

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-0104906
Owner:	City of Neosho
Address:	203 East Main Street, Neosho, MO 64850
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Neosho Wastewater Treatment Plant
Facility Address:	Old Scenic Drive 0.1 miles north of Jefferson Avenue intersection, Neosho, MO 64850
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 and stormwater 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.

May 1, 2017
Effective Date


Steven Feeler, Acting Director, Division of Environmental Quality

April 30, 2022
Expiration Date


David J. Lamb, Acting Director, Water Protection Program

FACILITY DESCRIPTION (continued):

This permit includes two wastewater treatment facilities which serve the City of Neosho. These facilities were previously permitted separately – Neosho Crowder WWTP (MO-0039926) and Neosho Shoal Creek WWTP (MO-0104906). During normal operations at the Neosho Crowder WWTP, effluent is sent to the Neosho Shoal Creek WWTP, where effluent from the two plants mix together prior to the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP. Therefore, it has been determined by the permit writer that combining the two permits into one permit is appropriate. The use or operation of this facility shall be by or under the supervision of a Certified A Operator.

Outfall #001 – Main Facility Outfall at Neosho Shoal Creek WWTP – POTW – SIC #4952

Flow equalization basin / bar screen / 2 oxidation ditches / 2 final clarifiers / ultraviolet disinfection / aerobic sludge digester / 2 aerated sludge holding basins / sludge is land applied. Ultraviolet disinfection system has a design flow capability of 6 MGD to treat combined effluent flows from both the Neosho Shoal Creek WWTF and the Neosho Crowder WWTF.

Design population equivalent is 30,000.

Design flow is 3.0 MGD.

Actual flow is 1.7 MGD.

Design sludge production is 630 dry tons/year.

Legal Description:	SE ¼, SE ¼, Sec. 12, T25N, R32W, Newton County
UTM Coordinates:	X= 377523, Y= 4084102
Receiving Stream and ID:	Shoal Creek (P) (3222) 303(d) List
First Classified Stream and ID:	Shoal Creek (P) (3222) 303(d) List
USGS Basin & Sub-watershed No.:	(11070207-0804)

Outfall #002 – Discharge at Neosho Crowder WWTP (previously permitted as Outfall #001 in MO-0039926)

Flow equalization basin / bar screen / 2 pre-aeration basins / 2 primary clarifiers / 3 trickling filters / recirculation basin / 3 secondary clarifiers / chlorine disinfection / chlorine contact basin / dechlorination / 2 primary aerobic sludge digesters / sludge drying bed / sludge is land applied.

Design population equivalent is 29,000.

Design flow is 3.0 MGD.

Actual flow is 0.92 MGD.

Design sludge production is 812 dry tons/year.

Legal Description:	SW ¼, SE ¼, Sec. 09, T24N, R32W, Newton County
UTM Coordinates:	X= 376620, Y= 4075426
Receiving Stream:	Tributary to Buffalo Creek (losing)
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) (3960) (losing)
USGS Basin & Sub-watershed No.:	(11070208-0401)

Outfall #003 – Discharge Point to the Golf Course Irrigation Storage Ponds

This location has been identified in the permit in order to document the location at which effluent from the Neosho Crowder WWTP is discharged to the golf course irrigation storage ponds. Effluent discharged from Outfall #003 receives the same treatment as effluent discharged from Outfall #002. This permit does not include final effluent limitations for this location, as effluent sampling is not possible at the storage ponds. However, Internal Monitoring Point #IP2 has been created by the permit writer in order to monitor effluent quality prior to the discharge to at Outfall #003.

Legal Description:	SE ¼, NW ¼, Sec. 35, T25N, R32W, Newton County
UTM Coordinates:	X= 374823, Y= 4078567
Receiving Stream:	Tributary to Buffalo Creek (losing)
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) (3960) (losing)
USGS Basin & Sub-watershed No.:	(11070208-0401)

Internal Monitoring Point #IP1 – Influent Monitoring Location for Neosho Crowder WWTP

Internal Monitoring Point #IP1 is the location where influent monitoring of the Neosho Crowder WWTP shall take place. Influent monitoring at this location is necessary in order to determine the removal efficiency of the Neosho Crowder WWTP prior to the mixing of the two effluents at the Neosho Shoal Creek WWTP.

Legal Description:	NE ¼, NE ¼, Sec. 16, T24N, R32W, Newton County
UTM Coordinates:	X= 376928, Y= 4075240

Internal Monitoring Point #IP2 – Effluent Monitoring Location for Neosho Crowder WWTP – Golf Course Irrigation Storage Ponds

Internal Monitoring Point #IP2 is the location where effluent monitoring of the Neosho Crowder WWTP shall take place when effluent is being sent to the golf course irrigation storage ponds. Water storage at the golf course includes three (3) interconnected storage ponds, the last of which, has the potential to discharge. If a discharge did occur from the final storage pond, the water being discharged would not be representative of the effluent contribution from the Neosho Crowder WWTP as there are other sources contributing to the storage ponds. Therefore, it has been determined by the permit writer that effluent must be monitored prior to the discharge to the golf course irrigation storage ponds in order to determine compliance with final effluent limitations. Due to the fact that there is no location for sample collection once effluent is being routed to the golf course irrigation ponds, the location of Internal Monitoring Point #IP2 is in the chlorine contact basin, where effluent has been subject to the full treatment of the Neosho Crowder WWTP.

Legal Description: NE ¼, NE ¼, Sec. 16, T24N, R32W, Newton County
UTM Coordinates: X= 376753, Y= 4075394

Internal Monitoring Point #IP3 – Effluent Monitoring Location During Normal Operations for Neosho Crowder WWTP

Internal Monitoring Point #IP3 is the location where effluent monitoring of the Neosho Crowder WWTP shall take place when effluent is being sent to the Neosho Shoal Creek WWTP. Effluent from the Neosho Crowder WWTP mixes with effluent from the Neosho Shoal Creek WWTP just prior to the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP. Prior to the mixing of the two effluents, the permittee has the ability to collect samples of effluent from a Parshall Flume at the Neosho Crowder WWTP. Therefore, Internal Monitoring Point #IP3 is located in the effluent stream which includes only the Neosho Crowder WWTP effluent at the Neosho Shoal Creek WWTP. Monitoring at this location is necessary so the permittee can collect samples to determine compliance with technology based requirements for the Neosho Crowder WWTP prior to the mixing of the two effluents.

Legal Description: NE ¼, NE ¼, Sec. 13, T25N, R32W, Newton County
UTM Coordinates: X= 377603, Y= 4083919

Internal Monitoring Point #IP4 – Influent Monitoring Location for Neosho Shoal Creek WWTP

Internal Monitoring Point #IP4 is the location where influent monitoring of the Neosho Shoal Creek WWTP shall take place. Influent monitoring at this location is necessary in order to determine the removal efficiency of the Neosho Shoal Creek WWTP prior to the mixing of the two effluents at the Neosho Shoal Creek WWTP.

Legal Description: NE ¼, NE ¼, Sec. 13, T25N, R32W, Newton County
UTM Coordinates: X= 377666, Y= 4083897

Internal Monitoring Point #IP5 – Effluent Monitoring Location for Neosho Shoal Creek WWTP prior to Effluents Mixing

Internal Monitoring Point #IP5 is the location where effluent monitoring of the Neosho Shoal Creek WWTP shall take place prior to the mixing of the two effluents at the Neosho Shoal Creek WWTP. Effluent from the Neosho Crowder WWTP mixes with effluent from the Neosho Shoal Creek WWTP just prior to the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP. Prior to the mixing of the two effluents, the permittee has the ability to collect samples of effluent from a Parshall Flume at the Neosho Shoal Creek WWTP. Therefore, Internal Monitoring Point #IP5 is located in the effluent stream which includes only the Neosho Shoal Creek WWTP. Monitoring at this location is necessary so the permittee can collect samples to determine compliance with technology based requirements for the Neosho Shoal Creek WWTP prior to the mixing of the two effluents.

Legal Description: NE ¼, NE ¼, Sec. 13, T25N, R32W, Newton County
UTM Coordinates: X= 377612, Y= 4083922

Permitted Feature #SM1 – Instream (Upstream) Monitoring Location at Neosho Shoal Creek Wastewater Treatment Plant

Instream monitoring location – See Special Condition #20

Receiving Stream and ID: Shoal Creek (P) (3222) 303(d) List
First Classified Stream and ID: Shoal Creek (P) (3222) 303(d) List
USGS Basin & Sub-watershed No.: (11070207-0804)

Permitted Feature #SM2 – Instream (Downstream) Monitoring Location at Neosho Shoal Creek Wastewater Treatment Plant

Instream monitoring location – ¼ mile downstream of Outfall #001 to ensure samples are taken outside of the mixing zone.

Receiving Stream and ID: Shoal Creek (P) (3222) 303(d) List
First Classified Stream and ID: Shoal Creek (P) (3222) 303(d) List
USGS Basin & Sub-watershed No.: (11070207-0804)

OUTFALL #001: Main Facility Outfall at Neosho Shoal Creek WWTP	TABLE A-1. INTERIM 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 interim effluent limitations shall become effective on May 1, 2017 and remain in effect through April 30, 2018 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/day	24 hr. total
Ammonia as N	mg/L	*		*	twice/month	grab
<i>E. coli</i> (Note 1)	#/100mL		630	126	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units ****	SU	6.0		9.0	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						

<u>OUTFALL #001:</u> Main Facility Outfall at Neosho Shoal Creek WWTP	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 shall become effective on <u>May 1, 2018</u> 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
Flow	MGD	*		*	once/day	24 hr. total
Ammonia as N (Apr 1 – Sep 30) (Oct 1 – Mar 31)	mg/L	6.1 11.9		1.2 2.2	twice/month	grab
<i>E. coli</i> (Note 1)	#/100mL		630	126	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2018</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units ****	SU	6.0		9.0	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2018</u> .						

* Monitoring requirement only.

**** 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).

OUTFALL #001: Main Facility Outfall at Neosho Shoal Creek WWTP		TABLE A-3. INTERIM 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 interim effluent limitations shall become effective on May 1, 2017 and remain in effect through April 30, 2018 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Oil & Grease	mg/L	15		10	once/quarter***	grab
Total Nitrogen	mg/L	*		*	once/quarter***	grab
Total Phosphorus	mg/L	*		*	once/quarter***	grab
Phenol	µg/L	*		*	once/quarter***	composite**
Cadmium, Total Recoverable	µg/L	2.9		1.0	once/quarter***	composite**
Chromium (III), Total Recoverable	µg/L	*		*	once/quarter***	composite**
Chromium (VI), Dissolved	µg/L	*		*	once/quarter***	grab
Copper, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Iron, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Lead, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Mercury, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Nickel, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Selenium, Total Recoverable	µg/L	36		17.1	once/quarter***	composite**
Zinc, Total Recoverable	µg/L	*		*	once/quarter***	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> .						

* 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.

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

OUTFALL #001: Main Facility Outfall at Neosho Shoal Creek WWTP		TABLE A-4. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on May 1, 2018 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
Oil & Grease	mg/L	15		10	once/quarter***	grab
Total Nitrogen	mg/L	*		*	once/quarter***	grab
Total Phosphorus	mg/L	*		*	once/quarter***	grab
Phenol	µg/L	4,200.5		1,316.3	once/quarter***	composite**
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/quarter***	composite**
Chromium (III), Total Recoverable	µg/L	*		*	once/quarter***	composite**
Chromium (VI), Dissolved	µg/L	*		*	once/quarter***	grab
Copper, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Iron, Total Recoverable	µg/L	1,849.6		702.5	once/quarter***	composite**
Lead, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Mercury, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Nickel, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Selenium, Total Recoverable	µg/L	9.2		3.2	once/quarter***	composite**
Zinc, Total Recoverable	µg/L	*		*	once/quarter***	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2018</u> .						

* 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.

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

<u>OUTFALL #002:</u> Discharge at Neosho Crowder WWTP	TABLE A-5. INTERIM 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 interim effluent limitations shall become effective on <u>May 1, 2017</u> and remain in effect through <u>April 30, 2022</u> . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Phosphorus	lbs/day	*			once/day	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						

<u>OUTFALL #002:</u> Discharge at Neosho Crowder WWTP	TABLE A-6. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2022</u> 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
Total Phosphorus	lbs/day	12.51			once/day	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2022</u> .						

