ug/L*		*30.00*		*145*	*54.4-175*		

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B920461 - No Prep - VOA - SW 8260B									
Matrix Spike Dup (B920461-MSD1)	**Sample: 9085915-01**			Prepared & Analyzed: 09/06/19					
1,1,1-Trichloroethane	1070	ug/kg dry	R	1247	ND	86	44-125	149	40
1,1,2,2-Tetrachloroethane	1200	ug/kg dry	R	1247	ND	96	34.9-187	140	40
1,1,2-Trichloroethane	1130	ug/kg dry	R	1247	ND	91	10-151	141	40
1,1-Dichloroethane	1160	ug/kg dry	R	1247	ND	93	60.8-130	142	40
1,1-Dichloroethene	1190	ug/kg dry	R	1247	ND	95	35-165	149	40
1,2-Dichlorobenzene	1140	ug/kg dry	R	1247	ND	91	10-148	140	40
1,2-Dichloroethane	1200	ug/kg dry	R	1247	ND	96	60.9-125	139	40
1,2-Dichloropropane	1200	ug/kg dry	R	1247	ND	96	54.5-130	141	40
1,3-Dichlorobenzene	1150	ug/kg dry	R	1247	ND	92	19.6-135	141	40
1,4-Dichlorobenzene	1150	ug/kg dry	R	1247	ND	92	13.5-144	140	40
2-Butanone	766	ug/kg dry	R	1247	ND	61	35.1-192	140	40
4-Methyl-2-pentanone (MIBK)	993	ug/kg dry	R	1247	ND	80	44.5-149	139	40
Benzene	1140	ug/kg dry	R	1247	ND	92	53.1-127	142	40
Bromodichloromethane	873	ug/kg dry	R	1247	ND	70	10-134	144	40
Bromoform	630	ug/kg dry		1247	ND	51	10-120		40
Bromomethane	610	ug/kg dry	R	1247	ND	49	10-129	135	40
Carbon tetrachloride	826	ug/kg dry	R	1247	ND	66	10-138	149	40
Chlorobenzene	1160	ug/kg dry	R	1247	ND	93	35.4-130	141	40
Chloroethane	1220	ug/kg dry	R	1247	ND	98	26.3-165	145	40
cis-1,3-Dichloropropene	769	ug/kg dry	R	1247	ND	62	10-132	142	40
Chloroform	1160	ug/kg dry	R	1247	ND	93	57.3-128	143	40
Chloromethane	547	ug/kg dry	R	1247	ND	44	22.4-137	132	40
Dibromochloromethane	811	ug/kg dry	R	1247	ND	65	10-138	144	40
trans-1,2-Dichloroethene	1030	ug/kg dry	R	1247	ND	82	30.1-141	142	40
trans-1,3-Dichloropropene	728	ug/kg dry	R	1247	ND	58	10-120	141	40
Ethylbenzene	1130	ug/kg dry	R	1247	ND	90	34.6-127	144	40
Tetrachloroethene	1130	ug/kg dry	R	1247	ND	91	18.7-143	147	40
Toluene	1070	ug/kg dry	R	1247	ND	86	17.7-147	142	40
Trichloroethene	1180	ug/kg dry	R	1247	ND	95	35.1-153	144	40
Trichlorofluoromethane	1120	ug/kg dry	R	1247	ND	90	38.9-142	153	40
Vinyl chloride	778	ug/kg dry	R	1247	ND	62	29.5-150	139	40
Surrogate: 1,2-Dichloroethane-d4	*35*	*ug/L*		*30.00*		*118*	*62.8-138*		
Surrogate: Toluene-d8	*36*	*ug/L*		*30.00*		*121*	*51.8-147*		
Surrogate: Bromofluorobenzene	*43*	*ug/L*		*30.00*		*143*	*54.4-175*		

NOTES

Specific method revisions used for analysis are available upon request.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Qualifiers

Q1	Matrix Spike failed % recovry acceptance limits. The associated blank spike recovery was acceptable.
Q2	Matrix Spike Duplicate failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q3	Matrix Spike/Matrix Spike Duplicate both failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
R	Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference criterion.
Sc	Sample received in an inappropriate container.
V	Verification standard recovery failed to meet the required acceptance criteria on repeat instrumental analyses.

Karra McCarty

Certified by: Karra McCarty For Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: CITY OF CUBA W.W.T.P.
ADDRESS: 202 NORTH SMITH
CITY STATE ZIP: CUBA, MO 65453
CONTACT PERSON: STEVE BLACK

PROJECT NUMBER:
P.O. NUMBER:
MEANS SHIPPED: USPS
PHONE NUMBER: 573-885-2263
FAX NUMBER: 573-885-3216
DATE SHIPPED: 8-27-19
SAMPLER (PLEASE PRINT): STEVE BLACK
SAMPLER'S SIGNATURE: [signature]

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- SOLID
LCHT-LEACHATE
OTHER:

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 9085915
LOGGED BY: SMW
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

(2)

SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Metals TCLP	8081 TCLP	8151 TCLP	8260 TCLP	8270 TCLP			REMARKS
SLUDGE TCLP	8-27-19	9:10		X	NAS	2	X	X	X	X	X			1-A, G, 1L, amp 1-C, G, 4oz jar

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 9-15-19

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* ______

(7)

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
[signature]	DATE 8-27-19 TIME 13:00	Stacy Wolf	DATE 8-28-19 TIME 1150
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 19.2 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9085915 DCW

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 9085915-01
Name: Annual Sludge

Sampled: 08/27/19 09:00
Matrix: Sludge
Preservative: Cool <6

Analysis	Due	Expires	Comments
Ag 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Ag 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
As 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Ba 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Be 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Cd 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
CN-T	09/09/19 16:00	09/10/19 09:00	
Cr 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Hg 6020 TCLP	09/09/19 16:00	09/24/19 09:00	
M8081	09/09/19 16:00	09/10/19 09:00	
M8081TCLP	09/09/19 16:00	09/03/19 09:00	
M8082	09/09/19 16:00	09/10/19 09:00	
M8151TCLP	09/09/19 16:00	09/03/19 09:00	
M8260	09/09/19 16:00	09/10/19 09:00	
M8260 Extended	09/09/19 16:00	09/10/19 09:00	
M8260 TCLP	09/09/19 16:00	09/10/19 09:00	
M8270	09/09/19 16:00	09/10/19 09:00	
M8270 Extended	09/09/19 16:00	09/10/19 09:00	
M8270 TCLP	09/09/19 16:00	09/03/19 09:00	
Pb 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Phenol	09/09/19 16:00	09/24/19 09:00	
Sb 6010 Tot	09/09/19 16:00	02/23/20 09:00	
Se 6020 TCLP	09/09/19 16:00	02/23/20 09:00	
Solids-TS	09/09/19 16:00	09/03/19 09:00	
SW 1311 - TCLP Organics	09/09/19 16:00	09/10/19 09:00	
SW TCLP 1311	09/09/19 16:00	09/24/19 09:00	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9085915

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 9085915-01
Name: Annual Sludge

Sampled: 08/27/19 09:00
Matrix: Sludge
Preservative: Cool <6

Analysis	Due	Expires	Comments
TCLP_ZHE	09/09/19 16:00	09/10/19 09:00	
TI 6010 Tot	09/09/19 16:00	02/23/20 09:00	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped: 8-28-19 Total # of Containers: 2 Sample Origin (State): MO PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
Stacy Wolf	8-28-19 1400		
		[signature]	8/29/19 1000

Sample Temperature Upon Receipt 5 °C
Sample(s) Received on Ice (Y) or N
Proper Bottles Received in Good Condition (Y) or N
Bottles Filled with Adequate Volume (Y) or N
Samples Received Within Hold Time (Y) or N
Date/Time Taken From Sample Bottle Y or (N)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Cuba WWTF	MO- 0094919	

PART E – TOXICITY TESTING DATA

19. 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			
Salt Water			
J. Percentage of effluent used for all concentrations in the test series			
K. Parameters measured during the test (State whether parameter meets test method specifications)			
pH			
Salinity			
Temperature			
Ammonia			
Dissolved Oxygen			
L. Test Results			
Acute:			
Percent Survival in 100% Effluent			
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?			
Was reference toxicant test within acceptable bounds?			
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.

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 5053378-01
Name: WET TEST
Matrix: Waste Water - Composite

Sampled: 05/19/15 13:00
Received: 05/20/15 11:10
PO #: Steve Black

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Miscellaneous - SPMO							
WET Testing Multiple Dilution - subcontracted	Subcontracted		Pass	05/20/15 11:20	05/20/15 11:20	KBW	Subcontracted*

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338); Wisconsin (998284430)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

Pass Pass

Certified by: Chad Cooper, Laboratory Supervisor

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Cuba WWTF
Outfall 001 (24 hr composite) AEC = 100%
MO-0094919
EAS LOG#1813606
May 20, 2015 through May 22, 2015

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

Environmental Analysis South, Inc.
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REPORT OF ACUTE TOXICITY TESTING
Cuba WWTF
Outfall 001 (24 hr composite) AEC = 100%
MO-0094919
EAS LOG#1813606
May 20, 2015 through May 22, 2015

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: All concentrations = or < AEC must not have significant difference to control in survival.	Yes	Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 >100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Based on these results, the effluent passed the whole effluent toxicity test with both species.

Approved by _____
Sara C Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Cuba WWTF
Outfall 001 (24 hr composite) AEC = 100%
MO-0094919
EAS LOG#1813606
May 20, 2015 through May 22, 2015

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Cuba WWTF
Outfall 001 (24 hr composite) AEC = 100%
MO-0094919
EAS LOG#1813606
May 20, 2015 through May 22, 2015

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on May 6, 2015 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.027 g/l 95%CI (0.648-1.169 g/l)
EAS %CV = 18.5%
National Warning Limits (75^{th} percentile) = 19%CV
National Control Limits (90^{th} percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.470 g/l 95%CI (0.292-0.648g/l)
EAS %CV = 18.9%
National Warning Limits (75^{th} percentile) = 29%CV
National Control Limits (90^{th} percentile) = 34%CV

2.3. LITERATURE CITED:

1 APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME:	Cuba WWTF, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0094919
TYPE OF METHOD:	multiple dilution, 48 hr non-renewal WET, PP and CD species AEC=100%
DATE & TIME OF COLLECTION:	05/19/15 1310 hrs by Steve Black
DATE & TIME OF SUBMISSION:	05/20/15 1110 hrs by UPS

Upstream Pleasant Valley Creek
Collected 05/19/15 1310 hrs by Steve Black

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1813606	1813606A	RC4128
pH - SU	05/20/15	1120 hrs	SCS	SB114 (8.8-9 2)	9.12	8.00	7.89	8.21
TEMPERATURE °C RECEIVED	05/20/15	1120 hrs	SCS	EAS 106		4	4	22
SPECIFIC CONDUCTANCE umhos	05/20/15	1120 hrs	SCS	ERA229-506 (490-549)	543	589	441	249
HARDNESS - ppm	05/20/15	1120 hrs	SCS	DMRQA34 (184-250)	240	240	140	80
CHLORINE - ppm	05/20/15	1120 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	05/20/15	1120 hrs	SCS	cal@840		9.5	9.8	8 7
TOTAL ALKALINITY - ppm	05/20/15	1200 hrs	SCS	DMRQA34 (61 9-83 7)	78.1	174	201	63.6
INITIAL AMMONIA - ppm	05/26/15	1215 hrs	JPC	DMRQA34 (5.78-8.90)	7.75	<0.05	<0.05	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/20/15	1130 hrs	SCS	SB114 (8.8-9.2)	9.12	8.02	7 99	7.77	7 78	7.84	7 88	7.91	
TEMPERATURE °C	05/20/15	1130 hrs	SCS	EAS 106		24.4	23.7	23.5	24 3	24.3	24.1	24.2	
SPECIFIC CONDUCTANCE umhos	05/20/15	1130 hrs	SCS	ERA229-506 (490-549)	543	252	426	690	584	506	459	442	
DISSOLVED OXYGEN - ppm	05/20/15	1130 hrs	SCS	cal@840		8.7	9.6	9 5	10 1	10.2	10 1	10.2	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/21/15	1130 hrs	SCS	SB114 (8 8-9.2)	9.14	7.35	8 12	8.15	8 14	8.14	8.12	8.11	
TEMPERATURE °C	05/21/15	1130 hrs	SCS	EAS 106		25.0	25.0	25 0	25 0	25.0	25.0	25 0	
SPECIFIC CONDUCTANCE umhos	05/21/15	1130 hrs	SCS	ERA229-506 (490-549)	539	270	444	728	585	514	472	452	
DISSOLVED OXYGEN - ppm	05/21/15	1130 hrs	SCS	cal@840		8.1	8.4	8	8	7.9	7.8	8	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/22/15	1130 hrs	SCS	SB114 (8.8-9 2)	9.17	7 86	8.27	8.37	8.28	8.27	8.26	8.96	
TEMPERATURE °C	05/22/15	1130 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	05/22/15	1130 hrs	SCS	ERA229-506 (490-549)	540	276	457	741	604	527	481	458	
DISSOLVED OXYGEN - ppm	05/22/15	1130 hrs	SCS	cal@840		7.9	8.4	8.1	8 1	8.1	8.0	8.2	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/21/15	1130 hrs	SCS	SB114 (8.8-9.2)	9.14	7 57	8 02	8 02	8.01	7.98	7.99	8.00	
TEMPERATURE °C	05/21/15	1130 hrs	SCS	EAS 106		25.0	25 0	25 0	25.0	25.0	25.0	25 0	
SPECIFIC CONDUCTANCE umhos	05/21/15	1130 hrs	SCS	ERA229-506 (490-549)	539	278	459	719	580	514	473	464	
DISSOLVED OXYGEN - ppm	05/21/15	1130 hrs	SCS	cal@840		8.9	9.6	9.4	9.5	9.5	9 6	9.4	
8 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/22/15	1130 hrs	SCS	SB114 (8.8-9.2)	9.17	8.96	8.14	8 18	8.18	8.16	8.16	8 17	
TEMPERATURE °C	05/22/15	1130 hrs	SCS	EAS 106		25.0	25.0	25 0	25 0	25 0	25.0	25.0	
CIFIC CONDUCTANCE umhos	05/22/15	1130 hrs	SCS	ERA229-506 (490-549)	540	284	466	715	582	517	473	459	
DISSOLVED OXYGEN - ppm	05/22/15	1130 hrs	SCS	cal@840		9 0	9 4	9.5	9.5	9 6	9.6	9.7	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16 8)									

Approved by: [signature]

Date: 6/2/15

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Cuba WWTF, Outfall 001, 24 hr composite EAS LOG# 1813606

Date Test Began: May 20, 2015 Time Test Began: 1130 hrs

Date Test Finished: May 22, 2015 Time Test Finished: 1130 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 7 days HATCH NUMBER: 9455 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) AGE: <24 hours HATCH NUMBER: 3038 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by: Date: 6/8/15

Cuba WWTF, Outfall 001, 24 hr composite EAS#: 1813606

Notes & Comments												

Prepared by: [signature] Date: 6/2/15

151180

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA W.W.T.P.			UPS
ADDRESS	**PHONE NUMBER**	**FAX NUMBER**	**DATE SHIPPED**
202 NORTH SMITH	573-885-2263	573-885-3216	5-19-15
CITY, STATE ZIP	**SAMPLER (PLEASE PRINT)**		**MATRIX TYPES:**
CUBA, MO 65453	STEVE BLACK		WW- WASTEWATER DW- DRINKING WATER GW- GROUND WATER WWSL- SLUDGE NAS- SOLID LCHT-LEACHATE
CONTACT PERSON	**SAMPLER'S SIGNATURE**		**OTHER:**
STEVE BLACK	Steve Black		

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: WET Test
WET TEST EFFLUENT COMPOSITE	5-19-15	13:00		X	WW	1	X 1813606
UPSTREAM GRAB (IF AVAILABLE)	5-19-15	13:00	X		WW	1	X 1813606-A
						2	

4 (FOR LAB USE ONLY)
LOGIN # 205357F
LOGGED BY: _____
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

REMARKS
temp rec'd= 4°C
4°C
Batch = BS09544

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 7-15-15

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	DATE	TIME	8
RELINQUISHED BY: (SIGNATURE) Steve Black	5-19-15	13:00	RECEIVED BY: (SIGNATURE) UPS
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)

RECEIVED BY: (SIGNATURE)	DATE	TIME
UPS	5/20/15	1110
	DATE	TIME
	DATE	TIME

COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT _____ °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

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Page _____ of _____

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME: Cuba WWTF	DATE & TIME COLLECTED: EFFLUENT 05/19/15 1310 UPSTREAM 05/19/15 1310
PERMIT NUMBER: MO-0094919	PERMIT OUTFALL NUMBER: Outfall # 001
COLLECTOR'S NAME: Steve Black	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION: Pleasant Valley Creek	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): 100%	EFFLUENT SAMPLE TYPE (CHECK ONE): ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER: EFFLUENT 1813606 UPSTREAM 1813606A	UPSTREAM SAMPLE TYPE (CHECK ONE): ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY: Environmental Analysis South, Inc.	TEST TYPE: Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER: MO_1813606	TEST DURATION: 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING: May 6, 2015	TEST METHOD: Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY: 05/20/15 1110 hrs by UPS	TEST START DATE AND TIME: 05/20/15 1130 hrs	TEST END DATE AND TIME: 05/22/15 1130 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE: Pimephales promelas 7 days	TEST ORGANISM #2 AND AGE: Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC: upstream 1813606A
FILTER MESH SIEVE SIZE[2]: None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC: LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC: LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY: 0%	UPSTREAM ORGANISM #2 % MORTALITY: 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1: ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2: ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	4	SM18 2550B stored at 4 degree C until test setup	05/20/15 1120 hrs
pH Standard Units	8.00	SM18 4500-H B	05/20/15 1120 hrs
Conductance µMohs	589	SM18 2510B	05/20/15 1120 hrs
Dissolved Oxygen mg/L	9.5	03/12/14 0945 hrsSM18 4500-O G	05/20/15 1120hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	05/20/15 1120 hrs
Unionized Ammonia mg/L	<0.05x0.05<0.010	SM18 4500-NH3 F @ 25 degree C	05/26/15 1215 hrs
*Total Alkalinity mg/L	174	SM18 2320B	05/20/15 1200 hrs
*Total Hardness mg/L	240	SM18 2340 C	05/20/15 1120 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	4	SM18 2550B stored at 4 degree C until test setup	05/20/15 1120 hrs
pH Standard Units	7.89	SM18 4500-H B	05/20/15 1120 hrs
Conductance µMohs	441	SM18 2510B	05/20/15 1120 hrs
Dissolved Oxygen mg/L	9.8	SM18 4500-O G	05/20/15 1120hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	05/20/15 1120 hrs
Unionized Ammonia mg/L	<0.05x0.04<0.010	SM18 4500-NH3 F @ 25 degree C	05/26/15 1215 hrs
*Total Alkalinity mg/L	201	SM18 2320B	05/20/15 1200 hrs
*Total Hardness mg/L	140	SM18 2340 C	05/20/15 1120 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

131180

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED	3 ANALYSIS REQUESTED	4 (FOR LAB USE ONLY)
CITY OF CUBA W.W.T.P.			UPS		LOGIN # 5053378
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 573-885-2263	FAX NUMBER: 573-885-3216	DATE SHIPPED: 5-19-15		LOGGED BY: KBB
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:		LAB PROJ. #:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black				TEMPLATE:
					PROJ. MGR.: CHAD COOPER

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP	MATRIX TYPE	# OF BOTTLES	WET Test	REMARKS
WET TEST EFFLUENT COMPOSITE	5-19-15	13:00		X	WW	1	X	1813606 4°C temp rec'd=
UPSTREAM GRAB (IF AVAILABLE)	5-19-15	13:00	X		WW	1	X	1813606 4°C
						2		

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)	DATE RESULTS NEEDED	6
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE	7-15-15	The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature. _____
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:		

7	DATE		DATE
RELINQUISHED BY: (SIGNATURE) Steve Black	5-19-15	RECEIVED BY: (SIGNATURE) UPS	5/20/15
	TIME 13:00		TIME 1110
RELINQUISHED BY: (SIGNATURE)	DATE	RECEIVED BY: (SIGNATURE)	DATE
	TIME		TIME
RELINQUISHED BY: (SIGNATURE)	DATE	RECEIVED BY: (SIGNATURE)	DATE
	TIME		TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT _____ °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

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PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 6120860-01
Name: Effluent Composite
Alias: Both Species- LC50= >100, TUa = <1

Sampled: 12/06/16 11:00
Received: 12/07/16 10:10
Matrix: Waste Water - Composite

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Distilled Nutrients - STL							
Ammonia-N	< 0.30	mg/L		12/13/16 12:51	12/13/16 12:51	RMD	EPA 350.1*
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	12/07/16 10:20	12/07/16 10:20	JMD1	SM 4500-Cl G*
Conductivity	960	umhos/cm		12/07/16 15:55	12/07/16 15:55	JMD1	SM 2510B
Dissolved Oxygen	11	mg/L		12/09/16 16:04	12/09/16 16:04	JMD1	SM 4500-O G*
pH	7.0	pH Units		12/07/16 11:13	12/07/16 11:13	JMD1	SM 4500-H B - EPA 150.1 - SW 9040*
WET Testing Multiple Dilution - subcontracted	Pass			12/07/16 16:00	12/07/16 16:00	CMC	EPA 2002.0*
General Chemistry - STL							
Alkalinity - total as CaCO3	180	mg/L		12/08/16 17:36	12/08/16 17:40	RMD	SM 2320B*
Total Metals - STL							
Calcium	71	mg/L		12/09/16 11:00	12/12/16 10:26	WPS	EPA 200.7
Hardness	300	mg/L		12/09/16 11:00	12/12/16 10:26	WPS	SM 2340B
Magnesium	30	mg/L		12/09/16 11:00	12/12/16 10:26	WPS	EPA 200.7

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Chad Cooper, Laboratory Supervisor

PDC Laboratories, SPMO.

Page _____ of 50

WET Tests Logbook

Sample # 6120860 Fathead Hatch SPMOS-120 MHSF 11cc1

Shelf 3 CD Hatch 120716 A+B Board 002

Cup	Conc.	Initial	24 hour	48 hour
P1	50	10	10	10
P2	12.5	10	11	11
P3	25	10	10	10
P4	50	10	10	9
P5	12.5	10	9	8
P6	0	10	10	9
P7	6.25	10	10	10
P8	100	10	10	10
P9	25	10	10	10
P10	0	10	10	10
P11	6.25	10	10	10
P12	100	10	10	10
P13 *	—	10	~~10~~	—
P14 *	—	10	~~10~~	—
C1	12.5	5	5	5
C2	100	5	5	5
C3	6.25	5	5	5
C4	25	5	5	5
C5	6.25	5	5	5
C6	6.25	5	4	5
C7	12.5	5	5	5
C8	100	5	5	5
C9	50	5	2	0
C10	0	5	5	5
C11	0	5	5	5
C12	50	5	5	5
C13	12.5	5	5	5
C14	25	5	5	5
C15	50	5	5	5
C16	100	5	5	3
C17	100	5	3	3
C18	0	5	5	5
C19	25	5	5	5
C20	6.25	5	5	5
C21	12.5	5	5	5
C22	0	5	5	5
C23	25	5	5	5
C24	50	5	5	5
C25 *	—	5	~~5~~	—
C26 *	—	5	~~5~~	—
C27 *	—	5	~~5~~	—
C28 *	—	5	~~5~~	—

* These cups only used when upstream samples are provided.

Set Times		
Start Date:	12-7-16	
	Time	Analyst
0 Hour	1600	JMD
24 Hour	1545	JMD
48 Hour	1513	JMD

LC 50	
Fathead Minow	
48 Hours	Analyst
>100	JMD
Cerodaphnia Dubia	
48 Hours	Analyst
2 319.4 (>100)	JMD

Comments:

Ceriodaphnia from mass cultures used due to shortage in Brood Board

Analyst Signature: [signature]

Date: 12-9-16

Read and Understood By: [signature]

Date: 12-15-16

B622485

Routine Chemistries

Sample # 6120860 Fathead Hatch ~~AES120616~~ 9P405-DB MHSF 11CC1

Shelf 3 CD Hatch 120716 A+B Board 002

Calibration data

pH	Initial	Time	Analyst	48 hour	Time	Analyst	DO (mg/L)	Time	Analyst	Pressure (mmHg)	% Sat
4.00	4.00	1009	JMD	4.01	0840	JMD	Initial	1000	JMD	734	100
7.00	7.02			7.00			1 Hour	—	—	—	—
10.00	10.00			10.02			24 Hour	1519	JMD	743	100
Curve	99.9			99.8			48 Hour	1457	JMD	742	100

Initial/Received

Test	MHSF	6.25%	12.50%	25%	50%	Effluent	Upstream *	EFF-DUP	Time	Batch	Analyst
pH	7.83	7.79	7.67	7.62	7.52	7.00	—	7.08	1113	B621949	JMD
DO (mg/L)	8.2	8.2	8.3	8.4	8.8	10.7	—	10.8	1113	B622061	JMD

	MHSF	Effluent	Upstream *	Time	Analyst
Conductivity (μMohs)	360	958	—	1119	JMD

B621946

	Effluent	Upstream *	Batch	Time	Analyst
Chlorine (mg/L)	0.06	—	B621954	1020	JMD
Ammonia (mg/L)	<0.3	—	B622062	10:26	KMM
Alkalinity (mg/L)	182		B621986		
Hardness (mg/L)	300		B622039		

0 Hour

	Fathead Minow	Cerodaphnia Dubia	Time	Analyst
Temperature (°C)	22.9	21.8	1555	JMD

1 Hour

Test	MHSF	Effluent	Upstream *	Time	Analyst
DO (mg/L)	8.1	8.5	—	1702	JMD

	Fathead Minow	Cerodaphnia Dubia	Time	Analyst
Temperature (°C)	23.7	24.2	1702	JMD

24 Hour

Test	MHSF	6.25%	12.50%	25%	50%	Effluent	Upstream *	Time	Analyst
DO (mg/L)	7.6	7.7	7.3	7.5	7.5	7.6	—	1554	JMD