<u>INTERNAL MONITORING</u> <u>POINT #IP2:</u> Discharge at Golf Course Irrigation Storage Ponds	TABLE A-7. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2017</u> 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
Total Phosphorus	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> .						

* Monitoring requirement only.

*** See table below for quarterly sampling requirements.

Minimum Sampling Requirements			
Quarter	Months	Internal Monitoring Point #IP2 – Total Phosphorus	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
Second	April, May, June	Sample at least once during any month of the quarter	July 28 th
Third	July, August, September	Sample at least once during any month of the quarter	October 28 th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th

<u>OUTFALL #002 & INTERNAL MONITORING POINT #IP2:</u> Discharge at Neosho Crowder WWTP & Golf Course Irrigation Storage Ponds		TABLE A-8. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2017</u> 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
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		15	10	once/week	composite**
Total Suspended Solids	mg/L		20	15	once/week	composite**
Ammonia as N (Apr 1 – Sep 30) (Oct 1 – Mar 31)	mg/L	3.6 7.5		1.4 2.9	twice/month	grab
<i>E. coli</i> (Note 2)	#/100mL	126		*	once/week	grab
Total Residual Chlorine (Note 3)	µg/L	< 130		< 130	once/week	grab
Nitrates as N	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units ****	SU	6.5		9.0	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						

* 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 2 –Effluent limits of 126 #/100 mL daily maximum and monitoring only for monthly average for *E. coli* are applicable year round due to losing stream designation. No more than 10% of samples over the course of a calendar year shall exceed the 126 #/100 mL daily maximum.

Note 3 – This permit contains a Total Residual Chlorine (TRC) limit.

- The Water Quality Based Effluent Limit for Total Residual Chlorine was calculated to be 17 µg/L (daily maximum limit) and 8 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation.
- Disinfection is required year-round.
- Do not chemically de-chlorinate **if it is not needed to meet the limits in your permit.**
- If no chlorine was used in a given sampling period, an actual analysis for TRC is not necessary. Simply report as “0 µg/L” for TRC.

<u>OUTFALL #002 & INTERNAL MONITORING POINT #IP2:</u> Discharge at Neosho Crowder WWTP & Golf Course Irrigation Storage Ponds		TABLE A-9. INTERIM 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 interim effluent limitations shall become effective on <u>May 1, 2017</u> and remain in effect through <u>April 30, 2018</u> . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Hardness	mg/L	*		*	once/quarter***	grab
Oil & Grease	mg/L	15		10	once/quarter***	grab
Total Nitrogen	mg/L	*		*	once/quarter***	grab
1,2-dichloroethane	µg/L	10.05		5.00	once/quarter***	grab
1,1,1-trichloroethane	µg/L	402.0		200.0	once/quarter***	grab
1,1,2-trichloroethane	µg/L	10.05		5.00	once/quarter***	grab
Cyanide, Amenable to Chlorination (Note 4, Page 11)	µg/L	< 10		< 10	once/quarter***	grab
Phenol	µg/L	201.0		100.0	once/quarter***	composite**
Sulfates	µg/L	502.5		250.0	once/quarter***	composite**
Boron, Total Dissolved	µg/L	4,020.0		2,000.0	once/quarter***	composite**
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/quarter***	composite**
Chromium (III), Total Recoverable	µg/L	348		174	once/quarter***	composite**
Chromium (VI), Dissolved	µg/L	16		8	once/quarter***	grab
Copper, Total Recoverable	µg/L	24		12	once/quarter***	composite**
Iron, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Lead, Total Recoverable	µg/L	9.7		5.0	once/quarter***	composite**
Mercury, Total Recoverable	µg/L	0.9		0.5	once/quarter***	composite**
Nickel, Total Recoverable	µg/L	131		65	once/quarter***	composite**
Selenium, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Zinc, Total Recoverable	µg/L	295		147	once/quarter***	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> .						

* 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 on Page 11 for quarterly sampling requirements.

<u>OUTFALL #002 & INTERNAL MONITORING POINT #IP2:</u> Discharge at Neosho Crowder WWTP & Golf Course Irrigation Storage Ponds		TABLE A-10. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2018</u> 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
Total Hardness	mg/L	*		*	once/quarter***	grab
Oil & Grease	mg/L	15		10	once/quarter***	grab
Total Nitrogen	mg/L	*		*	once/quarter***	grab
1,2-dichloroethane	µg/L	10.05		5.00	once/quarter***	grab
1,1,1-trichloroethane	µg/L	402.0		200.0	once/quarter***	grab
1,1,2-trichloroethane	µg/L	10.05		5.00	once/quarter***	grab
Cyanide, Amenable to Chlorination (Note 4, Page 11)	µg/L	< 10		< 10	once/quarter***	grab
Phenol	µg/L	201.0		100.0	once/quarter***	composite**
Sulfates	µg/L	502.5		250.0	once/quarter***	composite**
Boron, Total Dissolved	µg/L	4,020.0		2,000.0	once/quarter***	composite**
Cadmium, Total Recoverable	µg/L	0.6		0.3	once/quarter***	composite**
Chromium (III), Total Recoverable	µg/L	210.2		104.8	once/quarter***	composite**
Chromium (VI), Dissolved	µg/L	15.0		7.5	once/quarter***	grab
Copper, Total Recoverable	µg/L	22.0		11.0	once/quarter***	composite**
Iron, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Lead, Total Recoverable	µg/L	9.7		4.8	once/quarter***	composite**
Mercury, Total Recoverable	µg/L	0.8		0.4	once/quarter***	composite**
Nickel, Total Recoverable	µg/L	128.9		64.3	once/quarter***	composite**
Selenium, Total Recoverable	µg/L	*		*	once/quarter***	composite**
Zinc, Total Recoverable	µg/L	180.7		90.1	once/quarter***	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2018</u> .						

* 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 on Page 11 for quarterly sampling requirements.

Minimum Sampling Requirements			
Quarter	Months	Quarterly Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
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 4 – The Water Quality Based Effluent Limit for Cyanide amenable to chlorination was calculated to be 8.2 µg/L (daily maximum limit) and 4.1 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved Cyanide amenable to chlorination methods. The Department has determined the current acceptable ML of Cyanide Amenable to Chlorination (CATC) 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. 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.

<u>INTERNAL MONITORING</u> POINT #IP3: Effluent Monitoring during Normal Operations for Neosho Crowder WWTP		TABLE A-11. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2017</u> 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
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		65	45	once/week	composite**
Total Suspended Solids	mg/L		65	45	once/week	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units ****	SU	6.0		9.0	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						
EFFLUENT PARAMETER(S)			UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅ – Percent Removal (Note 5, Page 12)			%	65	once/month	calculated
Total Suspended Solids – Percent Removal (Note 5, Page 12)			%	65	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						

* 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 5 – Influent sampling is not required during periods of land application when the facility does not discharge effluent. Influent samples are to be collected at Internal Monitoring Point #IP1 prior to any treatment process in order to determine removal efficiency at the Neosho Crowder WWTP. Percent removal is calculated by the following formula: $[(\text{Influent at \#IP1} - \text{Effluent at \#IP3}) / \text{Influent at \#IP1}] \times 100\% = \text{Percent Removal}$. The Monthly Average Minimum Percent removal is to be reported as the average of all daily calculated removal efficiencies. 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.

<u>INTERNAL MONITORING</u> <u>POINT #IP5:</u> Effluent Monitoring Location for Neosho Shoal Creek WWTP prior to Effluents Mixing		TABLE A-12. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2017</u> 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
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units ****	SU	6.0		9.0	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						
EFFLUENT PARAMETER(S)			UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅ – Percent Removal (Note 6)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 6)			%	85	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JUNE 28, 2017</u> .						

* 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 6 – Influent sampling is not required during periods of land application when the facility does not discharge effluent. Influent samples are to be collected at Internal Monitoring Point #IP4 prior to any treatment process in order to determine removal efficiency at the Neosho Shoal Creek WWTP. Percent removal is calculated by the following formula: $[(\text{Influent at \#IP4} - \text{Effluent at \#IP5}) / \text{Influent at \#IP4}] \times 100\% = \text{Percent Removal}$. The Monthly Average Minimum Percent removal is to be reported as the average of all daily calculated removal efficiencies. 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.

<u>OUTFALL #001:</u> Main Facility Outfall at Neosho Shoal Creek WWTP	TABLE A-13. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <u>May 1, 2017</u> 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
Acute Whole Effluent Toxicity (Note 7)	TU _a	*			once/year	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2018</u> .						
Chronic Whole Effluent Toxicity (Note 8)	TU _c	*			once/permit cycle	composite**
<u>WET TEST</u> REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2022</u> .						

* 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 7 – 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 #24 for additional requirements.

Note 8 –The Chronic WET test shall be conducted during the 4th year of the permit cycle. See Special Condition #25 for additional requirements.

<u>PERMITTED FEATURE #SM1:</u> Instream (Upstream) Monitoring Location at Neosho Shoal Creek WWTP	TABLE B-1. INSTREAM MONITORING REQUIREMENTS					
The monitoring requirements shall become effective on <u>May 1, 2017</u> and remain in effect until expiration of the permit.						
PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Nitrogen	mg/L	*		*	once/quarter***	grab
Total Phosphorus	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> .						

* Monitoring requirement only.

*** See table below for quarterly sampling requirements.

Minimum Sampling Requirements			
Quarter	Months	Instream (Upstream) Monitoring Location at Neosho Shoal Creek WWTP – Total Nitrogen and Total Phosphorus	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
Second	April, May, June	Sample at least once during any month of the quarter	July 28 th
Third	July, August, September	Sample at least once during any month of the quarter	October 28 th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th

<u>PERMITTED FEATURE #SM2:</u> Instream (Downstream) Monitoring Location at Neosho Shoal Creek WWTP	TABLE B-2. INSTREAM MONITORING REQUIREMENTS					
The monitoring requirements shall become effective on <u>May 1, 2017</u> and remain in effect until expiration of the permit.						
PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Hardness	mg/L	*		*	once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> .						

* Monitoring requirement only.

*** See table below for quarterly sampling requirements.

Minimum Sampling Requirements			
Quarter	Months	Instream (Downstream) Monitoring Location at Neosho Shoal Creek WWTP – Total Hardness	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
Second	April, May, June	Sample at least once during any month of the quarter	July 28 th
Third	July, August, September	Sample at least once during any month of the quarter	October 28 th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th

C. STANDARD CONDITIONS

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

D. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources has initiated stakeholder discussions on how to best incorporate these new criteria into the State's rules. A date for when this rule change will occur has not been determined. Also, refer to Section VI of this permit's factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department's 2013 EPA criteria Factsheet located at <http://dnr.mo.gov/pubs/pub2481.htm>.
2. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) 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 Clean Water Act, 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) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test including acute and chronic Whole Effluent Toxicity (WET) tests, or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
 - (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publicly Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

D. SPECIAL CONDITIONS (continued)

3. All outfalls must be clearly marked in the field. This does not include instream monitoring locations.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
5. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as “no flow” if no stream flow occurs during the report period.
6. Water Quality Standards
 - (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) 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;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) 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.
7. Changes in existing pollutants or the addition of new pollutants to the treatment facility

The permittee must provide adequate notice to the Director of the following:

 - (a) 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 those pollutants; and
 - (b) Any substantial change in 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.
 - (c) For purposes of this paragraph, adequate notice shall include information on:
 - (1) the quality and quantity of effluent introduced into the POTW, and
 - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
8. Reporting of Non-Detects:
 - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
 - (b) The permittee shall not report a sample result as “Non-Detect” without also reporting the detection limit of the test. Reporting as “Non Detect” without also including the detection limit will be considered failure to report, which is a violation of this permit.
 - (c) The permittee shall provide the “Non-Detect” sample result using the less than sign and the minimum detection limit (e.g. <10).
 - (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
 - (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
 - (f) When calculating monthly averages, one-half of the method detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the “<MDL” shall be reported as indicated in item (c).
9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

D. SPECIAL CONDITIONS (continued)

10. 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. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.
11. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002) or the Departments' CMOM Model located at <http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc>. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at <http://dnr.mo.gov/pubs/pub2574.htm>.

The permittee shall also submit a report to the Southwest Regional Office annually, by January 28th, for the previous calendar year. The report shall contain the following information:
 - (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
 - (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
 - (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.
12. 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.b. Bypasses are to be reported to the Southwest Regional Office or by using the online Sanitary Sewer Overflow/Facility Bypass Application, located at: <http://dnr.mo.gov/modnrcag/> during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. 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.
13. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
14. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.
15. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
16. 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.
17. An all-weather access road shall be provided to the treatment facility.
18. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
19. Land application of biosolids shall be conducted in accordance with Standard Conditions III and a Department approved biosolids management plan. Land application of biosolids during frozen, snow covered, or saturated soil conditions in accordance with the additional requirements specified in WQ426 shall occur only with prior approval from the Department.