	Fathead Minow	Cerodaphnia Dubia	Time	Analyst
Temperature (°C)	26.3	26.0	1541	JMD

48 Hour

Test	MHSF	6.25%	12.50%	25%	50%	Effluent	Upstream *	Time	Analyst
pH	8.55	8.63	8.38	8.44	8.21	8.40	—	1535	JMD
DO (mg/L)	7.6	7.9	7.6	7.4	7.4	8.4	—	1535	JMD

	Fathead Minow	Cerodaphnia Dubia	Time	Analyst
Temperature (°C)	26.4	26.1	1511	JMD

	MHSF	Effluent	Upstream *	Time	Analyst
Conductivity (μMohs)	348	958	—	1525	JMD

Comments:

* Upstream only performed if supplied by the client

Analyst Signature: [signature] Date: 12-9-16

Read and Understood By: [signature] Date: 12-5-16

CETIS Test Data Worksheet

Fathead Minnow 48-h Acute Survival Test — **PDC Labs SPMO**

Start Date:	07 Dec-16 16:06	**Species:**	Pimephales promelas	**Sample Code:**	2C12BAE9
End Date:	09 Dec-16 16:06	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	City of Cuba
Sample Date:	07 Dec-16 16:07	**Material:**	Dilution Water	**Sample Station:**	Outfall 001

Comments:
City of Cuba
City of Cuba

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	Notes
50		1	1				
12.5		2	2				
25		1	3				
50		2	4				
12.5		1	5				
0	L	1	6				
6.25		2	7				
100		1	8				
25		2	9				
0	L	2	10				
6.25		1	11				
100		2	12				

CETIS Test Data Worksheet

Report Date: 06 Dec-16 16:20 (p 1 of 1)
Test Code/ID: 11-4949-8515/4483F493

Ceriodaphnia 48-h Acute Survival Test					PDC Labs SPMO
Start Date:	07 Dec-16 16:09	**Species:**	Ceriodaphnia dubia	**Sample Code:**	2C12BAE9
End Date:	07 Dec-16 16:09	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	City of Cuba
Sample Date:	07 Dec-16 16:07	**Material:**	Dilution Water	**Sample Station:**	Outfall 001

Comments:
Concordia
City of Cuba

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	Notes
12.5		2	1				
100		4	2				
6.25		1	3				
25		3	4				
6.25		2	5				
6.25		4	6				
12.5		3	7				
100		3	8				
50		4	9				
0	D	1	10				
0	D	2	11				
50		2	12				
12.5		4	13				
25		4	14				
50		3	15				
100		1	16				
100		2	17				
0	D	4	18				
25		1	19				
6.25		3	20				
12.5		1	21				
0	D	3	22				
25		2	23				
50		1	24				

Fathead Minnow 48-h Acute Survival Test — PDC Labs SPMO

Batch ID:	13-5641-0574	Test Type:	Survival (48h)	Analyst:	Jason Davis
Start Date:	07 Dec-16 16:06	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Upstream of Discharge
Ending Date:	09 Dec-16 16:06	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	48h	Source:	In-House Culture	Age:	

Sample ID:	07-3942-5001	Code:	2C12BAE9	Client:	City of Cuba
Sample Date:	07 Dec-16 16:07	Material:	Dilution Water	Project:	Effluent Characterization (Annual)
Receipt Date:	07 Dec-16 16:07	Source:	City of Cuba		
Sample Age:	n/a	Station:	Outfall 001		

Comments:
City of Cuba
City of Cuba

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
18-3364-1167	48h Survival Rate	Dunnett Multiple Comparison Test	6.25	12.5	8.839	16	10.6%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU ✓
07-7367-2417	48h Survival Rate	Linear Interpolation (ICPIN)	LC5	>100	n/a	n/a	<1
			LC10	>100	n/a	n/a	<1
			LC15	>100	n/a	n/a	<1
			LC20	>100	n/a	n/a	<1
			LC25	>100	n/a	n/a	<1
			LC40	>100	n/a	n/a	<1
			LC50	>100	n/a	n/a	<1

48h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	2	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
6.25		2	0.9500	0.3147	1.0000	0.9000	1.0000	0.0500	0.0707	7.44%	5.00%
12.5		2	0.8500	0.2147	1.0000	0.8000	0.9000	0.0500	0.0707	8.32%	15.00%
25		2	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
50		2	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		2	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2
0	L	1.0000	1.0000
6.25		1.0000	0.9000
12.5		0.8000	0.9000
25		1.0000	1.0000
50		1.0000	1.0000
100		1.0000	1.0000

48h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2
0	L	10/10	11/11
6.25		10/10	9/10
12.5		8/10	9/10
25		10/10	10/10
50		10/10	10/10
100		10/10	10/10

Fathead Minnow 48-h Acute Survival Test — PDC Labs SPMO

Analysis ID: 18-3364-1167 Endpoint: 48h Survival Rate CETIS Version: CETISv1.9.2
Analyzed: 09 Dec-16 16:02 Analysis: Parametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	6.25	12.5	8.839	16	10.59%

Dunnett Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Lab Water		6.25	1.365	2.827	0.177	2	CDF	0.2999	Non-Significant Effect
		12.5*	3.807	2.827	0.177	2	CDF	0.0156	Significant Effect
		25	0.05966	2.827	0.177	2	CDF	0.8156	Non-Significant Effect
		50	0.05966	2.827	0.177	2	CDF	0.8156	Non-Significant Effect
		100	0.05966	2.827	0.177	2	CDF	0.8156	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	1.768	2.412	0.7215	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	1.768		1.0000	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0903619	0.0180724	5	4.639	0.0444	Significant Effect
Error	0.0233748	0.0038958	6			
Total	0.113737		11			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Distribution	Shapiro-Wilk W Normality Test	0.8165	0.8025	0.0145	Normal Distribution

48h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	L	2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		2	0.9500	0.3147	1.0000	0.9500	0.9000	1.0000	0.0500	7.44%	5.00%
12.5		2	0.8500	0.2147	1.0000	0.8500	0.8000	0.9000	0.0500	8.32%	15.00%
25		2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
50		2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	L	2	1.416	1.368	1.463	1.416	1.412	1.419	0.003732	0.37%	0.00%
6.25		2	1.331	0.2952	2.366	1.331	1.249	1.412	0.08149	8.66%	6.02%
12.5		2	1.178	0.2766	2.08	1.178	1.107	1.249	0.07095	8.52%	16.79%
25		2	1.412	1.409	1.415	1.412	1.412	1.412	0	0.00%	0.26%
50		2	1.412	1.409	1.415	1.412	1.412	1.412	0	0.00%	0.26%
100		2	1.412	1.409	1.415	1.412	1.412	1.412	0	0.00%	0.26%

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2
0	L	1.0000	1.0000
6.25		1.0000	0.9000
12.5		0.8000	0.9000
25		1.0000	1.0000
50		1.0000	1.0000
100		1.0000	1.0000

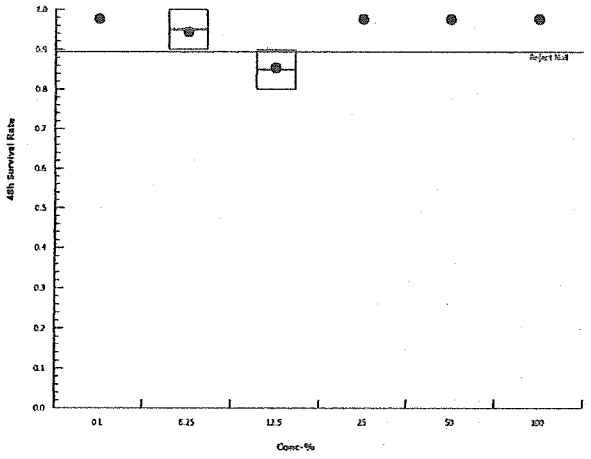
Fathead Minnow 48-h Acute Survival Test — PDC Labs SPMO

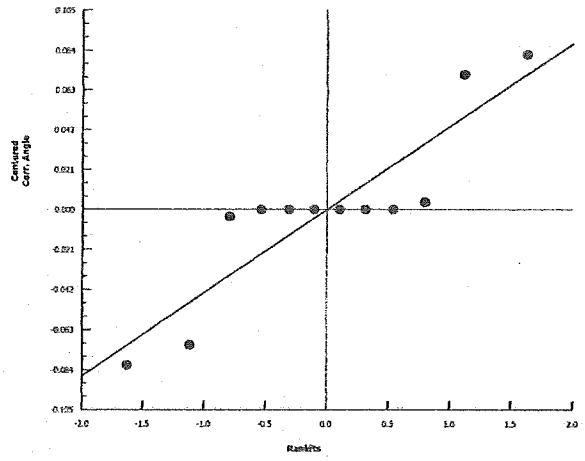
Analysis ID:	18-3364-1167	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	09 Dec-16 16:02	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2
0	L	1.412	1.419
6.25		1.412	1.249
12.5		1.107	1.249
25		1.412	1.412
50		1.412	1.412
100		1.412	1.412

Graphics





Fathead Minnow 48-h Acute Survival Test — PDC Labs SPMO

Analysis ID:	07-7367-2417	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	09 Dec-16 16:02	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1621555	1000	Yes	Two-Point Interpolation

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	1.768	2.412	0.7215	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	1.768		1.0000	Non-Significant Trend in Controls

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	>100	n/a	n/a	<1	n/a	n/a
LC10	>100	n/a	n/a	<1	n/a	n/a
LC15	>100	n/a	n/a	<1	n/a	n/a
LC20	>100	n/a	n/a	<1	n/a	n/a
LC25	>100	n/a	n/a	<1	n/a	n/a
LC40	>100	n/a	n/a	<1	n/a	n/a
LC50	>100	n/a	n/a	<1	n/a	n/a

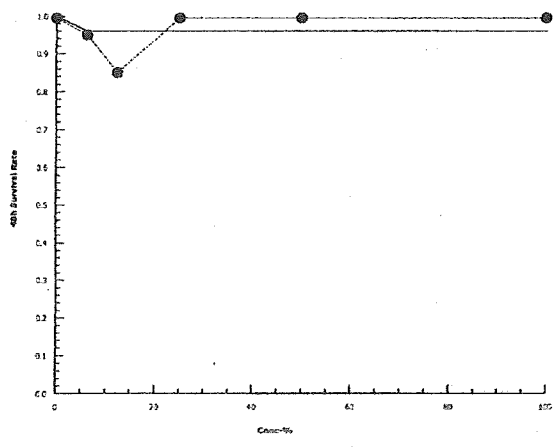
48h Survival Rate Summary

			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	L	2	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	21	21
6.25		2	0.9500	0.9000	1.0000	0.0500	0.0707	7.44%	5.0%	19	20
12.5		2	0.8500	0.8000	0.9000	0.0500	0.0707	8.32%	15.0%	17	20
25		2	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
50		2	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
100		2	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2
0	L	1.0000	1.0000
6.25		1.0000	0.9000
12.5		0.8000	0.9000
25		1.0000	1.0000
50		1.0000	1.0000
100		1.0000	1.0000

Graphics



Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

Batch ID:	01-8548-3645	Test Type:	Survival (48h)	Analyst:	Jason Davis
Start Date:	07 Dec-16 16:09	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Upstream of Discharge
Ending Date:	07 Dec-16 16:09	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	n/a	Source:	In-House Culture	Age:	

Sample ID:	07-3942-5001	Code:	2C12BAE9	Client:	City of Cuba
Sample Date:	07 Dec-16 16:07	Material:	Dilution Water	Project:	Effluent Characterization (Annual)
Receipt Date:	07 Dec-16 16:07	Source:	City of Cuba		
Sample Age:	2m	Station:	Outfall 001		

Comments:
City of Cuba CD
City of Cuba

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
00-3368-6756	48h Survival Rate	Steel Many-One Rank Sum Test	100	> 100	n/a	1	19.3%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU ✓
18-2792-4437	48h Survival Rate	Linear Interpolation (ICPIN)	LC5	>100	n/a	n/a	<1
			LC10	>100	n/a	n/a	<1
			LC15	>100	n/a	n/a	<1
			LC20	>100	n/a	n/a	<1
			LC25	>100	n/a	n/a	<1
			LC40	>100	n/a	n/a	<1
			LC50	>100	n/a	n/a	<1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
00-3368-6756	48h Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria
18-2792-4437	48h Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria

48h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
25		4	0.8500	0.3726	1.0000	0.4000	1.0000	0.1500	0.3000	35.29%	15.00%
50		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	0.4000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

48h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	2/5	5/5	5/5
50		5/5	5/5	5/5	5/5
100		5/5	5/5	5/5	5/5

Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

Analysis ID: 00-3368-6756 Endpoint: 48h Survival Rate CETIS Version: CETISv1.9.2
Analyzed: 09 Dec-16 15:54 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	> 100	n/a	1	19.31%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	18	10	1	6	Asymp	0.8333	Non-Significant Effect
		12.5	18	10	1	6	Asymp	0.8333	Non-Significant Effect
		25	16	10	1	6	Asymp	0.6105	Non-Significant Effect
		50	18	10	1	6	Asymp	0.8333	Non-Significant Effect
		100	18	10	1	6	Asymp	0.8333	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	4.153	2.802	2.9E-07	Outlier Detected
Control Trend	Mann-Kendall Trend Test	4.153		1.0000	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0909051	0.018181	5	1	0.4457	Non-Significant Effect
Error	0.327258	0.018181	18			
Total	0.418163		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	9	4.248	2.0E-04	Unequal Variances
Variances	Mod Levene Equality of Variance Test	1	4.248	0.4457	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.4634	0.884	2.5E-08	Non-Normal Distribution

48h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
25		4	0.8500	0.3726	1.0000	1.0000	0.4000	1.0000	0.1500	35.29%	15.00%
50		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
6.25		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
12.5		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
25		4	1.18	0.6546	1.706	1.345	0.6847	1.345	0.1651	27.99%	12.28%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	0.4000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

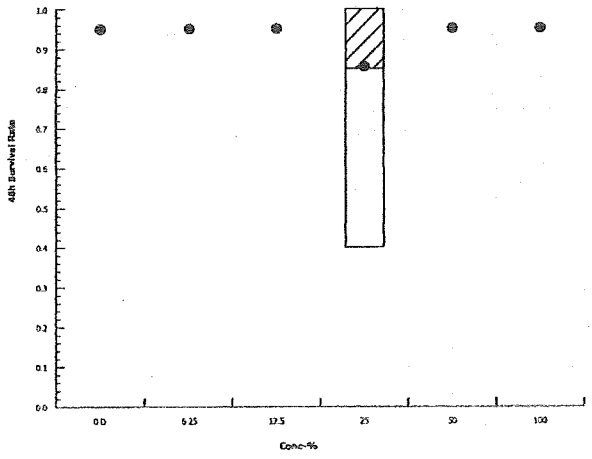
Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

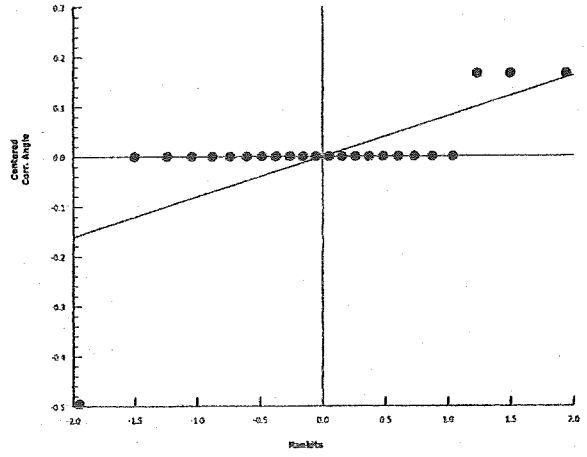
Analysis ID: 00-3368-6756 Endpoint: 48h Survival Rate CETIS Version: CETISv1.9.2
Analyzed: 09 Dec-16 15:54 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.345	1.345	1.345	1.345
6.25		1.345	1.345	1.345	1.345
12.5		1.345	1.345	1.345	1.345
25		1.345	0.6847	1.345	1.345
50		1.345	1.345	1.345	1.345
100		1.345	1.345	1.345	1.345

Graphics





Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

Analysis ID:	18-2792-4437	Endpoint:	48h Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	09 Dec-16 15:51	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1482883	1000	Yes	Two-Point Interpolation

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	4.153	2.802	2.9E-07	Outlier Detected
Control Trend	Mann-Kendall Trend Test	4.153		1.0000	Non-Significant Trend in Controls

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	>100	n/a	n/a	<1	n/a	n/a
LC10	>100	n/a	n/a	<1	n/a	n/a
LC15	>100	n/a	n/a	<1	n/a	n/a
LC20	>100	n/a	n/a	<1	n/a	n/a
LC25	>100	n/a	n/a	<1	n/a	n/a
LC40	>100	n/a	n/a	<1	n/a	n/a
LC50	>100	n/a	n/a	<1	n/a	n/a

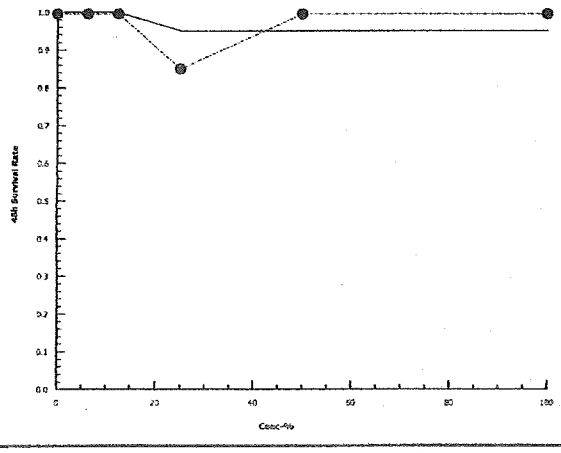
48h Survival Rate Summary

			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	D	4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
6.25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
12.5		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
25		4	0.8500	0.4000	1.0000	0.1500	0.3000	35.29%	15.0%	17	20
50		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20
100		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	20	20

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	0.4000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

Graphics



PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807
PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA W.W.T.P.			UPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 573-885-2263	FAX NUMBER: 573-885-3216	DATE SHIPPED: 12-6-16
CITY, STATE ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 1120860
LOGGED BY: KBL
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WET Test	REMARKS
WET TEST EFFLUENT COMPOSITE	12-6-16	11:00		X	WW	1	X	Fwet cube
UPSTREAM GRAB (IF AVAILABLE)			X		WW	1	X	

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED: 1-15-17

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	Steve Black	12-6-16	11:00	Karissa Wiggins	12-7-16	1010
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT: 1.3 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

X:\COC Templates\WET Test\WET COC.doc

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

6120860

SENDING LABORATORY

PDC Laboratories, Inc.
1805 W Sunset St
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc. - St Louis
3278 N Highway 67
Florissant, MO 63033
(314) 432-0550

Sample: 6120860-01
Name: Effluent Composite

Sampled: 12/06/16 11:00
Matrix: Water

Analysis	Due	Expires	Comments
04-Alk	12/19/16 16:00	12/20/16 11:00	
04-Ammonia-N Distill Gallery	12/19/16 16:00	01/03/17 11:00	
04-Ca 200.7 WWTot	12/19/16 16:00	06/04/17 11:00	
04-Mg 200.7 WWTot	12/19/16 16:00	06/04/17 11:00	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped: 12-7-16 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[illegible]	12-7 16:50	[illegible]	12-8-16 10:00

Sample Temperature Upon Receipt 0.9 °C
Sample(s) Received on Ice Y or N
Proper Bottles Received in Good Condition Y or N
Bottles Filled with Adequate Volume Y or N
Samples Received Within Hold Time Y or N
Date/Time Taken From Sample Bottle Y or N

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Cuba Wastewater Treatment Facility	DATE AND TIME COLLECTED EFFLUENT 12/6/16 11:00 UPSTREAM NA
PERMIT NUMBER MO-0094919	PERMIT OUTFALL NUMBER Outfall #001
COLLECTOR'S NAME Steve Black	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Pleasant Valley Creek	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☑ 24 HR COMPOSITE ☐ GRAB ☐ OTHER ____
SAMPLE NUMBER EFFLUENT 6113997-01 UPSTREAM NA	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24 HR COMPOSITE ☐ GRAB ☑ OTHER NA
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE NA mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA 10.6 mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY PDC Laboratories, Springfield, MO	TEST TYPE Acute Static Non-Renewal Whole Effluent Toxicity	
FINAL REPORT NUMBER 6120860	TEST DURATION 48 hours	
DATE OF LAST REFERENCE TOXICANT TESTING 11/07/2016	TEST METHOD 2002.0 and 2000.0	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 12/07/2016 10:10	TEST START DATE AND TIME 12/07/2016 16:00	TEST END DATE AND TIME 12/09/2016 15:13
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT NA UPSTREAM NA	TEST ORGANISM #1 AND AGE Ceriodaphnia Dubia; ≤ 24 hours	TEST ORGANISM #2 AND AGE Pimephales Promelas < 14 days
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT NA UPSTREAM ____	90 PERCENT OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☑ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC Synthetic Freshwater
FILTER MESH SIEVE SIZE [2] 120 µm	EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC 20%	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC 0%
SAMPLE AERATED DURING TESTING? ☐ YES ☑ NO	UPSTREAM ORGANISM #1 PERCENT MORTALITY NA	UPSTREAM ORGANISM #2 PERCENT MORTALITY NA
pH ADJUSTED? ☐ YES ☑ NO EFFLUENT NA UPSTREAM NA	TEST RESULT AT AEC FOR ORGANISM #1 ☑ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☑ PASS ☐ FAIL

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	22	EPA 170.1	12/07/2016
pH Standard Units	7.0	SM 4500 H+-B	12/07/2016
Conductance µMohs	960	SM 2510 B	12/07/2016
Dissolved Oxygen mg/L	11	SM 4500-O G	12/07/2016
Total Residual Chlorine mg/L	<0.1	SM 4500 Cl-G	12/07/2016
Unionized Ammonia mg/L	<0.3	EPA 350.1	12/13/2016
* Total Alkalinity mg/L	180	SM 2320 B	12/08/2016
* Total Hardness mg/L	300	SM 2340 B	12/12/2016

* Recommended by EPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT (Continued)

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	23.4	EPA 170.1	11/30/2016
pH Standard Units	7.2	SM 4500 H+-B	11/30/2016
Conductance µMohs	500	SM 2510 B	11/30/2016
Dissolved Oxygen mg/L	8.4	SM 4500-O G	11/30/2016
Total Residual Chlorine mg/L	0.1	SM 4500 Cl-G	11/30/2016
Unionized Ammonia mg/L	3.4	EPA 350.1	12/06/2016
* Total Alkalinity mg/L	170	SM 2320 B	12/07/2016
* Total Hardness mg/L	180	SM 2340 B	12/05/2016

* Recommended by EPA guidance, not a required analysis. **MHSF results are from monthly laboratory QC.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)
MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PERMIT ALLOWABLE EFFLUENT CONCENTRATION, or AEC: As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the **most current edition** of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, or other as specifically assigned by EPA for determining National Pollutant Discharge Elimination System, or NPDES, compliance. Test is invalid otherwise.

TEST START DATE AND TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90 PERCENT OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If no, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 – 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt.

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 7082039-01
Name: Effluent Composite
Matrix: Waste Water - Composite

Sampled: 08/08/17 11:30
Received: 08/09/17 12:06

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Distilled Nutrients - STL							
Ammonia-N	< 0.30	mg/L		08/15/17 13:10	08/15/17 13:10	SCI	EPA 350.1*
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	08/09/17 15:26	08/09/17 15:26	RRG	SM 4500-Cl G*
Conductivity	630	umhos/cm		08/09/17 14:08	08/09/17 14:08	RRG	SM 2510B
Dissolved Oxygen	8.7	mg/L	H	08/09/17 14:08	08/09/17 14:08	RRG	SM 4500-O G*
pH	7.6	pH Units	H	08/09/17 14:08	08/09/17 14:08	RRG	SM 4500-H B - SW 9040*
General Chemistry - STL							
Alkalinity - total as CaCO3	150	mg/L		08/11/17 13:48	08/11/17 13:48	SCI	SM 2320B*
Total Metals - STL							
Calcium	44	mg/L		08/14/17 11:00	08/15/17 10:33	KLA	EPA 200.7
Hardness	200	mg/L		08/14/17 11:00	08/15/17 10:33	KLA	SM 2340B
Magnesium	22	mg/L		08/14/17 11:00	08/15/17 10:33	KLA	EPA 200.7
WETT - SPMO							
Ceriodaphnia Dubia TUa	< 1.0	units		08/09/17 15:15	08/09/17 15:15	RRG	EPA 2002.0*
Pimephales Promelas TUa	< 1.0	units		08/09/17 15:15	08/09/17 15:15	RRG	EPA 2002.0*

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Memos

Reference Toxicity Test:

PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: August 2, 2017
Date Concluded: August 4, 2017

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 46345704
Expiration: N/A
Standards ID: SPMO1-22B

Moderately Hard Synthetic Water: 29AC2
Prepared: July 17, 2017
Expiration: August 2, 2017
Analyst: RRG

Pimephales promelas: 48 hour Acute Test - LC50 = 1333 mg/L
SPMO %CV = 17.84%
National Limits (75th Percentile) = 19%CV
National Control Limit (90th Percentile) = 33%CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 439.8 mg/L
SPMO %CV = 25.63%
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

Certifications

CHI - McHenry, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Chad Cooper, Laboratory Supervisor

PDC Laboratories Inc, SPMO.

Multiple Dilution WET Test

EPA Test Methods: 2002.0 & 2000.0

Sample # 7082039 PP Hatch 072817A MHSF 30AC2

Client Cuba CD Hatch 080917CDA Board/Shelf 4,3

Cup	Conc.	Initial	24 hour	48 hour
P1	6.25	10	10	10
P2	100	10	10	10
P3	12.5	10	10	10
P4	0	10	10	10
P5	12.5	10	10	10
P6	25	10	10	9
P7	50	10	10	9
P8	0	10	10	10
P9	100	10	10	10
P10	6.25	10	10	10
P11	50	10	10	10
P12	25	10	10	10
P13*		10		
P14*		10		
C1	0	5	5	5
C2	25	5	5	5
C3	100	5	5	5
C4	50	5	5	5
C5	6.25	5	5	5
C6	50	5	5	5
C7	12.5	5	5	5
C8	25	5	5	5
C9	100	5	5	5
C10	100	5	5	5
C11	0	5	5	5
C12	6.25	5	5	4
C13	50	5	5	5
C14	12.5	5	5	5
C15	12.5	5	5	5
C16	25	5	5	5
C17	6.25	5	5	5
C18	0	5	5	5
C19	12.5	5	5	5
C20	25	5	5	5
C21	6.25	5	5	5
C22	100	5	5	5
C23	50	5	5	5
C24	0	5	5	5
C25*		5		
C26*		5		
C27*		5		
C28*		5		

* These cups only used when upstream samples are provided.

Set Times			
Start Date:	8-9-17		
	Date	Time	Analyst
0 Hour	8-9-17	1515	RRG
24 Hour	8-10-17	1535	RRG
48 Hour	8-11-17	1508	RRG

Results			
Pimephales promelas			
48 Hour Result		Date	Analyst
LC 50	>100	8-14-17	RRG
TU_a	<1	8-14-17	RRG
P-Value	0.8333	8-14-17	RRG
Cerodaphnia Dubia			
48 Hour Result		Date	Analyst
LC 50	>100	8-14-17	RRG
TU_a	<1	8-14-17	RRG
P-Value	0.8333	8-14-17	RRG
		Date	Analyst
Filtered (Y/N):	N	8-9-17	RRG
Light Check: Y	48-38-10	8-9-17	RRG

Comments:

Analyst Signature: RRG

Date: 8-11-17

Read and Understood By:

Date: 8-17-17

PDC Laboratories Inc. SPMO.

Routine Chemistries

EPA Test Methods: 2002.0 & 2000.0

Sample # 2082039 | PP Hatch 072817A | MHSF 30AC2
Client Cuba | CD Hatch 080917CDA | Board/Shelf 4,3

Calibration data

pH (mg/L)	Initial	Date	Time	Analyst	48 hour	Date	Time	Analyst
4.00	4.01	8-9-17	1402	RRG	4.01	8-11-17		RRG
7.00	7.00				7.00			
10.00	10.02				10.02			
Curve	99.4				99.0			

DO (mg/L)	Date	Time	Analyst	Pressure (mmHg)	% Sat
Initial	8-9-17	1330	RRG	733	100
1 Hour	[illegible]	1620	RRG	732	100
24 Hour	8-10-17	1420	RRG	732	100
48 Hour	8-11-17	1516	RRG	730	100

Initial/Received

Cup #	4	1	3	6	7	2		5
Concentration	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	EFF-DUP
pH (Method EPA 150.1)	7.57	7.52	7.90	7.71	7.68	7.61	N/A	7.49
DO (Method SM 5010)	8.2	8.2	8.2	8.2	8.3	8.7		8.8

	Date	Time	Batch	Analyst
pH (Method EPA 150.1)	8-9-17	1408	B714257	RRG
DO (Method SM 5010)	8-9-17	1408	B714257	RRG

Conductivity (µMohs)	MHSF	Effluent	*Upstream	Date	Time	Batch	Analyst
(Method SM 2510B)	320	628	N/A	8-9-17	1409	B714257	RRG

	Method	Effluent	Upstream *	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500Cl-G	0.00	N/A	8-9-17	1526	B714209	RRG
Ammonia (mg/L)	EPA 350.1	0.052		8-15-17	1310	B714620	SCT
Alkalinity (mg/L)	2320B	150		8-11-17	1338	B714387	SCT
Hardness (mg/L)	200.7	200		8-14-17	1100	B714497	KLA

Analyst Signature: Ryley K
Date: 8-11-17

Read and Understood By:
Date: 8-17-17

0 Hour

Temperature (°C)	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
	23.4	23.0	8-9-17	1515	RRG

1 Hour

Test	MHSF	Effluent	Upstream *	Date	Time	Analyst
DO (mg/L)	8.0	8.3	N/A	8-9-17	1622	RRG

Temperature (°C)	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
	24.2	23.8	8-9-17	1622	RRG

24 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
DO (mg/L)	7.9	7.1	7.0	7.0	7.1	7.0	N/A	8-10-17	1550	RRG

Temperature (°C)	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
	26.0	25.0	8-10-17	1530	RRG

48 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
pH	7.87	7.89	7.92	7.88	8.10	8.24	N/A	8-11-17	1511	RRG
DO (mg/L)	7.5	7.3	7.2	7.1	7.1	7.2		8-11-17	1511	RRG

Temperature (°C)	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
	25.8	24.6	8-11-17	1511	RRG

Conductivity (µMohs)	MHSF	Effluent	*Upstream	Date	Time	Analyst
	325	627	N/A	8-11-17	1511	RRG

Comments: "H" qualifier added to DO, pH, & Chlorine due to Sample hold times

* Upstream only performed if supplied by the client

CETIS Test Data Worksheet

Report Date: 09 Aug-17 12:12 (p 1 of 1)
Test Code/ID: 14-7098-0698/57AD625A

Ceriodaphnia 48-h Acute Survival Test — PDC Labs SPMO

Start Date:	09 Aug-17 15:30	Species:	Ceriodaphnia dubia	Sample Code:	50B51903
End Date:	11 Aug-17 15:30	Protocol:	EPA/821/R-02-012 (2002)	Sample Source:	City of Cuba
Sample Date:	08 Aug-17 11:30	Material:	Dilution Water	Sample Station:	Outfall 001

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	Notes
0	D	2	1	5			
25		4	2	5			
100		2	3	5			
50		3	4	5			
6.25		3	5	5			
50		1	6	5			
12.5		4	7	5			
25		2	8	5			
100		3	9	5			
100		4	10	5			
0	D	4	11	5			
6.25		4	12	5			
50		4	13	5			
12.5		2	14	5			
12.5		1	15	5			
25		1	16	5			
6.25		2	17	5			
0	D	1	18	5			
12.5		3	19	5			
25		3	20	5			
6.25		1	21	5			
100		1	22	5			
50		2	23	5			
0	D	3	24	5			

CETIS Test Data Worksheet

Report Date: 09 Aug-17 12:12 (p 1 of 1)
Test Code/ID: 09-6353-3557/396E5AF5

Fathead Minnow 48-h Acute Survival Test				PDC Labs SPMO
Start Date:	09 Aug-17 15:30	Species:	Pimephales promelas	Sample Code: 50B51903
End Date:	11 Aug-17 15:30	Protocol:	EPA/821/R-02-012 (2002)	Sample Source: City of Cuba
Sample Date:	08 Aug-17 11:30	Material:	Dilution Water	Sample Station: Outfall 001

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	Notes
6.25	X	1	1	10			
100	X	2	2	10			
12.5	X	2	3	10			
0	D	1	4	10			
12.5	X	1	5	10			
25	X	1	6	10			
50	X	1	7	10			
0	D	2	8	10			
100	X	1	9	10			
6.25	X	2	10	10			
50	X	2	11	10			
25	X	2	12	10			

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA W.W.T.P.			USPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER: 573-885-2263	FAX NUMBER: 573-885-3216	DATE SHIPPED: 8-8-17
CITY, STATE, ZIP: CUBA, MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

3 ANALYSIS REQUESTED: WETT Multiple

4 (FOR LAB USE ONLY)
LOGIN # 7082039
LOGGED BY: KLM
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WETT Multiple	REMARKS
EFFLUENT COMPOSITE	8-8-17	11:30		X	WW	4	X	
								*No Upstream Available
								1-1Gal unp
								1-500ml H2SO4
								1-250ml unp
								1-250ml HNO3

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
DATE RESULTS NEEDED: 9-15-17
FAX # IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7		DATE	TIME		DATE	TIME
RELINQUISHED BY: (SIGNATURE)	Steve Black	8-8-17	1316	RECEIVED BY: (SIGNATURE)	Kawalcaty	1206 8-9-17
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)		
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)		

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT: 3.9 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

7082039

SENDING LABORATORY	RECEIVING LABORATORY
PDC Laboratories, Inc. 1805 West Sunset Street Springfield, MO 65807 (417) 864-8924	PDC Laboratories, Inc. - St Louis 3278 N Highway 67 Florissant, MO 63033 (314) 432-0550

Sample: 7082039-01
Name: Effluent Composite

Sampled: 08/08/17 11:30
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
04-Alk	08/21/17 16:00	08/22/17 11:30	
04-Ammonia-N Distill Gallery	08/21/17 16:00	09/05/17 11:30	
04-Ca 200.7 WWTot	08/21/17 16:00	02/04/18 11:30	
04-Mg 200.7 WWTot	08/21/17 16:00	02/04/18 11:30	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped: 8-9-17 Total # of Containers: 3 Sample Origin (State): MO PO #: —

Turn-Around Time Requested [X] NORMAL [ ] RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[signature]	8-9-17 1500		

Sample Temperature Upon Receipt 6.8°C
Sample(s) Received on Ice Y or N
Proper Bottles Received in Good Condition Y or N
Bottles Filled with Adequate Volume Y or N
Samples Received Within Hold Time Y or N
Date/Time Taken From Sample Bottle Y or N

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8085430-01
Name: Effluent Composite
Alias: Pass- @ AEC P. Promelas = 100% survival, C. Dubia = 95% survival.

Sampled: 08/28/18 12:30
Received: 08/29/18 10:10
Matrix: Waste Water - Composite
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	08/29/18 16:41	08/29/18 16:41	RRG	SM 4500-Cl G*
Conductivity	800	umhos/cm		08/29/18 13:23	08/29/18 13:23	KMR	SM 2510B
Dissolved Oxygen	8.6	mg/L	H	08/29/18 13:23	08/29/18 13:23	KMR	SM 4500-O G*
pH	7.9	pH Units	H	08/29/18 13:23	08/29/18 13:23	KMR	SM 4500-H B - SW 9040*
General Chemistry - STL							
Alkalinity - total as CaCO3	160	mg/L		08/31/18 14:45	08/31/18 14:45	KLM	SM 2320B*
Nutrients - SPMO							
Ammonia-N	< 0.10	mg/L		08/31/18 15:56	08/31/18 15:56	RRG	EPA 350.1 - QC 10-107-06-1-I & J*
Total Metals - STL							
Calcium	49	mg/L	Q4	08/31/18 13:47	09/05/18 11:58	WPS	EPA 200.7
Hardness	240	mg/L		08/31/18 13:47	09/05/18 11:58	WPS	SM 2340B
Magnesium	30	mg/L	Q4	08/31/18 13:47	09/05/18 11:58	WPS	EPA 200.7
WETT - SPMO							
Ceriodaphnia Dubia TUa	< 1.0	units		08/29/18 14:00	08/29/18 14:00	KMR	EPA 2002.0*
Pimephales Promelas TUa	< 1.0	units		08/29/18 14:00	08/29/18 14:00	KMR	EPA 2002.0*

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: August 1, 2018
Date Concluded: August 3, 2018

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 46345704
Expiration: N/A
Standards ID: SPMO1-22B

Moderately Hard Synthetic Water: 2-12CC1
Prepared: July 30, 2018
Expiration: August 15, 2018
Analyst: KMR

Pimephales promelas: 48 hour Acute Test - LC50 = 716.4 mg/L
SPMO %CV = 20.37 %
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 736.8 mg/L
SPMO %CV = 20.19 %
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

Certifications

CHI - McHenry, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.
Q4 The matrix spike recovery result is unusable since the analyte concentration in the sample is greater than four times the spike level. The associated blank spike was acceptable.