D. SPECIAL CONDITIONS (continued)

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. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.
 - (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:
 - If turbidity in the stream increases notably; or
 - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
 - (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.
21. 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.

The permittee shall submit to the Department 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:

- (a) 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;
- (b) A summary of the status of Industrial User compliance over the reporting period;
- (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
- (d) Any other relevant information requested by the Department.

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) along with the application for renewal of this permit.

22. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be developed and implemented within 180 days of the effective date of the permit. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: 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.
- (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
 - (b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
 - (1) The monthly routine inspection shall be documented in a brief written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Weather information for the day of the inspection.
 - iv. Precipitation information for the entire period since the last inspection.
 - v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
 - vi. Condition of BMPs

D. SPECIAL CONDITIONS (continued)

- vii. If BMPs were replaced or repaired.
 - viii. Observations and evaluations of BMP effectiveness.
 - ii. Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - iii. The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - iv. The routine inspection reports shall be made available to Department personnel upon request.
 - (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
 - (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Findings from the areas of your facility that were examined;
 - iv. All observations relating to the implementation of your control measures including:
 - 1. Previously unidentified discharges from the site,
 - 2. Previously unidentified pollutants in existing discharges,
 - 3. Evidence of, or the potential for, pollutants entering the drainage system;
 - 4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
 - 5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
 - v. Any required revisions to the SWPPP resulting from the inspection;
 - vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition D.22.
 - (2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - (3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - (4) The comprehensive inspection reports shall be made available to Department personnel upon request.
 - (d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
 - (e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.
23. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.
- (b) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
 - (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
 - (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
 - (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.
 - (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.
 - (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
 - (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
 - (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.
 - (8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
 - (9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
 - (10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.

D. SPECIAL CONDITIONS (continued)

24. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
- (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
 - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
 - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The Allowable Effluent Concentration (AEC) for this facility is 100% with the dilution series being: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of 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.
25. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
- (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 7-day, static, renewal toxicity tests with the following species:
 - The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
 - The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.
26. **Electronic Discharge Monitoring Report (eDMR) Submission System.**
- The permittee shall submit an eDMR Permit Holder and Certifier Registration form **within 90 days of the effective date** of this permit. 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 a timely, complete, accurate, and nationally-consistent set of data. Visit <http://dnr.mo.gov/pubs/pub2474.pdf> to access the Facility Participation Package which contains the eDMR Permit Holder and Certifier Registration form.
- Once the permittee is activated in the eDMR 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) Schedule of Compliance Progress Reports;

D. SPECIAL CONDITIONS (continued)

(3) 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")

(4) Pretreatment Program Reports;

(5) 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) Bypass reporting, See Special Condition #12 for 24-hr. bypass reporting requirements.

(d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: <https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx>.

(e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. The department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

E. SCHEDULE OF COMPLIANCE

Outfall #001:

Ammonia. The facility shall attain compliance with final effluent limitations as soon as reasonably achievable or no later than one (1) year of the effective date of this permit. The existing oxidation ditch facility employs technology capable of meeting the proposed final effluent limitations for ammonia, but discharge monitoring reports indicate the facility has not always been in compliance with the proposed limitations. Therefore this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001.

Phenol, Total Recoverable Cadmium, Total Recoverable Iron, & Total Recoverable Selenium. The facility shall attain compliance with final effluent limitations as soon as reasonably achievable or no later than one (1) year of the effective date of this permit. As a result of a Reasonable Potential Analysis (RPA), it has been determined that the facility has a reasonable potential to exceed water quality standards for the above listed parameters. Due to the fact that these are new and more stringent effluent limitations, the facility has requested a schedule of compliance to meet final effluent limitations. Therefore, this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001.

Outfall #002:

Total Phosphorus. The facility shall attain compliance with final effluent limitations as soon as reasonably achievable or no later than five (5) years of the effective date of this permit.

1. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from effective date.
2. Within 5 years of the effective date of this permit, the permittee shall attain compliance with the final effluent limits.

Please submit progress reports to the Missouri Department of Natural Resources via the Electronic Discharge Monitoring Report (eDMR) Submission System.

Outfall #002 & Internal Monitoring Point #IP2:

Total Recoverable Chromium (III), Dissolved Chromium (VI), Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Mercury, Total Recoverable Nickel, & Total Recoverable Zinc. The facility shall attain compliance with final effluent limitations as soon as reasonably achievable or no later than one (1) year of the effective date of this permit. As a result of technical mistakes noticed by the permit writer, this permit includes new and more stringent effluent limitations than those of the previous permit for the above listed parameters. Due to the fact that these are new and more stringent effluent limitations and the limited amount of effluent data related to the above listed parameters, the facility has requested a schedule of compliance to meet final effluent limitations. Therefore, this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0104906
NEOSHO WASTEWATER TREATMENT PLANT**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution 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)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.

Part I – Facility Information

Facility Type: POTW - SIC #4952

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

☒ - No.

Application Date: 07/18/16

Expiration Date: 12/11/16

PERMITTED FEATURE(S) TABLE:

PERMITTED FEATURE	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
Outfall #001	4.65	Secondary	Domestic
Outfall #002	4.65	Equivalent to Secondary	Domestic
Outfall #003	<i>Discharge point to the Golf Course Irrigation Storage Ponds. No effluent limitations as effluent quality is monitored at Internal Monitoring Point #IP2.</i>		
Internal Monitoring Point #IP1	<i>Internal Monitoring Point – Location influent samples from Neosho Crowder WWTP are collected.</i>		
Internal Monitoring Point #IP2	<i>Internal Monitoring Point – Location following full treatment from Neosho Crowder WWTP where monitoring of effluent sent to the Golf Course Irrigation Storage Ponds occurs.</i>		
Internal Monitoring Point #IP3	<i>Internal Monitoring Point – Location following full treatment from Neosho Crowder WWTP where monitoring of effluent sent to the Neosho Shoal Creek WWTP occurs prior to effluents mixing.</i>		
Internal Monitoring Point #IP4	<i>Internal Monitoring Point – Location influent samples from Neosho Shoal Creek WWTP are collected.</i>		
Internal Monitoring Point #IP5	<i>Internal Monitoring Point – Location following full treatment from Neosho Shoal Creek WWTP where monitoring of effluent occurs prior to effluents mixing.</i>		
Instream Monitoring Location #SM1	<i>Instream Monitoring Location – Upstream</i>		
Instream Monitoring Location #SM2	<i>Instream Monitoring Location – Downstream</i>		

Facility Description:

This permit includes two wastewater treatment facilities which serve the City of Neosho. These facilities were previously permitted separately – Neosho Crowder WWTP (MO-0039926) and Neosho Shoal Creek WWTP (MO-0104906). During normal operations at the Neosho Crowder WWTP, effluent is sent to the Neosho Shoal Creek WWTP, where effluent from the two plants mix together prior to the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP. Therefore, it has been determined by the permit writer that combining the two permits into one permit is appropriate.

Outfall #001 – Main Facility Outfall at Neosho Shoal Creek WWTP

Flow equalization basin / bar screen / 2 oxidation ditches / 2 final clarifiers / ultraviolet disinfection / aerobic sludge digester / 2 aerated sludge holding basins / sludge is land applied.

Design population equivalent is 30,000.

Design flow is 3.0 MGD.

Actual flow is 1.7 MGD.

Design sludge production is 630 dry tons/year.

Outfall #002 – Discharge at Neosho Crowder WWTP (previously permitted as Outfall #001 in MO-0039926)

Discharges at Outfall #002 occur only during high flow events. Typically flow from the Neosho Crowder WWTP is sent to the Neosho Shoal Creek WWTP.

Flow equalization basin / bar screen / 2 pre-aeration basins / 2 primary clarifiers / 3 trickling filters / recirculation basin / 3 secondary clarifiers / chlorine disinfection / chlorine contact basin / dechlorination / 2 primary aerobic sludge digesters / sludge drying bed / sludge is land applied.

Design population equivalent is 29,000.

Design flow is 3.0 MGD.

Actual flow is 0.92 MGD.

Design sludge production is 812 dry tons/year.

Outfall #003 - Discharge Point to the Golf Course Irrigation Storage Ponds

Outfall #003 has been identified in the permit in order to document the location at which effluent from the Neosho Crowder WWTP is discharged to the golf course irrigation storage ponds.

Internal Monitoring Points #IP1 - #IP5

It has been determined by the permit writer that the previous permit for Neosho Crowder WWTP (MO-0039926) be combined with the permit for Neosho Shoal Creek WWTP. In doing this, Internal Monitoring Points were created so that compliance with various requirements could be demonstrated.

- Internal Monitoring Point #IP1: location where Neosho Crowder WWTP influent monitoring occurs for the purposes of determining removal efficiency for the Neosho Crowder WWTP.
- Internal Monitoring Point #IP2: location where Neosho Crowder WWTP effluent monitoring occurs when the facility sends effluent to the golf course irrigation storage ponds.
- Internal Monitoring Point #IP3: location where Neosho Crowder WWTP effluent monitoring occurs when the facility sends effluent to the Neosho Shoal Creek WWTP. Internal Monitoring Point #IP3 is located at the Neosho Shoal Creek WWTP prior to the mixing of effluents from both plants before the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP.
- Internal Monitoring Point #IP4: location where Neosho Shoal Creek WWTP influent monitoring occurs for the purposes of determining removal efficiency for the Neosho Shoal Creek WWTP.
- Internal Monitoring Point #IP5: location where Neosho Shoal Creek WWTP effluent monitoring occurs prior to the mixing of effluents from both plants.

Instream Monitoring Locations #SM1 & #SM2

- #SM1: monitoring location in Shoal Creek (P) (3222) upstream of Outfall #001 at the Neosho Shoal Creek WWTP.
- #SM2: monitoring location in Shoal Creek (P) (3222) approximately ¼ mile downstream of Outfall #001 at the Neosho Shoal Creek WWTP to ensure samples are taken outside of the mixing zone.

Previous Outfalls / Permitted Features from Neosho Crowder WWTP (previously permitted under MO-0039926)

The previous permit for the Neosho Crowder WWTP included permitted features which have not been included in this permit. The previous permit required monitoring of fully treated effluent that is pumped from Neosho Crowder WWTP to the golf course irrigation storage ponds (previously identified as Outfall #002 in MO-0039926) for the purposes of land application of water from the ponds. The permit writer has determined that the land application of water from the golf course irrigation storage ponds does not need to be monitored in this permit, as the effluent sent to the golf course irrigation storage ponds is fully treated (including disinfection). Additionally, any sample that would be collected from the storage ponds would not be representative of the Neosho Crowder WWTP effluent quality as the sample would not be exclusively made up of Neosho Crowder WWTP effluent.

Facility Description (continued):

Previous Outfalls / Permitted Features from Neosho Crowder WWTP (previously permitted under MO-0039926) (continued)

The previous permit for the Neosho Crowder WWTP also required monitoring of water from the golf course irrigation storage ponds in the event of an overflow from the storage ponds (previously identified as Outfall #003 in MO-0039926). The permit writer has determined that water discharged during an overflow from the golf course irrigation storage ponds does not need to be monitored in this permit, as an overflow these ponds is not exclusively water sent to the storage ponds by the Neosho Crowder WWTP. Therefore, any overflow samples collected from the storage ponds would not be representative of the Neosho Crowder WWTP effluent quality as the sample would not be exclusively made up of Neosho Crowder WWTP effluent. Additionally, the permit writer has included Internal Monitoring Point #IP2 so that monitoring of the Neosho Crowder WWTP effluent can occur to demonstrate compliance with water quality standards before effluent enters the golf course irrigation storage ponds. This will ensure that if the ponds overflow, data relating to the Neosho Crowder WWTP effluent will be available. This permit also identifies the location where Neosho Crowder WWTP effluent enters the golf course irrigation storage ponds as Outfall #003.