Certified by: Chad Cooper, Laboratory Supervisor

Multiple Dilution WET Test

Client Permit # MO-0094919

Sample # 8085430-01 PP Hatch 081918A MHSF 2-13BC3

Client Cuba CD Hatch 082918CA Board/Shelf 00212

Cup	Conc	Initial	24 hour	48 hour
P1	25	10	10	10
P2	Lab	10	10	10
P3	100	10	10	10
P4	12.5	10	10	10
P5	25	10	10	10
P6	12.5	10	10	10
P7	Lab	10	10	10
P8	6.25	10	10	10
P9	50	10	10	10
P10	6.25	10	10	10
P11	50	10	10	10
P12	100	10	10	10
P13 *	—	10	— RR	—
P14 *	—	10	—	—
C1	50	5	5	5
C2	25	5	5	5
C3	100	5	5	5
C4	100	5	5	5
C5	100	5	5	5
C6	50	5	5	5
C7	12.5	5	5	5
C8	25	5	5	5
C9	25	5	5	5
C10	12.5	5	5	5
C11	12.5	5	5	5
C12	6.25	5	5	5
C13	100	5	4	4
C14	Lab	5	5	5
C15	6.25	5	5	5
C16	6.25	5	5	5
C17	Lab	5	5	5
C18	Lab	5	5	5
C19	Lab	5	5	5
C20	12.5	5	5	5
C21	6.25	5	5	5
C22	25	5	5	5
C23	50	5	5	5
C24	50	5	5	5
C25 *	—	5	—	—
C26 *	—	5	—	—
C27 *	—	5	—	—
C28 *	—	5	—	—

* These cups only used when upstream samples are provided

Set Times

Start Date/Time:	8-29-18 @ 1400		
	Date	Time	Analyst
0 Hour	8-29-18	1400	KMR
24 Hour	8-30-18	1356	RR
48 Hour	8-31-18	1320	KMR
End Date/Time:	8-31-18 @ 1320		

Results

Pimephales promelas

48 Hour Result		Date	Analyst
LC 50	>100	8-31-18	KMR
TU_a	<1	8-31-18	KMR
P-Value	—	—	—

Ceriodaphnia Dubia

48 Hour Result		Date	Analyst
LC 50	>100	8-31-18	KMR
TU_a	<1	8-31-18	KMR
P-Value	—	—	—

		Date	Analyst
Filtered (Y / N)	Y	9-4-18	KMR
Light Check	N/A	9-4-18	KMR
PP Fry Age	10 day	9-4-18	KMR
CD Neonates Age	<24hrs	9-4-18	KMR

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup. CD were set in 15 ml of conc. w/in a 30 ml cup

Analyst Signature: Krista Rice

Date: 9-4-18

Read and Understood By: [signature]

Date: 9-4-18

Logbook: 2 Report #: 33

Routine Chemistries

M0-0094919

808 5436-01	082918A	Q-13BC3
Cuba	082918ICA	00212

Calibration Data

	pH	Date	Time	Analyst		Date	Time	Analyst	DO	Date	Time	Analyst	(mmHg)	% Sat
4.00	4.01	8.29.18	1151	kmr	4.01	8.31.18	1229	kmr		8.29.18	1320	kmr	732	100
7.00	7.00				7.00					8.29.18	1503	kmr	732	100
10.00	10.02				10.02				24 Hour	8-30-18	1350	RRG	733	100
Curve	96.77%				97.17				48 Hour	8.31.18	1234	kmr	736	100

Initial/Received

Cup #	2	8	4	1	9	3	X	12				
Concentration	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Eff DUP	Date	Time	Batch	Analyst
pH (EPA 150.1)	7.99	7.97	7.95	7.94	7.95	7.90	X	7.87	8.29.18	1323	B817626	kmr
DO mg/L (SM 5010)	8.19	8.01	8.02	8.14	8.19	8.55	X	8.65	8.29.18	1323	B817626	kmr

Conductivity (µMohs)	MHSF	Effluent	*Upstream	Date	Time	Batch	Analyst
(SM 2510B)	305	804 (820)	X	8.29.18	1323	B817626	kmr

	Method	Effluent	Upstream*	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500Cl G	0.02	0 ~~X~~ kmr	8.29.18	1641	B817621	RRG

Analyst Signature: Krista Rice

Date 9.4.18

Read and Understood By: [signature]

Date 9-4-18

0 Hour

	Fathead Minnow	Ceriodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	22.4	21.1	8.29.18	1400 ~~1000~~ kmr	kmr

1 Hour

Test	MHSF	Effluent	Upstream*	Date	Time	Analyst
DO (mg/L)	8.07	8.45	X	8.29.18	1504	kmr

	Fathead Minnow	Ceriodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	23.1	22.1	8.29.18	1504	kmr

24 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
DO (mg/L)	7.52	7.02	6.94	6.96	6.92	6.87	X	8-30-18	1354	RRG

	Fathead Minnow	Ceriodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.9	24.0	8-30-18	1354	RRG

48 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
pH	7.93	7.87	7.94	8.01	8.12	8.24	X	8.31.18	1306	kmr
DO (mg/L)	7.22	7.12	7.20	7.25	7.28	7.18	X	8.31.18	1306	kmr

	Fathead Minnow	Ceriodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	25.0	24.2	8.31.18	1306	kmr

	MHSF	Effluent	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	322	795	X	8.31.18	1306	kmr

Comments: "H" qualifier added to pH, DO and Chlorine analytes due to sample hold time.

*Upstream only performed if supplied by the client

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807
PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
CITY OF CUBA			UPS
ADDRESS: 202 NORTH SMITH	PHONE NUMBER	FAX NUMBER	DATE SHIPPED
CITY, STATE ZIP: CUBA MO 65453	SAMPLER (PLEASE PRINT): STEVE BLACK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: STEVE BLACK	SAMPLER'S SIGNATURE: Steve Black		

3 ANALYSIS REQUESTED: WET Test; Shipping

4 (FOR LAB USE ONLY): LOGIN # 8085430; LOGGED BY: SMW; LAB PROJ. #; TEMPLATE:; PROJ. MGR.: CHAD COOPER

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WET Test	Shipping	REMARKS
WET TEST EFFLUENT COMPOSITE	8-28-18	12:30		X	WW	3	X	X	THERE IS NO UPSTREAM FLOW SO NO UPSTREAM SAMPLE. 1-P, Gal Cube; 1-P, 250ml, HNO3; 1-P, 250ml, Unp

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

DATE RESULTS NEEDED: 12-15-18

RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE

FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	Steve Black	8-28-18	13:00	Stacy Wolf	8-29-18	1010
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT: 3.1 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

8085430

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc. - St Louis
3278 N Highway 67
Florissant, MO 63033
(314) 432-0550

Sample: 8085430-01
Name: Effluent Composite

Sampled: 08/28/18 12:30
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
04-Alk	09/11/18 16:00	09/11/18 12:30	2500
04-Ca 200.7 WWTot	09/10/18 16:00	02/24/19 12:30	2504
04-Mg 200.7 WWTot	09/10/18 16:00	02/24/19 12:30	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped: 8-29-18 Total # of Containers: 2 Sample Origin (State): MO PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
Stacey Wolf	8-29-18 1500	Jill Clark	8/30/18 0930

Sample Temperature Upon Receipt 5.0 °C
Sample(s) Received on Ice Y or N
Proper Bottles Received in Good Condition Y or N
Bottles Filled with Adequate Volume Y or N
Samples Received Within Hold Time Y or N
Date/Time Taken From Sample Bottle Y or N

ANALYTICAL RESULTS

Sample: 9122239-01
Name: Effluent Composite
Matrix: Waste Water - Composite

Sampled: 12/10/19 11:00
Received: 12/11/19 11:04
PO #: WWTP

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Alkalinity - total as CaCO3	200	mg/L		12/17/19 12:40	1	10	12/17/19 12:40	MGU	SM 2320B
General Chemistry - SPMO									
Chlorine - Total Residual	< 0.10	mg/L	H	12/12/19 16:14	1	0.10	12/12/19 16:14	CIH	SM 4500-Cl G*
Conductivity	690	umhos/cm		12/11/19 12:31	1	0.10	12/11/19 12:31	NSW	SM 2510B
Dissolved Oxygen	9.1	mg/L	H	12/11/19 11:52	1	1.0	12/11/19 11:52	NSW	SM 4500-O G*
pH	7.6	pH Units	H	12/11/19 12:31	1		12/11/19 12:31	NSW	SM 4500-H B - SW 9040
Temperature at pH measurement	22	°C		12/11/19 15:41	1		12/11/19 15:41	NSW	SM 4500 H B*
Nutrients - SPMO									
Ammonia-N	< 0.10	mg/L		12/20/19 14:00	1	0.10	12/20/19 14:00	CIH	EPA 350.1 - QC 10-107-06-1-I & J*
Total Metals - PIA									
Total Hardness as CaCO3	250	mg/L		12/18/19 09:36	1	0.66	12/23/19 15:27	TJJ	SM 2340B
Calcium	47	mg/L		12/18/19 09:36	1	0.10	12/23/19 15:27	TJJ	EPA 200.7
Magnesium	32	mg/L		12/18/19 09:36	1	0.10	12/23/19 15:27	TJJ	EPA 200.7
WETT - SPMO									
Ceriodaphnia Dubia TUa	< 1.0	units	X	12/11/19 15:41	1	1.0	12/11/19 15:41	NSW	EPA 2000.0/2002.0*
Pimephales Promelas TUa	< 1.0	units		12/11/19 15:41	1	1.0	12/11/19 15:41	NSW	EPA 2000.0/2002.0*

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B928779 - 03 No Prep-WC - SM 4500-O G									
Duplicate (B928779-DUP1)	**Sample: 9122239-01**			Prepared & Analyzed: 12/11/19					
Dissolved Oxygen	9.14	mg/L			9.14			0	200
pH	7.56	pH Units			7.55			0.1	200
Conductivity	717	umhos/cm			687			4	20
Temperature at pH measurement	22.1	°C			22.1			0	200
Batch B929133 - 03 No Prep-WC - SM 4500-Cl G									
Blank (B929133-BLK1)				Prepared & Analyzed: 12/12/19					
Chlorine - Total Residual	< 0.10	mg/L							
Duplicate (B929133-DUP1)	**Sample: 9121862-01**			Prepared & Analyzed: 12/12/19					
Chlorine - Total Residual	7.60	mg/L			8.20			8	200
Batch B929231 - EPA 200.2 R2.8 - EPA 200.7									
Blank (B929231-BLK1)				Prepared: 12/18/19 Analyzed: 12/23/19					
Calcium	< 0.10	mg/L							
Magnesium	< 0.10	mg/L							
LCS (B929231-BS1)				Prepared: 12/18/19 Analyzed: 12/24/19					
Calcium	48.1	mg/L		50.00		96	85-115		
Magnesium	48.4	mg/L		50.00		97	85-115		
Matrix Spike (B929231-MS1)	**Sample: 9122167-04**			Prepared: 12/18/19 Analyzed: 12/23/19					
Calcium	2.90	mg/L			2.95		70-130		
Magnesium	45.5	mg/L			47.1		70-130		
Matrix Spike (B929231-MS2)	**Sample: 9122266-01**			Prepared: 12/18/19 Analyzed: 12/19/19					
Calcium	133	mg/L			134		70-130		
Matrix Spike Dup (B929231-MSD1)	**Sample: 9122167-04**			Prepared: 12/18/19 Analyzed: 12/23/19					
Calcium	2.89	mg/L			2.95		70-130	0.2	20
Magnesium	45.9	mg/L			47.1		70-130	0.9	20
Matrix Spike Dup (B929231-MSD2)	**Sample: 9122266-01**			Prepared: 12/18/19 Analyzed: 12/19/19					
Calcium	140	mg/L			134		70-130	5	20
Batch B929234 - No Prep - SM 2320B									
Blank (B929234-BLK1)				Prepared & Analyzed: 12/17/19					
Alkalinity - total as CaCO3	< 2.0	mg/L							
LCS (B929234-BS1)				Prepared & Analyzed: 12/17/19					
Alkalinity - total as CaCO3	62.5	mg/L		68.20		92	85-115		
Duplicate (B929234-DUP1)	**Sample: 9121374-01**			Prepared & Analyzed: 12/17/19					
Alkalinity - total as CaCO3	15.0	mg/L			14.5			3	20
Duplicate (B929234-DUP2)	**Sample: 9122377-01**			Prepared & Analyzed: 12/17/19					
Alkalinity - total as CaCO3	305	mg/L			318			4	20
Batch B929695 - 03 No Prep-WC - EPA 350.1 - QC 10-107-06-1-I & J									
Blank (B929695-BLK1)				Prepared & Analyzed: 12/20/19					
Ammonia-N	< 0.10	mg/L							
LCS (B929695-BS1)				Prepared & Analyzed: 12/20/19					

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B929695 - 03 No Prep-WC - EPA 350.1 - QC 10-107-06-1-I & J									
LCS (B929695-BS1)				Prepared & Analyzed: 12/20/19					
Ammonia-N	10.0	mg/L		10.00		100	0-200		
Matrix Spike (B929695-MS1)	**Sample: 9122239-01**			Prepared & Analyzed: 12/20/19					
Ammonia-N	9.09	mg/L		10.00	ND	91	80-120		
Matrix Spike Dup (B929695-MSD1)	**Sample: 9122239-01**			Prepared & Analyzed: 12/20/19					
Ammonia-N	9.09	mg/L		10.00	ND	91	80-120	0	20

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: December 10, 2019
Date Concluded: December 12, 2019

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 18A195207
Expiration: N/A
Standards ID: SPMO6-22A

Moderately Hard Synthetic Water: 3-13CC1
Prepared: November 26, 2019
Expiration: November 28, 2019
Analyst: CIH

Pimephales promelas: 48 hour Acute Test - LC50 = 750 mg/L
SPMO %CV = 15.81 %
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 722.2 mg/L
SPMO %CV = 24.76 %
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.
X LCS failed but did not affect the results of the test.