The previous permit for the Neosho Crowder WWTP also required monitoring of fully treated effluent in the chlorine contact basin for the purposes of removal efficiency (previously identified as Outfall #004 in MO-0039926). The permit writer has included effluent monitoring at Outfall #002, Internal Monitoring Point #IP2, and Internal Monitoring Point #IP3 in order to monitor the Neosho Crowder WWTP effluent during different operational circumstances. To determine removal efficiency for the Neosho Crowder WWTP, the facility should collect a sample of influent and effluent samples at the same time, with influent samples being collected at Internal Monitoring Point #IP1 and effluent samples being collected at one of the locations specified in this permit depending on where effluent is being sent at the time of sample collection.

Facility Performance History:

The Neosho Shoal Creek WWTP was last inspected on April 18-19, 2012. The inspection showed the following unsatisfactory features; review of Discharge Monitoring Reports (DMR) showed the facility had not always met effluent limitations of the permit, laboratory procedures did not conform to Standards Conditions Part I, review of the 2011 Form S for biosolids disposal showed the form had not been sufficiently completed, failure to record the volume of screenings, operation and maintenance failures, and showed operational tests were not being performed at the proper frequency. The inspection also mentioned maintaining all information on samples collected or analyzed.

The Neosho Crowder WWTP was last inspected on March 26, 2008. The inspection showed the following unsatisfactory features; no all Sanitary Sewer Overflows (SSOs) have been reported, failure to maintain all information for sampling and analysis conducted, failure to have a quality assurance program for pH, it was unknown at the time of the inspection if weights were ASTM Class I certified, failure to have a certified thermometer, laboratory chemicals were outdated, one clarifier was out of service at the time of the inspection, and the flow meter is not certified annually by a factory authorized representative.

Permit Comments:

Special conditions were updated to include the addition of reporting of Non-detects, addition of instream monitoring requirements, addition of Stormwater Pollution Prevention Plan, and addition of requirements to submit to the department via the Electronic Discharge Monitoring Report (eDMR) Submission System. Other special conditions which have changed from the previous permit include inflow and infiltration reporting requirements, bypass reporting requirements, and pretreatment requirements.

The design flow of each facility is 3.0 MGD individually, as reflected in the permit. However, the ultraviolet disinfection unit located at the Neosho Shoal Creek WWTP is designed to treat 6.0 MGD in order to disinfect effluent from both WWTPs prior to the discharge from Outfall #001. Therefore, design flows of 6.0 MGD for Outfall #001 and 3.0 MGD for Outfall #002 were used in effluent limitation derivations.

Outfall #001 Comments:

Changes at this location include the addition of monitoring requirements for total nitrogen, total phosphorus, and requirements to conduct a Chronic Whole Effluent Toxicity (WET). This permit also includes the addition of a schedule of compliance to meet final effluent limitations at Outfall #001 for the following parameters; total ammonia nitrogen, phenol, total recoverable cadmium, total recoverable iron, and total recoverable selenium. Other changes in effluent limitations include pH, total recoverable chromium (III), and dissolved chromium (VI). Please see Part VII of the Fact Sheet for further information regarding the addition and removal of effluent parameters. Sampling and reporting frequency was changed from once/month to once/quarter for total recoverable cadmium, total recoverable chromium (III), dissolved chromium (VI), and total recoverable selenium and from once/week to twice/month for ammonia. The reduction in sampling for all of the above listed parameters is due to the consistency of the data submitted for each parameter. This determination will be reevaluated during the next renewal. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

Outfall #002 Comments (previously identified as Outfall #001 in MO-0039926 – which has been combined with this permit):

During normal conditions, Outfall #002 typically has no discharge. However, discharges may occur from Outfall #002 during high flow events when the effluent pumps cannot send all the Neosho Crowder WWTP effluent to the Neosho Shoal Creek WWTP. Changes at this location include the addition of monitoring requirements for total nitrogen, total recoverable iron, and total recoverable selenium and the removal of requirements to conduct Acute Whole Effluent Toxicity (WET). Other changes in effluent limitations include ammonia, *E. coli*, nitrates, pH, 1,2-dichloroethane, 1,1,2-trichloroethane, cyanide, phenol, sulfates, and total dissolved boron. See Part VII of the Fact Sheet for further information regarding the addition and removal of effluent parameters. Sampling and reporting frequency was changed from once/week to twice/month for ammonia and nitrates, from once/week to once/quarter for total hardness, oil & grease, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, cyanide amenable to chlorination, phenol, sulfates, total dissolved boron, total recoverable cadmium, total recoverable chromium (III), dissolved chromium (VI), total recoverable copper, total recoverable lead, total recoverable mercury, total recoverable nickel, and total recoverable zinc. These changes in sampling and reporting frequency are due to the infrequency of the discharge at these locations along with the determination made by the permit writer that the effluent concentrations for the above listed parameters consistency of the discharges. This determination will be reevaluated upon renewal. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

This permit also includes the addition of a schedule of compliance to meet final effluent limitations at Outfall #002 for total phosphorus as a result of a TMDL as demonstrated in Tables A-5 and A-6 of the permit.

This facility adds chemicals to dechlorinate the effluent prior to discharge at Outfall #002. Dechlorination chemicals have the potential to reduce dissolved oxygen concentrations in the discharge, resulting in an anoxic discharge, unless carefully controlled. However, Outfall #002 rarely discharges and when a discharge does occur, it is due to high flow events caused by Inflow and Infiltration (I&I). Due to the receiving stream condition and the effluent condition at the time of discharges from Outfall #002, it has been determined by the permit writer that there is no reasonable potential to violate water quality standards for dissolved oxygen and therefore no monitoring requirements have been included in this permit.

Internal Monitoring Point #IP2 Comments:

The permit writer has created Internal Monitoring Point #IP2 in order to monitoring effluent that is sent to the golf course irrigation storage ponds, as the last storage pond has the ability to overflow. As a result, the permit writer has determined that these interconnected ponds act as a receiving stream as opposed to a permanent storage structure. In the previous permit, monitoring of the storage pond overflow was required, in turn, creating a point of compliance following the combination of the Neosho Crowder WWTP effluent with other water stored in the ponds. This permit, however, creates a point of compliance which is located prior to this mixing of effluent and receiving water in order to collect samples which are representative of the Neosho Crowder WWTP effluent. This location is identified as Internal Monitoring Point #IP2, located in the chlorine contact basin where effluent has been fully treated, including disinfection, at the Neosho Crowder WWTP. This location was established due to the fact that there is no opportunity to sample effluent once routed to the golf course irrigation ponds.

Internal Monitoring Point #IP2 includes quarterly monitoring only requirements for total phosphorus as demonstrated in Table A-7 of the permit.

Combined Outfall #002 and Internal Monitoring Point #IP2 Comments:

Due to the fact that this permit includes identical requirement for Outfall #002 and Internal Monitoring Point #IP2 for certain parameters, the permit writer has included both of these permitted features in Tables A-8, A-9, and A-10. Although the two permitted features are included in Tables A-8, A-9, and A-10 together, the requirements identified in these tables apply to the two permitted features separately. This means that if a discharge occurs from both Outfall #002 and Internal Monitoring Point #IP2 during a sampling period, the facility will be required to sample and report effluent results from both permitted feature locations separately. Sample results are not to be averaged between Outfall #002 and Internal Monitoring Point #IP2.

This permit includes the addition of a schedule of compliance to meet final effluent limitations at Outfall #002 and Internal Monitoring Point #IP2 for total recoverable chromium (III), dissolved chromium (VI), total recoverable copper, total recoverable lead, total recoverable mercury, total recoverable nickel, and total recoverable zinc.

It has been determined by the permit writer that expanded effluent testing requirements of the renewal application are not required for Outfall #002 or Internal Monitoring Point #IP2. Expanded effluent testing allows the permit writer to make determinations regarding potential effluent limitation or monitoring requirements, which will not be a result of this sampling at Outfall #002 or Internal Monitoring Point #IP2. Discharges from Outfall #002 historically are rare in frequency and occur during high flow events due to Inflow and Infiltration (I&I) into the collection system. As a result, samples taken from Outfall #002 would not be representative of the seasonal variation in the discharge since they will occur during the same stream and effluent conditions. Expanded effluent testing is required by the application for renewal at Outfall #001, which will include effluent from both wastewater plants and will allow for the permittee to collect samples representative of seasonal variation.

EFFLUENT TABLE REQUIREMENTS BY PERMITTED FEATURE:

PERMITTED FEATURE	ASSOCIATED TABLE(S) IN PERMIT	COMMENTS
Outfall #001	Table A-1	Interim Effluent Limitations and Monitoring Requirements – Monthly Submittal.
	Table A-2	Final Effluent Limitations and Monitoring Requirements – Monthly Submittal.
	Table A-3	Interim Effluent Limitations and Monitoring Requirements – Quarterly Submittal.
	Table A-4	Final Effluent Limitations and Monitoring Requirements – Quarterly Submittal.
	Table A-13	Final Effluent Limitations and Monitoring Requirements – Whole Effluent Toxicity (WET) Testing.
Outfall #002	Table A-5	Interim Effluent Limitations and Monitoring Requirements – Monthly Submittal.
	Table A-6	Final Effluent Limitations and Monitoring Requirements – Monthly Submittal.
Internal Monitoring Point #IP2	Table A-7	Final Effluent Limitations and Monitoring Requirements – Quarterly Submittal.
Outfall #002 & Internal Monitoring Point #IP2	Table A-8	Final Effluent Limitations and Monitoring Requirements – Monthly Submittal.
	Table A-9	Interim Effluent Limitations and Monitoring Requirements – Quarterly Submittal.
	Table A-10	Final Effluent Limitations and Monitoring Requirements – Quarterly Submittal.
Internal Monitoring Point #IP3	Table A-11	Final Effluent Limitations and Monitoring Requirements – Monthly Submittal.
Internal Monitoring Point #IP1		
Internal Monitoring Point #IP5	Table A-12	Final Effluent Limitations and Monitoring Requirements – Monthly Submittal.
Internal Monitoring Point #IP4		
Instream Monitoring Location #SM1	Table B-1	Instream Monitoring Requirements – Quarterly Submittal.
Instream Monitoring Location #SM2	Table B-2	Instream Monitoring Requirements – Quarterly Submittal.

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 or supervisors of operations 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

☐ - Federal agency

☐ - County

☐ - Public Sewer District

☐ - State agency

☐ - Private Sewer Company regulated by the Public Service Commission

☐ - Public Water Supply Districts

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) or fifty (50) or more service connections.

This facility currently requires an operator with an A Certification Level based on the Neosho WWTP as a whole (both the Neosho Crowder WWTP and Neosho Shoal Creek WWTP) due to the definition of wastewater treatment systems in 10 CSR 20-9.020(1)(A). Please see **Appendix - Classification Worksheet**. Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: Tim E. Parvin
Certification Number: 9806
Certification Level: A

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

Part III– Operational Monitoring

☒ - As per [10 CSR 20-9.010(4)], the facility is required to conduct operational monitoring.

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)
Shoal Creek	P	3222	AQL, CLF, DWS, HHP, IND, IRR, LWW, SCR, WBC-A	11070207-0804	Directly Discharges

RECEIVING STREAM(S) TABLE: OUTFALL #002

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Buffalo Creek	--	----	General Criteria	11070208-0401	To Losing: Directly Discharges To First Classified: 0.05
8-20-13 MUDD V1.0	C	3960	AQL, HHP, IRR, LWW, SCR, WBC-B		
Buffalo Creek	C	3276	AQL, HHP, IRR, LWW, SCR, WBC-B		3.2
Buffalo Creek	P	3273	AQL, CLF, HHP, IRR, LWW, SCR, WBC-A		5.6

RECEIVING STREAM(S) TABLE: OUTFALL #003 – Stream information below refers to the location where the Neosho Crowder WWTP effluent enters the golf course irrigation storage ponds.

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Buffalo Creek	--	----	General Criteria	11070208-0401	To Losing: 0.4 To First Classified: 1.3
8-20-13 MUDD V1.0	C	3960	AQL, HHP, IRR, LWW, SCR, WBC-B		
Buffalo Creek	C	3276	AQL, HHP, IRR, LWW, SCR, WBC-B		3.0
Buffalo Creek	P	3273	AQL, CLF, HHP, IRR, LWW, SCR, WBC-A		5.4

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

Uses which may be found in the receiving streams table, above:
10 CSR 20-7.031(1)(C)1.:

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

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;

WBC-A = Whole body contact recreation that supports swimming uses and has public access;

WBC-B = Whole body contact recreation that supports swimming;

SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:

HHP (formerly HHF) = Human Health Protection as it relates to the consumption of fish;

IRR = Irrigation for use on crops utilized for human or livestock consumption;

LWW = Livestock and wildlife watering (Current narrative use is defined as **LWP** = Livestock and Wildlife Protection);

DWS = Drinking Water Supply;

IND = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

WSA = Storm- and flood-water storage and attenuation; **WHP** = Habitat for resident and migratory wildlife species;

WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; **WHC** = Hydrologic cycle maintenance.

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

OUTFALL #001

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Shoal Creek (P)	0.1	0.1	1.0

OUTFALL #002 & OUTFALL #003

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Buffalo Creek	0.0	0.0	0.0

MIXING CONSIDERATIONS TABLE:

OUTFALL #001

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0.025	0.025	0.25	0.0025	0.0025	N/A

OUTFALL #002 & OUTFALL #003

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	0.0	0.0	0.0	N/A

RECEIVING STREAM MONITORING REQUIREMENTS:

OUTFALL #001

Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for total nitrogen and total phosphorus per 10 CSR 20-7.015(9)(D)7. Instream (Permitted Feature #SM1 – Upstream) monitoring for these parameters is necessary to determine background concentrations in order to complete calculations related to future effluent limit derivation where necessary or appropriate. Instream (Permitted Feature #SM2 – Downstream) total hardness data collected will be used to establish a site-specific hardness value which may be used in effluent limitations derivation calculations for hardness dependent metals.

OUTFALL #002 & OUTFALL #003

No receiving water monitoring requirements recommended at this time.

RECEIVING WATER BODY'S WATER QUALITY:

OUTFALL #001

Outfall #001 discharges to a 303(d) listed stream. Shoal Creek (P) (3222) is listed on the 2016, originally 2014, Missouri 303(d) List for Zinc (S). The 2016 Missouri 303(d) List identifies the source of the impairment as Mill Tailings. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Shoal Creek (P) (3222). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

OUTFALL #002

Outfall #002 discharges approximately 5.6 miles from a 303(d) listed stream. Buffalo Creek (P) (3273) is listed on the 2016, originally 2012, Missouri 303(d) List for Fishes Bioassessments/Unknown. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Buffalo Creek (P) (3273). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

The Neosho Crowder WWTP discharges to a stream with an EPA approved TMDL. The majority of the time, the Neosho Crowder WWTP does not discharge to the Elk River basin and was therefore not included in the TMDL calculation. During normal flows, the effluent is piped from the Neosho Crowder WWTP to the Neosho Shoal Creek WWTP before being discharged into the Shoal Creek basin. Outfall #002, however, continues to exist in the Elk River basin and may discharge under high flow conditions. The TMDL states that if the City of Neosho chooses to maintain this potential discharge to the Elk River basin, a discharge limitation of 1.5 mg/L as a daily maximum for total phosphorus will be included in the permit. The TMDL also states that the alternative would be for the City of Neosho to eliminate Outfall #002. This requirement is reflected in this permit as a load-based daily maximum final effluent limitation in lbs/day.

OUTFALL #003

Effluent monitored at Internal Monitoring Point #IP2 discharges from Outfall #003, which is approximately 5.4 miles from a 303(d) listed stream. Buffalo Creek (P) (3273) is listed on the 2016, originally 2012, Missouri 303(d) List for Fishes Bioassessments / Unknown. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Buffalo Creek (P) (3273). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

Comments:

Outfall #003 is the location at which effluent from the Neosho Crowder WWTP is discharged to the golf course irrigation storage ponds. These ponds and the potential discharge from these ponds are located within the same watershed as Outfall #002. However, Outfall #003 is not listed in the TMDL for the Elk River basin. Therefore, it has been determined by the permit writer that the requirements and assumption of the Elk River basin TMDL do not apply to Outfall #003 or the monitoring location Internal Monitoring Point #002.

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(36)] & [10 CSR 20-7.031(1)(N)], 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.

Outfall #001:

☒ - 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.

- **pH.** The previous permit included final effluent limitations of 6.5-9.0 SU. However, pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone. Therefore, it has been determined by the permit writer that final effluent limitations of 6.0-9.0 SU be included in the permit.

- **Chromium (III), Total Recoverable.** The previous permit included final effluent limitations of 976.2 µg/L as a daily maximum and 389.3 µg/L as a monthly average. Over the previous five years, the permittee has reported non-detects which are less than the water quality standards. It has been determined by the permit writer that at this time no reasonable potential exists for this facility to exceed water quality criteria therefore, monitoring only requirements are included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Chromium (VI), Dissolved.** The previous permit included final effluent limitations of 20.3 µg/L as a daily maximum and 8.1 µg/L as a monthly average. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Whole Effluent Toxicity (WET) test.** WET testing requirements were changed from pass/fail to monitoring only for toxic units. This change reflects modifications to Missouri's Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limitation without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concluded the facility does not have reasonable potential at this time but monitoring is required. Implementation of the toxic unit monitoring requirement will allow the department to effect numeric criteria in accordance with water quality standards established under §303 of the CWA.

Outfall #002:

☒ - 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.

- **Escherichia coli (E. coli).** The previous permit included final effluent limitations of 126 #/100 mL as a daily maximum and monthly average. Discharges to losing streams shall not exceed 126 #/100 mL as a daily maximum at any time, as per 10 CSR 20-7.031(5)(C) and monitoring only for a monthly average, as no more than 10% of samples over the course of the calendar year shall exceed 126 #/100 mL daily maximum as per 10 CSR 20-7.015(9)(B)1.G. Therefore, this permit includes final effluent limitations of 126 #/100 mL as a daily maximum and monitoring only requirements as a monthly average.
- **Nitrates as N.** The previous permit included final effluent limitations of 20 mg/L as a daily maximum and 10 mg/L as a monthly average in order to protect both groundwater and drinking water. After review of discharge monitoring reports over the previous five years, the permit writer made a reasonable potential determination that there is no reasonable potential to exceed the water quality standard for nitrates at this time. However, monitoring only requirements have been included in the permit in order to verify this determination. Data collected will be reviewed upon renewal to determine if an effluent limitation is necessary to protect water quality.
- **Whole Effluent Toxicity (WET) test.** The previous permit included requirements to conduct an Acute WET test once every year at the Neosho Crowder WWTP (Outfall #002). However, when a discharge occurs at Outfall #002, it is due to high flow events caused by Inflow and Infiltration (I&I). These discharges have been determined to not be representative of the facility's performance by the permit writer due to dilution of the effluent. Additionally, WET testing should occur during critical low flow scenarios, which will not be the conditions of the receiving stream at the time of a discharge from Outfall #002. During normal flow conditions, the effluent from Outfall #002 is sent to the Neosho Shoal Creek WWTP (Outfall #001) where the effluents combine prior to sample collection for WET test purposes. This means that when the permittee collects a sample at Outfall #001 for WET test requirements, effluent from the Neosho Crowder WWTP, which is representative of normal flow conditions, will be included in the sample for compliance with WET test requirements of Outfall #001. Therefore, it has been determined by the permit writer that WET testing requirements be removed for Outfall #002 in this permit.

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

- **1,2-dichloroethane, 1,1,2-trichloroethane, Cyanide (Amenable to Chlorination), Phenol, Total Dissolved Boron, & Total Recoverable Lead.** It has been determined by the permit writer that derivation of final effluent limitations for the above listed parameters were done so incorrectly. Therefore, effluent limitations have been reevaluated for the purposes of this permit renewal. As a result, final effluent limitations included in this permit are less stringent than previously established. These effluent limitations are still protective of water quality standards. Data collected will be reviewed upon renewal to verify these determinations.

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 with new, altered, or expanding 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.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver 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. Additional information regarding biosolids and sludge is located at the following web address: <http://extension.missouri.edu/main/DisplayCategory.aspx?C=74>, items WQ422 through WQ449.

☒ - Permittee has and a Department approved biosolids management plan, and is authorized to land applies 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.

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

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

☒ - The permittee/facility is not currently using the eDMR data reporting system. The permittee shall submit an eDMR Permit Holder and Certifier Registration form **within 90 days of the effective date** of this permit.

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.

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

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

Outfall #001: Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

Outfall #002: Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(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(11)] 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 includes 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) and 10 CSR 20-7.031(11), 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 associated with development of a site specific criterion. 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 SOC's, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOC's. 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.

☒ - The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)].

Outfall #001:

The facility has been given a schedule of compliance to meet final effluent limits for ammonia, phenol, total recoverable cadmium, total recoverable iron, and total recoverable selenium. The existing oxidation ditch facility employs technology capable of meeting the proposed final effluent limitations for ammonia, but discharge monitoring reports indicate the facility has not always been in compliance with the proposed limitations. Therefore this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001. As a result of a Reasonable Potential Analysis (RPA), it has been determined that the facility has a reasonable potential to exceed water quality standards for the above listed parameters. Due to the fact that these are new and more stringent effluent limitations, the facility has requested a schedule of compliance to meet final effluent limitations. Therefore, this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001.

Outfall #002:

The facility has been given a schedule of compliance to meet final effluent limits for total phosphorus. The five (5) year schedule of compliance allowed for this facility should provide adequate time to evaluate operations, obtain an engineering report, obtain a construction permit and implement upgrades required to meet effluent limits. Due to the economic burden on this community of the cost of compliance and associated difficulty in raising the necessary funding, the schedule has been established at five (5) years in accordance with the Department's "Schedule of Compliance, Policy for Staff Drafting Operating Permits". Please see the Cost Analysis for Compliance attached as an appendix to the permit for further detail on how the socio-economic status of the community has impacted this SOC.

Outfall #002 and Internal Monitoring Point #IP2:

The facility has been given a schedule of compliance to meet final effluent limits for total recoverable chromium (III), dissolved chromium (VI), total recoverable copper, total recoverable lead, total recoverable mercury, total recoverable nickel, and total recoverable zinc. As a result of technical mistakes noticed by the permit writer, this permit includes new and more stringent effluent limitations than those of the previous permit for the above listed parameters. Due to the fact that these are new and more stringent effluent limitations and the limited amount of effluent data related to the above listed parameters, the facility has requested a schedule of compliance to meet final effluent limitations. Therefore, this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for ammonia is attained at Outfall #001.

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:

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

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

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

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

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

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

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

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of

technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. For further guidance, consult the antidegradation implementation procedure (<http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf>).

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

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

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

In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan. A facility can apply for conditional exclusion for “no exposure” of industrial activities and materials to stormwater by submitting to the Department a completed NPDES Form 3510-11 – No Exposure Certification for Exclusion from NPDES Stormwater Permitting. That document can be found at https://www3.epa.gov/npdes/pubs/msgp2008_appendixk.pdf and additional information may be found at <https://www.epa.gov/npdes/stormwater-discharges-industrial-activities#exclusion>. Upon approval of the “No Exposure”, the permit can be modified to remove the SWPPP requirements. If the facility chooses to retain the conditional exclusion for “no exposure”, the facility is required to renew the “No Exposure” exemption during the permit renewal period by submitting NPDES Form 3510-11 with Form B2.

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(78)], 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:

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

Where C = downstream concentration C_e = effluent concentration
Cs = upstream concentration Q_e = effluent flow
Q_s = 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.

WATER QUALITY STANDARDS:

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

Outfall #001: The permittee is required to conduct WET test for this facility.

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

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], 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 BOD₅ 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 NH₃).
- ☒ Facility is a municipality with a Design Flow ≥ 22,500 gpd.

Outfall #002: At this time, the permittee is not 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

Outfall #001: Outfall #001 discharges to a 303(d) listed stream. Shoal Creek (P) (3222) is listed on the 2016, originally 2014, Missouri 303(d) List for Zinc (S). The 2016 Missouri 303(d) List identifies the source of the impairment as Mill Tailings. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Shoal Creek (P) (3222). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

Outfall #002: Outfall #002 discharges approximately 5.6 miles from a 303(d) listed stream. Buffalo Creek (P) (3273) is listed on the 2016, originally 2012, Missouri 303(d) List for Fishes Bioassessments/Unknown. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Buffalo Creek (P) (3273). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

The Neosho Crowder WWTP discharges to a stream with an EPA approved TMDL. The majority of the time, the Neosho Crowder WWTP does not discharge to the Elk River basin and was therefore not included in the TMDL calculation. During normal flows, the effluent is piped from the Neosho Crowder WWTP to the Neosho Shoal Creek WWTP before being discharged into the Shoal Creek basin. Outfall #002, however, continues to exist in the Elk River basin and may discharge under high flow conditions. The TMDL states that if the City of Neosho chooses to maintain this potential discharge to the Elk River basin, a discharge limitation of 1.5 mg/L as a daily maximum for total phosphorus will be included in the permit. The TMDL also states that the alternative would be for the City of Neosho to eliminate Outfall #002. This requirement is reflected in this permit as a load-based daily maximum final effluent limitation in lbs/day.