Certified by: Chad Cooper, Laboratory Supervisor

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: CITY OF CUBA W.W.T.P
ADDRESS: 202 N SMITH ST
CITY, STATE ZIP: CUBA, MO 65453
CONTACT PERSON: STEVE BLACK
PROJECT NUMBER:
P.O. NUMBER:
PHONE NUMBER:
FAX NUMBER:
MEANS SHIPPED: UPS
DATE SHIPPED: 12-10-19
SAMPLER (PLEASE PRINT): STEVE BLACK
SAMPLER'S SIGNATURE: Steve Black

MATRIX TYPES: WW: WASTEWATER; DW: DRINKING WATER; GW: GROUND WATER; WWSL: SLUDGE; NAS: SOLID; LCHT: LEACHATE; OTHER:

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 9122239
LOGGED BY SMW
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WET Test	Shipping	REMARKS
WET TEST EFFLUENT COMPOSITE	12-10-19	11:00		X	WW	3	X	X	1-P, 1 Gal Cube, Unp 1-P, 250-mL, HNO3 1-P, 150-mL, Unp
SMW ~~UPSTREAM GRAB (IF AVAILABLE)~~	~~12-10-19~~	~~11:00~~	~~X~~		~~WW~~	~~1~~	~~X~~		

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
DATE RESULTS NEEDED: 1-15-20
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE
PHONE # IF DIFFERENT FROM ABOVE

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

(7)
RELINQUISHED BY: (SIGNATURE): Steve Black — DATE: 12-10-19 — TIME: 13:00
RECEIVED BY: (SIGNATURE): Stacy Wolf — DATE: 12-11-19 — TIME: 1104
RELINQUISHED BY: (SIGNATURE) — DATE — TIME
RECEIVED BY: (SIGNATURE) — DATE — TIME
RELINQUISHED BY: (SIGNATURE) — DATE — TIME
RECEIVED BY: (SIGNATURE) — DATE — TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT: 0.8 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	(Y) OR N
SAMPLE(S) RECEIVED ON ICE	(Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	(Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	(Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	(Y) OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	(Y) OR N

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9122239

SENDING LABORATORY

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 9122239-01
Name: Effluent Composite

Sampled: 12/10/19 11:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
Alk	12/20/19 16:00	12/24/19 11:00	
Ca 200.7 WWTot	12/20/19 16:00	06/07/20 11:00	
Mg 200.7 WWTot	12/20/19 16:00	06/07/20 11:00	

Please email results to Chad Cooper at ccooper@pdclab.com

Date Shipped 12-11-19 Total # of Containers 2 Sample Origin (State): MO PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
Stacy Wolf	1400 12-11-19		
Relinquished By	Date/Time	Received By	Date/Time
			12/12/19 1020

Sample Temperature Upon Receipt 1.2 °C
Sample(s) Received on Ice (Y) or N
Proper Bottles Received in Good Condition (Y) or N
Bottles Filled with Adequate Volume (Y) or N
Samples Received Within Hold Time (Y) or N
Date/Time Taken From Sample Bottle Y or (N)

Routine Chemistries

Sample # 9122239-01 Client Permit # MO-0094919

Client Cuba PP Hatch 112419A MHSF 3-~~14~~A13

CD Hatch 112719SCA Board/Shelf 21002

Calibration data														
pH	Initial	Date	Time	Analyst	48 hour	Date	Time	Analyst	DO (mg/L)	Date	Time	Analyst	Pressure (mmHg)	% Sat
4.00	4.01	12.11.19	1130	NSW	4.01	12.13.19	1106	CIH	Initial	12.11.19	1141	NSW	741	100
7.00	7.00				7.00				1 Hour	12.11.19	1642	NSW	739	100
10.00	10.02				10.03				24 Hour	12.12.19	1521	NSW	732	100
Curve	96.2				96.1				48 Hour	12.13.19	1015	CIH	729	100

Initial/Received

Cup #	6	4	11	10	9	3		1				
Concentration	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	EFF-DUP	Date	Time	Batch	Analyst
pH (EPA 150.1)	7.82	7.71	7.66	7.64	7.63	7.55		7.56	12.11.19	1231	8928779	NSW
DO mg/L (SM 5010)	8.22	8.25	8.32	8.32	8.36	8.52		8.63	12.11.19	1231	8928779	NSW
DO mg/L Received						9.14		9.14	12.11.19	1152		NSW

Conductivity (µMohs) (SM 2510B)	MHSF	Effluent	*Upstream	Date	Time	Batch	Analyst
	256	1087 (717)		12.11.19	1231	8928779	NSW

	Method	Effluent	Upstream*	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500Cl-G	0.01		12.12.19	1614	8929133	CIH

0 Hour

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	22.1	21.5	12.11.19	1541	NSW

1 Hour

Test	MHSF	Effluent	*Upstream	Date	Time	Analyst
DO (mg/L)	8.07	8.27		12.11.19	1642	NSW

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	23.0	22.8	12.11.19	1642	NSW

24 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
DO (mg/L)	7.26	7.04	6.92	6.98	7.01	6.99		12.12.19	1441	NSW

	Fathead Minnow NSW	Cerodaphnia Dubia NSW	Date	Time	Analyst
Temperature (°C)	25.7 ~~23.0~~	24.6 ~~22.9~~	12.12.19	1441	NSW

48 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
pH	7.45	7.50	7.51	7.64	7.82	8.05		12.13.19	1115	CIH
DO (mg/L)	7.32	7.20	7.07	7.10	7.13	7.15		12.13.19	1115	CIH

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	25.3	25.1	12.13.19	1115	CIH

	MHSF	Effluent	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	303	649 (715)		12.13.19	1115	CIH

Comments: DO ~~[illegible]~~ NSW lowered to 8.77 by shaking/pouring out/heating. NSW 12.11.19

* Upstream only performed if supplied by the client

Analyst Signature: Noah Wilson

Date: 12.18.19

Read and Understood By: [signature]

Date: 12.18.19

PDC Laboratories Inc, SPMO.

EPA Test Methods: 2002.0 & 2000.0

Multiple Dilution WET Test

Client Permit #: MD 0094919

Sample # 4122239-01A | PP Hatch 112919A | MHSF 3-14AC3

Client Cuba | CD Hatch 112719ICA | Board/Shelf 2/002

Cup	Conc.	Initial	24 hour	48 hour
P1	100	10	10	10
P2	6.25	10	10	10
P3	100	10	10	10
P4	6.25	10	10	10
P5	50	10	10	10
P6	0	10	10	10
P7	25	10	10	10
P8	0	10	10	10
P9	50	10	10	10
P10	25	10	10	10
P11	12.5	10	10	10
P12	12.5	10	10	10
P13 *	—	10	~~10~~ NSW	~~10~~ CH
P14 *	—	10	~~10~~ NSW	~~10~~ CH
C1	50	5	5	5
C2	50	5	5	5
C3	0	5	3	3
C4	6.25	5	4	4
C5	50	5	5	5
C6	12.5	5	4	3
C7	6.25	5	4	2
C8	6.25	5	3	3
C9	100	5	5	5
C10	12.5	5	5	5
C11	100	5	5	4
C12	0	5	3	3
C13	25	5	5	4
C14	0	5	1	1
C15	12.5	5	3	3
C16	25	5	5	5
C17	6.25	5	4	4
C18	12.5	5	5	5
C19	100	5	5	5
C20	25	5	5	5
C21	100	5	5	5
C22	50	5	5	5
C23	0	5	5	5
C24	25	5	5	4
C25 *	—	5	—	—
C26 *	—	5	—	—
C27 *	—	5	—	—
C28 *	—	5	—	—

Set Times

	Date	Time	Analyst
0 Hour	12.11.19	1541	NSW
24 Hour	12.12.19	1441	NSW
48 Hour	12.13.19	1115	CH

Results

Pimephales promelas

48 Hour Result		Date	Analyst
LC 50	>100	12.13.19	NSW
TUa	<1	12.13.19	NSW

Ceriodaphnia Dubia

48 Hour Result		Date	Analyst
LC 50	>100	12.13.19	NSW
TU_a	<1	12.13.19	NSW

		Date	Analyst
Filtered (Y / N):	Y	12.11.19	NSW
Light Check:	—	—	—
PP Fry Age:	12 days	12.11.19	NSW
CD Neonates Age:	< 24 hrs.	12.11.19	NSW

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup .CD were set in 15 ml of conc. w/in a 30 ml cup

H qualifier added to DO + pH 12.18.19 NSW

Analyst Signature: Noah Wilson

Date: 12.18.19

Read and Understood By: [signature]

Date: 12.18.19

Logbook:_______ **Report #:**_______

* These cups only used when upstream samples are provided

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Cuba WWTF	MO- 0094919	1

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

☑ Yes ☐ No

20.2 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 2

Number of CIUs 4

21. 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
Ozark Mountain Technologies

MAILING ADDRESS	CITY	STATE	ZIP CODE
100 Midland	Cuba	MO	65453

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

All processes associated with anodizing

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

Principal Product(s): Anodized and painted aluminum products for aerospace, military, and commercial uses.

Raw Material(s): sulfuric acid, nitric acid, sodium hydroxide, alodine, hydrofluoric acid

21.3 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.

280,000 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.

5000 gpd ☐ Continuous ☑ Intermittent

21.4 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?

40 CFR 433

21.5 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
Cuba WWTF	MO- 0094919	1

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

[x] Yes [ ] No

20.2 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 ____

21. 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

Wieland (Olin) Industries

MAILING ADDRESS	CITY	STATE	ZIP CODE
102 Progress Parkway	Cuba	MO	65453

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

Fineweld Copper Tubing

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

Principal Product(s):

Copper Tubing

Raw Material(s):

copper

21.3 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.

7,310 gpd [x] 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.

500 gpd [ ] Continuous [x] Intermittent

21.4 Pretreatment Standards. Indicate whether the SIU is subject to the following.

a. Local Limits [x] Yes [ ] No

b. Categorical Pretreatment Standards [xx] Yes [ ] No

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

40 CFR 468

21.5 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 [x] No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO	OUTFALL NO.
Cuba WWTF	MO- 0094919	1

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

[x] Yes [ ] No

20.2 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 2

Number of CIUs 4

21. 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
Midland Tech

MAILING ADDRESS	CITY	STATE	ZIP CODE
109 Midland Drive	Cuba	MO	65453

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

Anodizing

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

Principal Product(s):

Anodized aluminum

Raw Material(s):

sulfuric acid, nitric acid, sodium hydroxide, hydrofluroic acid, hexavalent chromium

21.3 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.

0 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.

0 gpd [ ] Continuous [ ] Intermittent

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

a. Local Limits [x] Yes [ ] No

b. Categorical Pretreatment Standards [x] Yes [ ] No

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

40 CFR 433

21.5 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 [x] No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO	OUTFALL NO.
Cuba WWTF	MO- 0094919	1

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

[x] Yes [ ] No

20.2 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 2

Number of CIUs 4

21. 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

Highline Plating

MAILING ADDRESS	CITY	STATE	ZIP CODE
105 Enterprise Drive	Cuba	MO	65453

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

electroplating copper, nickel, chromium

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

Principal Product(s):

Chromium platings

Raw Material(s):

nickel salts, copper salts, chromium, sulfuric acid

21.3 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.

0 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.

200 gpd [ ] Continuous [x] Intermittent

21.4 Pretreatment Standards. Indicate whether the SIU is subject to the following.

a. Local Limits [x] Yes [ ] No

b. Categorical Pretreatment Standards [x] Yes [ ] No

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

40 CFR 433

21.5 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 [x] No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO	OUTFALL NO
Cuba WWTF	MO- 0094919	1

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

XX ☐ Yes ☐ No

20.2 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 2

Number of CIUs 4

21. 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

Blue Beacon Truck Wash

MAILING ADDRESS	CITY	STATE	ZIP CODE
301 State Highway DD	Cuba	MO	65453

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

Truck wasing

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

Principal Product(s):

Clean Trucks

Raw Material(s):

soaps, chealtors, hydrofluoric acid

21.3 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.

12,330 gpd ☐ Continuous ☒ Intermittent flow generated by wasing trucks

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.

200 gpd ☐ Continuous ☒ Intermittent

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

a. Local Limits XX Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☐ No

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

21.5 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
Cuba WWTF	MO- 0094919	1

PART F -- INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

[xx] Yes [ ] No

20.2 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 2

Number of CIUs 4

21. 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

Prairie Valley Landfill

MAILING ADDRESS	CITY	STATE	ZIP CODE
3975 Hwy 19 North	Cuba	MO	65453

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

Landfill

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

Principal Product(s):

Landfill

Raw Material(s):

Trash from Municipalities

21.3 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.

2,600 gpd [ ] Continuous [x] 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.

0 gpd [ ] Continuous [ ] Intermittent

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

a. Local Limits [xx] Yes [ ] No

b. Categorical Pretreatment Standards [ ] Yes [ ] No

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

21.5 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 [xx] No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Cuba WWTF	MO-	

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

22.1 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

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

22.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

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

23.1 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.

23.2 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).

23.3 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)

23.4 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.
Cuba WWTF	MO- 0094919	1

PART G – COMBINED SEWER SYSTEMS

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

24. GENERAL INFORMATION

24.1 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.

24.2 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.

24.3 Percent of collection system that is combined sewer zero

24.4 Population served by combined sewer collection system N/A

24.5 Name of any satellite community with combined sewer collection system N/A

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

25.1 Description of Outfall N/A

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?

25.2 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

25.3 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)

25.4 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.

INSTRUCTIONS FOR COMPLETING 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, Form 780-1805
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use Form B, 780-1512.)

PART A – BASIC APPLICATION INFORMATION

1. Check the appropriate box. **Do not check more than one item.** Operating permits refer to permits issued by the Department of Natural Resources, Water Protection Program. If an Antidegradation Review has not been conducted, submit the application located at the following link, to the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102: dnr.mo.gov/forms/780-1893-f.pdf.

1.1 **Fees Information:**

DOMESTIC OPERATING PERMIT FEES – PRIVATELY OWNED TREATMENT WORKS (Non-POTW)

Annual operating permit fees are based on flow.

Annual fee/Design flow	Annual fee/Design flow	Annual fee/Design flow
$150.....<5,000 gpd	$1,000.....15,000-24,999 gpd	$4,000.....100,000-249,999 gpd
$300.....5,000-9,999 gpd	$1,500.....25,000-29,999 gpd	$5,000.....≥250,000 gpd
$600.....10,000-14,999 gpd	$3,000.....30,000-99,999 gpd	

New domestic wastewater treatment facilities must submit the annual fee with the original application.

If the application is for a site-specific permit re-issuance, send no fees. You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

PUBLICLY OWNED SEWER SYSTEM OPERATING PERMIT FEES (City, public sewer district, public water district, or other publicly owned treatment works) Annual fee is based on number of service connections. Fees listings are found in 10 CSR 20-6.011 which is available at http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. New public sewer system facilities should not submit any fee as the department will invoice the permittee.

OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

a. Publicly Owned Treatment Works (POTWs) - $200 each.
b. Non-POTWs – $100 each for a minor modification (name changes, address changes, other non-substantive changes) or a fee equal to 25 percent of the facility's annual operating fee for a major modification.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.

2.1 Self-explanatory.

2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce.

2.3-2.4 Self-explanatory. For the No Exposure Certification for Exclusion Application: https://dnr.mo.gov/forms/780-2828-f.pdf

3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner. The owner identified in this section and subsequently reflected on the certificate page of the operating permit, is the owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.

3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice.

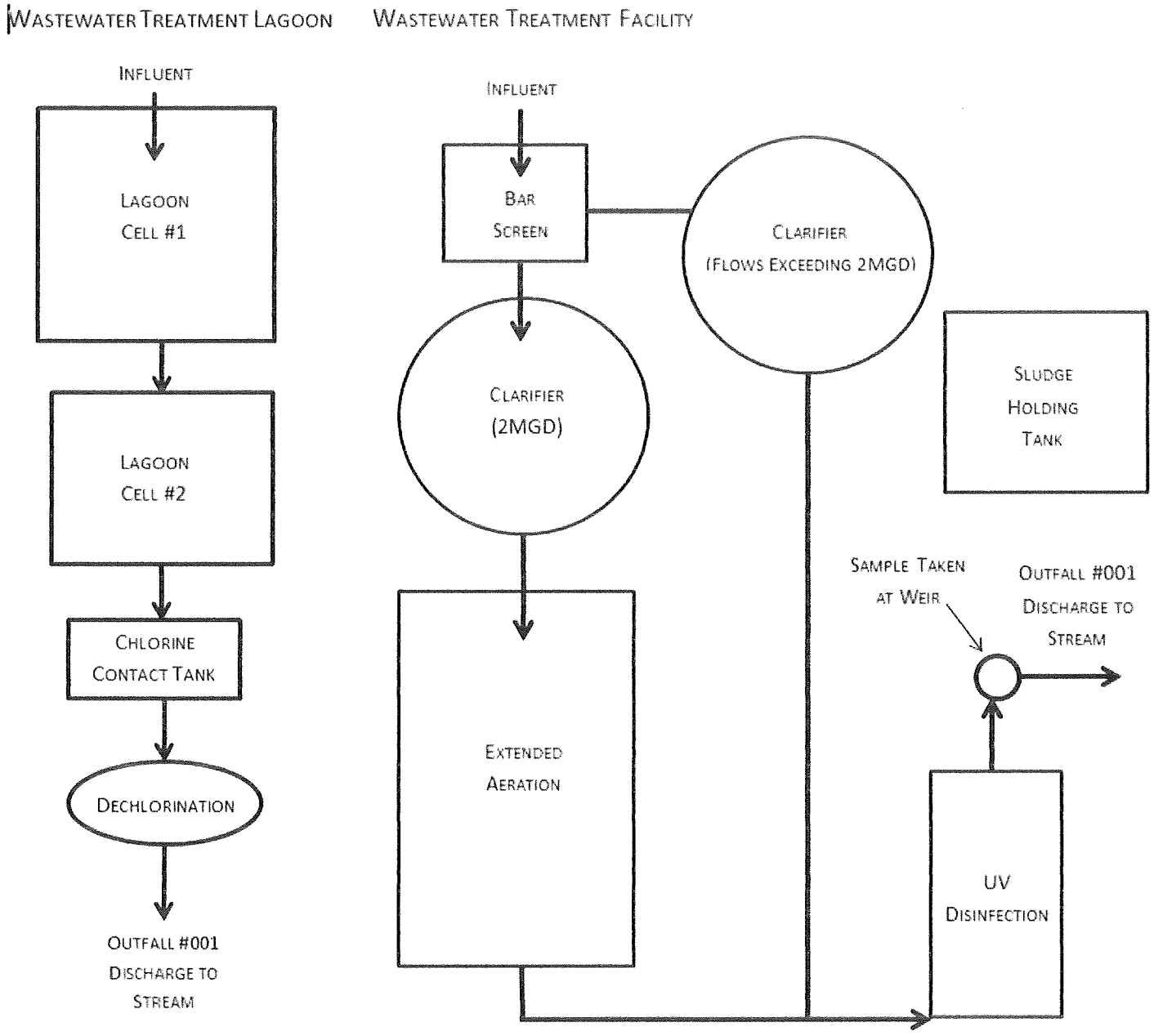
3.2-3.4 Self-explanatory. See the following link for Financial Questionnaire: https://dnr.mo.gov/forms/780-2511-f.pdf

4. Continuing Authority – A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. If the continuing authority is not an individual(s), government, or otherwise required to register with the Missouri Secretary of State (SoS), then the business name must be listed exactly as it appears on the SoS's webpage: https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0

5. Operator – Provide the name, certificate number, title, mailing address, primary phone number, and email address of the operator of the facility.

6. Provide the name, title, mailing address, primary phone number, and email address of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department.

7.1 **Process Flow Diagram Examples**



7.2 A map is available on the web at https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce or from the Department of Natural Resources' Geological Survey in Rolla at 573-368-2125.

7.3 For Standard Industrial Codes visit www.osha.gov/pls/imis/sicsearch.html and for the North American Industry Classification System, visit www.census.gov/naics or contact the Department of Natural Resources' Water Protection Program.

7.4-7.8 Self – explanatory.

7.9 If wastewater is land-applied submit Form I: www.dnr.mo.gov/forms/780-1686-f.pdf.

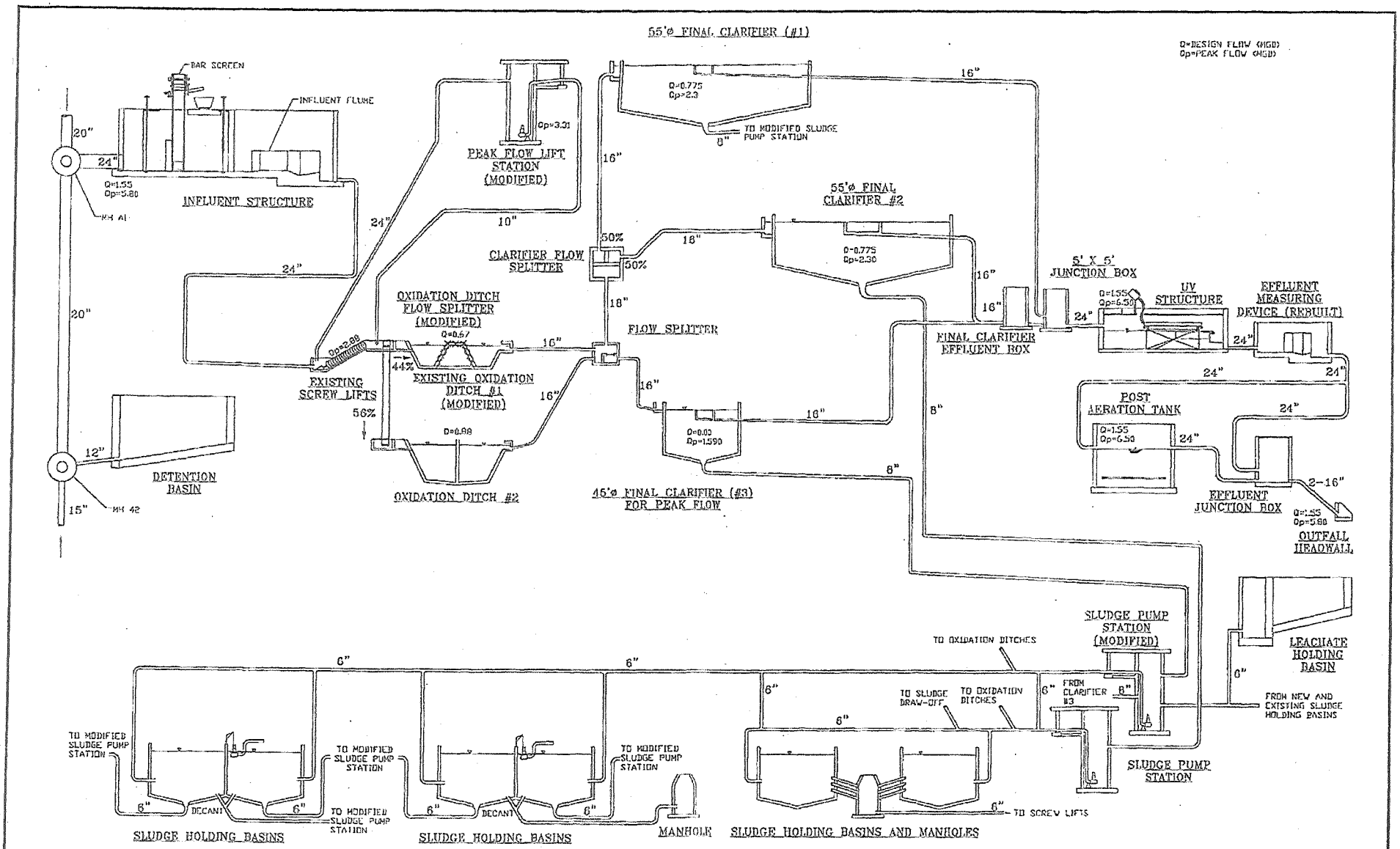
7.10-8. Self-explanatory

9.1 A copy of 10 CSR 25 is available at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25.

9.2-9.9 Self – explanatory.

PART B – ADDITIONAL APPLICATION INFORMATION

10.-14. Self-explanatory



PLANT SCHEMATIC

INSTRUCTIONS FOR COMPLETING 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
(continued)

PART C – CERTIFICATION

15. Electronic Discharge Monitoring Report (eDMR) Submission System – Visit the eDMR site at http://dnr.mo.gov/env/wpp/edmr.htm and click on the "Facility Participation Package" link. The eDMR Permit Holder and Certifier Registration Form and information about the eDMR system can be found in the Facility Participation Package.

Waivers to electronic reporting may be granted by the Department per 40 CFR 127.15 under certain, special circumstances. A written request must be submitted to the Department for approval. Waivers may be granted to facilities owned or operated by:

a. members of religious communities that choose not to use certain technologies or
b. permittees located in areas with limited broadband access. The National Telecommunications and Information Administration (NTIA) in collaboration with the Federal Communications Commission (FCC) have created a broadband internet availability map: https://broadbandmap.fcc.gov/#/. Please contact the Department if you need assistance.

16. JetPay

Applicants can pay fees online by credit card or eCheck through a system called JetPay.

a. Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
b. Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, please contact the Water Protection Program's Budget, Fees, and Grants Management Unit by phone at (573) 522-1485 for assistance.
c. Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification. For permit renewals of active permits, the Department will invoice fees annually in a separate request.
d. If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, to WPPFees@dnr.mo.gov. The Budget, Fees, and Grants Management Unit will contact you to assist with the credit card payment. **Please do not include your credit card information in the email.**
e. Applicants can find fee rates in 10 CSR 20-6.011 (https://dnr.mo.gov/pubs/pub2564.htm).

17. Signature – All applications must be signed as follows and the signatures must be original:

a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
b. For a partnership or sole proprietorship, by a general partner or the proprietor.
c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

PART D – EXPANDED EFFLUENT TESTING DATA

18 Self-explanatory. ML/MDL means minimum limit or minimum detection limit.

PART E – TOXICITY TESTING DATA

19. Self- explanatory.

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

20. Federal regulations are available through the U.S. Government Printing Office at https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.

20.1 Self – explanatory

20.2 A noncategorical significant industrial user is an industrial user that is not a CIU and 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 5 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.

21.-23.4 Self-explanatory.

PART G – COMBINED SEWER SYSTEMS

24.-25.4 Self-explanatory.

Submittal of an incomplete application may result in the application being returned.

This completed form and any attachments along with the applicable permit fees, should be submitted to:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176

Map of regional offices with addresses and phone numbers are available on the web at http://dnr.mo.gov/regions/. If there are any questions concerning this form, contact the appropriate regional office or the Department of Natural Resources, Water Protection Program, Operating Permits Section at 800-361-4827 or 573-522-4502.