Outfall #003: Effluent monitored at Internal Monitoring Point #IP2 discharges from Outfall #003, which is approximately 5.4 miles from a 303(d) listed stream. Buffalo Creek (P) (3273) is listed on the 2016, originally 2012, Missouri 303(d) List for Fishes Bioassessments / Unknown. It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of Buffalo Creek (P) (3273). Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

Outfall #003 is the location at which effluent from the Neosho Crowder WWTP is discharged to the golf course irrigation storage ponds. These ponds and the potential discharge from these ponds are located within the same watershed as Outfall #002. However, Outfall #003 is not listed in the TMDL for the Elk River basin. Therefore, it has been determined by the permit writer that the requirements and assumption of the Elk River basin TMDL do not apply to Outfall #003 or the monitoring location Internal Monitoring Point #002.

Part VI –2013 Water Quality Criteria for Ammonia

Upcoming changes to the Water Quality Standard for ammonia may require significant upgrades to wastewater treatment facilities.

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels or gill breathing snails. Missouri is home to 69 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate

toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective if young mussels may be present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the standards. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.), as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System (NPDES). States are required to review their water quality standards every three years, and if new criteria have been developed they must be adopted. States may be more protective than the Federal requirements, but not less protective. Missouri does not have the resources to conduct the studies necessary for developing new water quality standards, and therefore our standards mirror those developed by the EPA; however, we will utilize any available flexibility based on actual species of mussels that are native to Missouri and their sensitivity to ammonia.

Many treatment facilities in Missouri are currently scheduled to be upgraded to comply with the current water quality standards. But these new ammonia standards may require a different treatment technology than the one being considered by the permittee. It is important that permittees discuss any new and upcoming requirements with their consulting engineers to ensure that their treatment systems are capable of complying with the new requirements. The Department encourages permittees to construct treatment technologies that can attain effluent quality that supports the EPA ammonia criteria.

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations.

Outfall #001:

Current effluent limitations in this permit for summer are – 6.1 mg/L daily maximum, 1.2 mg/L monthly average.

Current effluent limitations in this permit for winter are – 11.9 mg/L daily maximum, 2.2 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this that discharges to a receiving stream with the mixing consideration listed in Part IV of the Fact Sheet will be:

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	0.7	3.4
Winter	6	7.8	2.3	13

Summer: April 1 – September 30

Chronic WLA: $C_e = ((9.3 + 0.25)0.7 - (0.25 * 0.01))/9.3$
 $C_e = 0.72 \text{ mg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)3.4 - (0.0025 * 0.01))/9.3$
 $C_e = 3.40 \text{ mg/L}$

$LTA_c = 0.72 \text{ mg/L} (0.425) = 0.31 \text{ mg/L}$

[CV = 2.30, 99th Percentile, 30 day avg.]

$LTA_a = 3.40 \text{ mg/L} (0.107) = 0.36 \text{ mg/L}$

[CV = 2.30, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 0.31 \text{ mg/L} (9.34) = 2.9 \text{ mg/L}$

[CV = 2.30, 99th Percentile]

$AML = 0.31 \text{ mg/L} (1.79) = 0.5 \text{ mg/L}$

[CV = 2.30, 95th Percentile, n = 30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((9.3 + 0.25)2.3 - (0.25 * 0.01))/9.3$
 $C_e = 2.36 \text{ mg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)13 - (0.0025 * 0.01))/9.3$
 $C_e = 13.00 \text{ mg/L}$

$LTA_c = 2.36 \text{ mg/L} (0.345) = 0.82 \text{ mg/L}$

[CV = 3.01, 99th Percentile, 30 day avg.]

$LTA_a = 13.00 \text{ mg/L} (0.093) = 1.20 \text{ mg/L}$

[CV = 3.01, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 0.82 \text{ mg/L (10.80)} = 8.8 \text{ mg/L}$$

$$[\text{CV} = 3.01, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 0.82 \text{ mg/L (2.04)} = 1.7 \text{ mg/L}$$

$$[\text{CV} = 3.01, 95^{\text{th}} \text{ Percentile, } n = 30]$$

Summer – 2.9 mg/L daily maximum, 0.5 mg/L monthly average.

Winter – 8.8 mg/L daily maximum, 1.7 mg/L monthly average.

Outfall #002 & Internal Monitoring Point #IP2:

Current effluent limitations in this permit for summer are – 3.6 mg/L daily maximum, 1.4 mg/L monthly average.

Current effluent limitations in this permit for winter are – 7.5 mg/L daily maximum, 2.9 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this that discharges to a receiving stream with no mixing will be:

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	0.7	3.4
Winter	6	7.8	2.3	13

Summer: April 1 – September 30

Chronic WLA: $C_e = ((4.65 + 0.0)0.7 - (0.0 * 0.01))/4.65$
 $C_e = 0.70 \text{ mg/L}$

Acute WLA: $C_e = ((4.65 + 0.0)3.4 - (0.0 * 0.01))/4.65$
 $C_e = 3.40 \text{ mg/L}$

$$\text{LTA}_c = 0.70 \text{ mg/L (0.780)} = 0.55 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile, 30 day avg.}]$$

$$\text{LTA}_a = 3.40 \text{ mg/L (0.321)} = 1.09 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 0.55 \text{ mg/L (3.11)} = 1.7 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 0.55 \text{ mg/L (1.19)} = 0.6 \text{ mg/L}$$

$$[\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 30]$$

Winter: October 1 – March 31

Chronic WLA: $C_e = ((4.65 + 0.0)2.3 - (0.0 * 0.01))/4.65$
 $C_e = 2.30 \text{ mg/L}$

Acute WLA: $C_e = ((4.65 + 0.0)13 - (0.0 * 0.01))/4.65$
 $C_e = 13.00 \text{ mg/L}$

$$\text{LTA}_c = 2.30 \text{ mg/L (0.780)} = 1.79 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile, 30 day avg.}]$$

$$\text{LTA}_a = 13.00 \text{ mg/L (0.321)} = 4.17 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 1.79 \text{ mg/L (3.11)} = 5.6 \text{ mg/L}$$

$$[\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 1.79 \text{ mg/L (1.19)} = 2.1 \text{ mg/L}$$

$$[\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 30]$$

Summer – 1.7 mg/L daily maximum, 0.6 mg/L monthly average.

Winter – 5.6 mg/L daily maximum, 2.1 mg/L monthly average.

These estimated limits above are based in part on the actual performance of the plant at the time of the drafting of this permit and should not be construed as future effluent limitations. Future effluent limits, based on the EPA's 2013 water quality criteria for ammonia, will depend in part on the actual performance of the facility at the time the permit is renewed.

Operating permits for facilities in Missouri must be written based on current statutes and regulations. Therefore permits will be written with the existing effluent limitations until the new standards are adopted. To aid permittees in decision making, an advisory will be added to permit Fact Sheets notifying permittees of the expected effluent limitations for ammonia. When setting schedules of compliance for ammonia effluent limitations, consideration will be given to facilities that have recently constructed upgraded facilities to meet the current ammonia limitations.

For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

Part VII – Effluent Limits Determination

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.

OUTFALL #001 – MAIN FACILITY OUTFALL AT NEOSHO SHOAL CREEK WWTP

APPLICABLE DESIGNATIONS 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. For this permitted feature, please see; All Other Waters [10 CSR 20-7.015(8)].

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/day	_monthly	_T
Ammonia as N (Apr 1 – Sep 30)	mg/L	2, 3	6.1		_1.2	_*/*	_2/month	monthly	_G
Ammonia as N (Oct 1 – Mar 31)	mg/L	2, 3	11.9		_2.2	_*/*	_2/month	monthly	_G
<i>Escherichia coli</i> **	#/100mL	1, 3		630	126	_630/126	_1/week	monthly	_G
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	_6.0		_9.0	_6.5-9.0	_1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Maximum		Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Oil & Grease	mg/L	1, 3	15		_10	_15/10	_1/quarter	_quarterly	_G
Total Nitrogen	mg/L	1	*		_*	_****	_1/quarter	_quarterly	_G
Total Phosphorus	mg/L	1	*		_*	_****	_1/quarter	_quarterly	_G
Phenol	µg/L	2, 3	4,200.5		_1,316.3	_*/*	_1/quarter	_quarterly	_C
Cadmium, Total Recoverable	µg/L	2, 3	0.6		_0.3	_2.9/1.0	_1/quarter	_quarterly	_C
Chromium (III), Total Recoverable	µg/L	2, 3	*		_*	_976.2 / 389.3	_1/quarter	_quarterly	_C
Chromium (VI), Dissolved	µg/L	2, 3	*		_*	_20.3/8.1	_1/quarter	_quarterly	_G
Copper, Total Recoverable	µg/L	2, 3	*		_*	_*/*	_1/quarter	_quarterly	_C
Iron, Total Recoverable	µg/L	2, 3	1,849.6		_702.5	_*/*	_1/quarter	_quarterly	_C
Lead, Total Recoverable	µg/L	2, 3	*		_*	_*/*	_1/quarter	_quarterly	_C
Mercury, Total Recoverable	µg/L	2, 3	*		_*	_*/*	_1/quarter	_quarterly	_C
Nickel, Total Recoverable	µg/L	2, 3	*		_*	_*/*	_1/quarter	_quarterly	_C
Selenium, Total Recoverable	µg/L	2, 3	9.2		_3.2	_36/17.1	_1/quarter	_quarterly	_C
Zinc, Total Recoverable	µg/L	2, 3	*		_*	_*/*	_1/quarter	_quarterly	_C
Acute Whole Effluent Toxicity	TUa	1, 9	*			_pass/fail	_1/year	_annually	_C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			_****	_1/permit cycle	_1/permit cycle	_C

_*	-	Monitoring requirement only.	****	-	C = 24-hour composite
**	-	#/100mL; the Monthly Average for <i>E. coli</i> is a geometric mean.			G = Grab
***	-	Parameter not previously established in previous state operating permit.			T = 24-hr. total

Basis for Limitations Codes:

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

OUTFALL #001 – MAIN FACILITY OUTFALL AT NEOSHO SHOAL CREEK WWTP – 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.
- **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.

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

Summer: April 1 – September 30

Chronic WLA: $C_e = ((9.3 + 0.25)1.5 - (0.25 * 0.01))/9.3$
 $C_e = 1.54 \text{ mg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)12.1 - (0.0025 * 0.01))/9.3$
 $C_e = 12.10 \text{ mg/L}$

$LTA_c = 1.54 \text{ mg/L} (0.425) = 0.65 \text{ mg/L}$
 $LTA_a = 12.10 \text{ mg/L} (0.107) = 1.30 \text{ mg/L}$

[CV = 2.30, 99th Percentile, 30 day avg.]
[CV = 2.30, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 0.65 mg/L (9.34) = 6.1 mg/L
AML = 0.65 mg/L (1.79) = 1.2 mg/L

[CV = 2.30, 99th Percentile]
[CV = 2.30, 95th Percentile, n = 30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((9.3 + 0.25)3.1 - (0.25 * 0.01))/9.3$
 $C_e = 3.18 \text{ mg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)12.1 - (0.0025 * 0.01))/9.3$
 $C_e = 12.10 \text{ mg/L}$

$LTA_c = 3.18 \text{ mg/L} (0.345) = 1.10 \text{ mg/L}$
 $LTA_a = 12.10 \text{ mg/L} (0.093) = 1.12 \text{ mg/L}$

[CV = 3.12, 99th Percentile, 30 day avg.]
[CV = 3.12, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 1.10 mg/L (10.80) = 11.9 mg/L
AML = 1.10 mg/L (2.04) = 2.2 mg/L

[CV = 3.12, 99th Percentile]
[CV = 3.12, 95th Percentile, n = 30]

- **Escherichia coli (E. coli).** Monthly average of 126 per 100 mL as a geometric mean and weekly average of 630 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). 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, 10, and 5 (#/100mL). Geometric Mean = 5th root of (1)(4)(6)(10)(5) = 5th root of 1,200 = 4.1 #/100mL.
- **pH.** 6.0-9.0 SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.
- **Oil & Grease.** Effluent limitations of 15 mg/L as a daily maximum and 10 mg/L as a monthly average have been retained from the previous permit. Oil & grease is a conventional pollutant, and effluent limitation will ensure the protection of aquatic life.
- **Total Nitrogen and Total Phosphorus.** Monitoring for total nitrogen and total phosphorus is required for facilities that have a design flow greater than 100,000 gpd per 10 CSR 20-7.015(9)(D)7. Total nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and nitrate + nitrite and reporting the sum of the results (reported as N). Nitrate + nitrite can be analyzed together or separately.

- **Phenol.** Protection of Aquatic Life Chronic Criteria = 2,560 µg/L, Acute Criteria = 10,200 µg/L.

Chronic WLA: $C_e = ((9.3 + 0.25)2,560 - (0.25 * 0.0))/9.3$
 $C_e = 2,566.9 \text{ µg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)10,200 - (0.0025 * 0.0))/9.3$
 $C_e = 10,202.7 \text{ µg/L}$

$LTA_c = 2,566.9 (0.165) = 424.12 \text{ µg/L}$

[CV = 2.54, 99th Percentile]

$LTA_a = 10,202.7 (0.101) = 1,030.3 \text{ µg/L}$

[CV = 2.54, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 424.12 (9.90) = 4,200.5 \text{ µg/L}$

[CV = 2.54, 99th Percentile]

$AML = 424.12 (3.10) = 1,316.3 \text{ µg/L}$

[CV = 2.54, 95th Percentile, n = 4]

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the “Technical Support Document for Water Quality-based Toxic Controls” (EPA/505/2-90-001) and “The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 162 mg/L is used in the conversion below.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	N/A	N/A
Copper	0.960	0.960
Iron	N/A	N/A

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Lead	0.721	0.721
Mercury	0.85	N/A
Nickel	0.998	0.997
Selenium	N/A	N/A
Zinc	0.978	0.986

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162 mg/L.

- **Cadmium, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 0.3 µg/L, Acute Criteria = 7.6 µg/L.

Chronic = $0.3/0.889 = 0.39 \text{ µg/L}$

Acute = $7.6/0.924 = 8.23 \text{ µg/L}$

Chronic WLA: $C_e = ((9.3 + 0.25)0.39 - (0.25 * 0.0))/9.3$
 $C_e = 0.4 \text{ µg/L}$

Acute WLA: $C_e = ((9.3 + 0.0025)8.23 - (0.0025 * 0.0))/9.3$
 $C_e = 8.23 \text{ µg/L}$

$LTA_c = 0.4 (0.597) = 0.23 \text{ µg/L}$

[CV = 0.47, 99th Percentile]

$LTA_a = 8.23 (0.389) = 3.2 \text{ µg/L}$

[CV = 0.47, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 0.23 (2.57) = 0.6 \text{ µg/L}$

[CV = 0.47, 99th Percentile]

$AML = 0.23 (1.43) = 0.3 \text{ µg/L}$

[CV = 0.47, 95th Percentile, n = 4]

- **Chromium (III), Total Recoverable.** The previous permit included final effluent limitations of 976.2 µg/L as a daily maximum and 389.3 µg/L as a monthly average. Over the previous five years, the permittee has reported non-detects which are less than the water quality standards. It has been determined by the permit writer that at this time no reasonable potential exists for this facility to exceed water quality criteria therefore, monitoring only requirements are included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Chromium (VI), Dissolved.** The previous permit included final effluent limitations of 20.3 µg/L as a daily maximum and 8.1 µg/L as a monthly average. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Copper, Total Recoverable.** Monitoring only requirements have been retained from the previous permit. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Iron, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 1,000 µg/L.

$$\text{Chronic WLA: } C_e = ((9.3 + 0.25)1,000 - (0.25 * 0.0))/9.3$$

$$C_e = 1,002.69 \text{ µg/L}$$

$$LTA_c = 1,002.69 (0.340) = 340.92 \text{ µg/L} \quad [CV = 1.12, 99^{\text{th}} \text{ Percentile}]$$

$$MDL = 340.92 (5.43) = 1,849.6 \text{ µg/L} \quad [CV = 1.12, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 340.92 (2.06) = 702.5 \text{ µg/L} \quad [CV = 1.12, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Lead, Total Recoverable.** Monitoring only requirements have been retained from the previous permit. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Mercury, Total Recoverable.** Monitoring only requirements have been retained from the previous permit. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Nickel, Total Recoverable.** Monitoring only requirements have been retained from the previous permit. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.
- **Selenium, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 5 µg/L.

$$\text{Chronic WLA: } C_e = ((9.3 + 0.25)5 - (0.25 * 0.0))/9.3$$

$$C_e = 5.01 \text{ µg/L}$$

$$LTA_c = 5.01 (0.259) = 1.3 \text{ µg/L} \quad [CV = 1.54, 99^{\text{th}} \text{ Percentile}]$$

$$MDL = 1.3 (7.06) = 9.2 \text{ µg/L} \quad [CV = 1.54, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 1.3 (2.43) = 3.2 \text{ µg/L} \quad [CV = 1.54, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Zinc, Total Recoverable.** Monitoring only requirements have been retained from the previous permit. As a result of a reasonable potential analysis, it has been determined that there is no reasonable potential to violate water quality standards. Therefore, it has been determined by the permit writer that monitoring only requirements be included in this permit. Upon renewal, data collected will be reviewed to conduct a reasonable potential analysis in order to reevaluate this determination.

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.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C, Class P (with default Mixing Considerations), or Lakes [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.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C, Class P (with default Mixing Considerations), or Lakes [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 frequency was changed from once/month to once/quarter for total recoverable cadmium, total recoverable chromium (III), dissolved chromium (VI), and total recoverable selenium and from once/week to twice/month for ammonia. The reduction in sampling for all of the above listed parameters is due to the consistency of the data submitted for each parameter. This determination will be reevaluated during the next renewal. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

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

Acute Whole Effluent Toxicity

- ☒ - No less than **ONCE/YEAR:**
 - ☒ -Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
 - ☐ - Facility incorporates a pretreatment program and dilution of the receiving stream is 100x or greater.
 - ☐ - Facility continuously or routinely exceeds their design flow.
 - ☐ -Facility exceeds its design population equivalent (PE) for BOD₅ whether or not its design flow is being exceeded.
 - ☒ -Facility has Water Quality-based effluent limitations for toxic substances (other than NH₃).

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, BOD₅, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli*, Oil & Grease, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved, these samples are to be collected as a grab.

OUTFALL #002 (DISCHARGE AT NEOSHO CROWDER WWTP)

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

For these permitted features, please see; Losing [10 CSR 20-7.015(4)]

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum		Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Phosphorus	lbs/day	8	12.51			***	1/day	monthly	G

* - Monitoring requirement only.

**** - G = Grab

*** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

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

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

- Total Phosphorus.** The Neosho Crowder WWTP discharges to a stream with an EPA approved TMDL. The majority of the time, the Neosho Crowder WWTP does not discharge to the Elk River basin and was therefore not included in the TMDL calculation. During normal flows, the effluent is piped from the Neosho Crowder WWTP to the Neosho Shoal Creek WWTP before being discharged into the Shoal Creek basin. Outfall #002, however, continues to exist in the Elk River basin and may discharge under high flow conditions. The TMDL states that if the City of Neosho chooses to maintain this potential discharge to the Elk River basin, a discharge limitation of 1.5 mg/L as a daily maximum for total phosphorus will be included in the permit. The TMDL also states that the alternative would be for the City of Neosho to eliminate Outfall #002. It has been determined by the permit writer that a load-based effluent limitation is appropriate as the pollutant is total phosphorus and not a toxic pollutant. Therefore, the calculation below derives lbs/day load-based effluent limitations from the concentration based effluent limitation of 1.5 mg/L.

$$1.5 \text{ mg/L} \times 1.0 \text{ MGD} \times 8.34 \text{ lbs/gallon} = 12.51 \text{ lbs/day}$$

The actual average flow from Outfall #002 of 1.0 MGD has been used as discharges from this outfall are intermittent and dependent on the amount of flow coming to the facility. As a result of this calculation, a final effluent limitation of 12.51 lbs/day as a daily maximum has been included in this permit.

Sampling Frequency Justification:

Sampling frequency of once/day and reporting frequency of once/month have been established by the permit writer in order to obtain adequate data regarding the amount of total phosphorus that is being discharged during a high flow event. Absent of once/day monitoring, the department would be unable to determine compliance with the load based daily maximum effluent limitation established in the permit. This determination will be reevaluated upon renewal.

Sampling Type Justification:

Grab samples must be collected for total phosphorus due to the fact these samples must be immediately preserved.

Comments:

- Dissolved Oxygen.** This facility adds chemicals to dechlorinate the effluent prior to discharge at Outfall #002. Dechlorination chemicals have the potential to reduce dissolved oxygen concentrations in the discharge, resulting in an anoxic discharge, unless carefully controlled. However, Outfall #002 rarely discharges and when a discharge does occur, it is due to high flow events caused by Inflow and Infiltration (I&I). Due to the receiving stream condition and the effluent condition at the time of discharges from Outfall #002, it has been determined by the permit writer that there is no reasonable potential to violate water quality standards for dissolved oxygen and therefore no monitoring requirements have been included in this permit.
- Whole Effluent Toxicity (WET) test.** The previous permit included requirements to conduct an Acute WET test once every year at the Neosho Crowder WWTP (Outfall #002). However, when a discharge occurs at Outfall #002, it is due to high flow events caused by Inflow and Infiltration (I&I). These discharges have been determined to not be representative of the facility's performance by the permit writer due to dilution of the effluent. Additionally, WET testing should occur during critical low flow scenarios, which will not be the conditions of the receiving stream at the time of a discharge from Outfall #002. During normal flow conditions, the effluent from Outfall #002 is sent to the Neosho Shoal Creek WWTP (Outfall #001) where the effluents combine prior to sample collection for WET test purposes. This means that when the permittee collects a sample at Outfall #001 for WET test requirements, effluent from the Neosho Crowder WWTP, which is representative of normal flow conditions, will be included in the sample for compliance with WET test requirements of Outfall #001. Therefore, it has been determined by the permit writer that WET testing requirements be removed for Outfall #002 in this permit.

Grab samples must be collected for total phosphorus due to the fact these samples must be immediately preserved.

OUTFALL #002 & INTERNAL MONITORING POINT #IP2

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

For these permitted features, please see; Losing [10 CSR 20-7.015(4)]

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/day	_monthly	_T
BOD ₅	mg/L	1		15	_10	_15/10	_1/week	monthly	_C
TSS	mg/L	1		20	_15	_20/15	_1/week	monthly	_C
Ammonia as N (Apr 1 – Sep 30)	mg/L	2, 3	3.6		_1.4	_3.7/1.4	_2/month	monthly	_G
Ammonia as N (Oct 1 – Mar 31)	mg/L	2, 3	7.5		_2.9	_7.5/2.9	_2/month	monthly	_G
<i>Escherichia coli</i> **	#/100mL	1, 3	126		_*	_126/126	_1/week	monthly	_G
Chlorine, Total Residual	µg/L	1, 3	< 130		< 130	<130/<130	_1/week	monthly	_G
Nitrates as N	mg/L	7	*		_*	_20/10	_1/month	_monthly	_G
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.5		9.0	6.5-9.0	_1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Maximum		Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Hardness	mg/L	7	*		_*	_*/_*	_1/quarter	_quarterly	_G
Oil & Grease	mg/L	1, 3	15		_10	_15/10	_1/quarter	_quarterly	_G
Total Nitrogen	mg/L	1	*		_*	_***	_1/quarter	_quarterly	_G
1,2-dichloroethane	µg/L	3, 7	10.05		5.00	_10/5	_1/quarter	_quarterly	G
1,1,1-trichloroethane	µg/L	3, 7	402.0		_200.0	_402/200	_1/quarter	_quarterly	G
1,1,2-trichloroethane	µg/L	3, 7	10.05		5.00	_10/5	_1/quarter	_quarterly	G
Cyanide, Amenable to Chlorination	µg/L	3, 7	< 10		< 10	_8/4	_1/quarter	_quarterly	G
Phenol	µg/L	3, 7	201.0		_100.0	_164/82	_1/quarter	_quarterly	C
Sulfates	µg/L	3, 7	502.5		_250.0	_503/250	_1/quarter	_quarterly	C
Boron, Total Dissolved	µg/L	3, 7	4,020.0		_2,000.0	_4,000/2,000	_1/quarter	_quarterly	C
Cadmium, Total Recoverable	µg/L	3, 7	0.6		_0.3	_0.6/0.3	_1/quarter	_quarterly	C
Chromium (III), Total Recoverable	µg/L	3, 7	210.2		_104.8	_348/174	_1/quarter	_quarterly	C
Chromium (VI), Dissolved	µg/L	3, 7	15.0		_7.5	_16/8	_1/quarter	_quarterly	G
Copper, Total Recoverable	µg/L	3, 7	22.0		_11.0	_24/12	_1/quarter	_quarterly	C
Iron, Total Recoverable	µg/L	3, 7	*		_*	_***	_1/quarter	_quarterly	C
Lead, Total Recoverable	µg/L	3, 7	9.7		4.8	_9/5	_1/quarter	_quarterly	C
Mercury, Total Recoverable	µg/L	3, 7	0.8		0.4	_0.9/0.5	_1/quarter	_quarterly	C
Nickel, Total Recoverable	µg/L	3, 7	128.9		64.3	_131/65	_1/quarter	_quarterly	C
Selenium, Total Recoverable	µg/L	3, 7	*		_*	_***	_1/quarter	_quarterly	C
Zinc, Total Recoverable	µg/L	3, 7	180.7		90.1	_295/147	_1/quarter	_quarterly	C

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <p>_* - Monitoring requirement only.</p> <p>** - No more than 10% of samples over the course of the calendar year shall exceed 126 #/100 mL daily maximum.</p> <p>*** - Parameter not previously established in previous state operating permit.</p> | <p>**** - C = 24-hour composite
G = Grab
T = 24-hr. total</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|

Basis for Limitations Codes:

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

OUTFALL #002 (DISCHARGE AT NEOSHO CROWDER WWTP) & INTERNAL MONITORING POINT #IP2 (EFFLUENT MONITORING LOCATION FOR NEOSHO CROWDER WWTP – GOLF COURSE IRRIGATION STORAGE PONDS) – 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 (BOD₅)**. Effluent limitations of 15 mg/L as a weekly average and 10 mg/L as a monthly average, as per [10 CSR 20-7.015] have been retained from previous state operating permit. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- **Total Suspended Solids (TSS)**. Effluent limitations of 20 mg/L as a weekly average and 15 mg/L as a monthly average, as per [10 CSR 20-7.015] have been retained from previous state operating permit. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- **Total Ammonia Nitrogen**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

Summer: April 1 – September 30

Chronic WLA: $C_e = ((4.65 + 0.0)1.5 - (0.0 * 0.01))/4.65$
 $C_e = 1.5 \text{ mg/L}$

Acute WLA: $C_e = ((4.65 + 0.0)12.1 - (0.0 * 0.01))/4.65$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L (0.780)} = 1.17 \text{ mg/L}$
 $LTA_a = 12.1 \text{ mg/L (0.321)} = 3.89 \text{ mg/L}$

[CV = 0.6, 99th Percentile, 30 day avg.]
[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 1.17 \text{ mg/L (3.11)} = 3.6 \text{ mg/L}$
 $AML = 1.17 \text{ mg/L (1.19)} = 1.4 \text{ mg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 95th Percentile, n=30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((4.65 + 0.0)3.1 - (0.0 * 0.01))/4.65$
 $C_e = 3.1 \text{ mg/L}$

Acute WLA: $C_e = ((4.65 + 0.0)12.1 - (0.0 * 0.01))/4.65$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L (0.780)} = 2.42 \text{ mg/L}$
 $LTA_a = 12.1 \text{ mg/L (0.321)} = 3.89 \text{ mg/L}$

[CV = 0.6, 99th Percentile, 30 day avg.]
[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 2.42 \text{ mg/L (3.11)} = 7.5 \text{ mg/L}$
 $AML = 2.42 \text{ mg/L (1.19)} = 2.9 \text{ mg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 95th Percentile, n=30]

- **Escherichia coli (E. coli)**. Discharges to losing streams shall not exceed 126 per 100 mL as a Daily Maximum at any time, as per 10 CSR 20-7.031(5)(C). Monitoring only for a monthly average. No more than 10% of samples over the course of the calendar year shall exceed 126 #/100 mL daily maximum as per 10 CSR 20-7.015(9)(B)1.G.

- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA: $C_e = ((4.65 + 0.0)10 - (0.0 * 0.0))/4.65$
 $C_e = 10 \text{ µg/L}$

Acute WLA: $C_e = ((4.65 + 0.0)19 - (0.0 * 0.0))/4.65$
 $C_e = 19 \text{ µg/L}$

$LTA_c = 10 (0.527) = 5.3 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $LTA_a = 19 (0.321) = 6.1 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 5.3 (3.11) = 17 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 5.3 (1.55) = 8 \text{ µg/L}$ [CV = 0.6, 95th Percentile, n = 4]

The Water Quality Based Effluent Limit for Total Residual Chlorine was calculated to be 17 µg/L (daily maximum limit) and 8 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. 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 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation.

- **Nitrates as N.** The previous permit included final effluent limitations of 20 mg/L as a daily maximum and 10 mg/L as a monthly average in order to protect both groundwater and drinking water. After review of discharge monitoring reports over the previous five years, the permit writer made a reasonable potential determination that there is no reasonable potential to exceed the water quality standard for nitrates at this time. However, monitoring only requirements have been included in the permit in order to verify this determination. Data collected will be reviewed upon renewal to determine if an effluent limitation is necessary to protect water quality.
- **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. No mixing zone is allowed due to the classification of the receiving stream, therefore the water quality standard must be met at the outfall.
- **Total Hardness.** The previous permit included monitoring only requirements, which have been retained in this permit. Due to the fact that the receiving stream is designated as losing and is effluent dominated, it has been determined by the permit writer that monitoring of the effluent for total hardness as opposed to monitoring in the receiving stream is appropriate and representative. Data collected will be used to establish a site-specific hardness value which may be used in effluent limitations derivation calculations for hardness dependent metals.
- **Oil & Grease.** Effluent limitations of 15 mg/L as a daily maximum and 10 mg/L as a monthly average have been retained from the previous permit. Oil & grease is a conventional pollutant, and effluent limitation will ensure the protection of aquatic life.
- **Total Nitrogen.** Monitoring for total nitrogen is required for facilities that have a design flow greater than 100,000 gpd per 10 CSR 20-7.015(9)(D)7. Total nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and nitrate + nitrite and reporting the sum of the results (reported as N). Nitrate + nitrite can be analyzed together or separately.

- **1,2-dichloroethane**. The previous permit included final effluent limitations of 10 µg/L as a daily maximum and 5 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Human Health Protection – Fish Consumption (HHP) Chronic Criteria = 99 µg/L, Protection of Drinking Water Supply (DWS) and Groundwater (GRW) Chronic Criteria = 5 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Chronic WLA = 5.0 µg/L

MDL = 5.0 (2.01) = 10.05 µg/L [CV = 0.6, 99th Percentile – TSD, EPA/505/2-90-001, Table 5-3]
AML = WLA = 5.0 µg/L [TSD, EPA/505/2-90-001, Section 5.4.4]

- **1,1,1-trichloroethane**. The previous permit included final effluent limitations of 402 µg/L as a daily maximum and 200 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Drinking Water Supply (DWS) and Groundwater (GRW) Chronic Criteria = 200 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Chronic WLA = 200.0 µg/L

MDL = 200.0 (2.01) = 402.0 µg/L [CV = 0.6, 99th Percentile – TSD, EPA/505/2-90-001, Table 5-3]
AML = WLA = 200.0 µg/L [TSD, EPA/505/2-90-001, Section 5.4.4]

- **1,1,2-trichloroethane**. The previous permit included final effluent limitations of 10 µg/L as a daily maximum and 5 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Human Health Protection – Fish Consumption (HHP) Chronic Criteria = 42 µg/L, Protection of Drinking Water Supply (DWS) and Groundwater (GRW) Chronic Criteria = 5 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Chronic WLA = 5.0 µg/L

MDL = 5.0 (2.01) = 10.05 µg/L [CV = 0.6, 99th Percentile – TSD, EPA/505/2-90-001, Table 5-3]
AML = WLA = 5.0 µg/L [TSD, EPA/505/2-90-001, Section 5.4.4]

- **Cyanide, Amenable to Chlorination.** Protection of Aquatic Life CCC = 5 µg/L, CMC = 22 µg/L, Background CN = 0 µg/L

$$\text{Chronic WLA: } C_e = ((4.65 + 0.0)5 - (0.0 * 0.0))/4.65$$
$$C_e = 5 \text{ µg/L}$$

$$\text{Acute WLA: } C_e = ((4.65 + 0.0)22 - (0.0 * 0.0))/4.65$$
$$C_e = 22 \text{ µg/L}$$

$$\text{LTA}_c = 5 (0.527) = 2.6 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$
$$\text{LTA}_a = 22 (0.321) = 7.1 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 2.6 (3.11) = 8.2 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$
$$\text{AML} = 2.6 (1.55) = 4.1 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

The Water Quality Based Effluent Limit for Cyanide amenable to chlorination was calculated to be 8.2 µg/L (daily maximum limit) and 4.1 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved Cyanide amenable to chlorination methods. The Department has determined the current acceptable ML of Cyanide Amenable to Chlorination (CATC) 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. 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.

- **Phenol.** The previous permit included final effluent limitations of 164 µg/L as a daily maximum and 82 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Aquatic Life (AQL) Chronic Criteria = 2,560 µg/L, Acute Criteria = 10,200 µg/L, Protection of Drinking Water Supply (DWS) Chronic Criteria = 100 µg/L, and Protection of Groundwater (GRW) Chronic Criteria = 300 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

$$\text{Chronic WLA} = 100.0 \text{ µg/L}$$

$$\text{MDL} = 100.0 (2.01) = 201.0 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile} - \text{TSD, EPA/505/2-90-001, Table 5-3}]$$
$$\text{AML} = \text{WLA} = 100.0 \text{ µg/L} \quad [\text{TSD, EPA/505/2-90-001, Section 5.4.4}]$$

- **Sulfates.** The previous permit included final effluent limitations of 503 µg/L as a daily maximum and 250 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Drinking Water Supply (DWS) Chronic Criteria = 250 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

$$\text{Chronic WLA} = 250.0 \text{ µg/L}$$

$$\text{MDL} = 250.0 (2.01) = 502.5 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile} - \text{TSD, EPA/505/2-90-001, Table 5-3}]$$
$$\text{AML} = \text{WLA} = 250.0 \text{ µg/L} \quad [\text{TSD, EPA/505/2-90-001, Section 5.4.4}]$$

Metals.

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the “Technical Support Document for Water Quality-based Toxic Controls” (EPA/505/2-90-001) and “The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 162 mg/L is used in the conversion below.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Boron	N/A	N/A
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	N/A	N/A
Copper	0.960	0.960
Iron	N/A	N/A

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Lead	0.721	0.721
Mercury	0.85	N/A
Nickel	0.998	0.997
Selenium	N/A	N/A
Zinc	0.978	0.986

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162 mg/L.

- **Boron, Total Dissolved.** The previous permit included final effluent limitations of 4,000 µg/L as a daily maximum and 2,000 µg/L as a monthly average. Over the previous five years, due to the lack of discharge, the permit writer does not have sufficient data to make a reasonable potential determination to either replace the effluent limitations with a monitoring only requirement or to remove the parameter requirements entirely. Therefore, it has been determined by the permit writer that the effluent limitations are still appropriate. The permit writer has developed final effluent limitations following the EPA Technical Support Document for Water Quality-based Toxics Control (TSD, EPA/505/2-90-001).

Protection of Irrigation (IRR) Chronic Criteria = 2,000 µg/L and Protection of Groundwater (GRW) Chronic Criteria = 2,000 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

Chronic WLA = 2,000.0 µg/L

MDL = 2,000.0 (2.01) = 4,020.0 µg/L

AML = WLA = 2,000.0 µg/L

[CV = 0.6, 99th Percentile – TSD, EPA/505/2-90-001, Table 5-3]

[TSD, EPA/505/2-90-001, Section 5.4.4]

- **Cadmium, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 0.3 µg/L, Acute Criteria = 7.6 µg/L.

Chronic = 0.3/0.889 = 0.39 µg/L

Acute = 7.6/0.924 = 8.23 µg/L

Chronic WLA: $C_e = ((4.65 + 0.0)0.39 - (0.0 * 0.0))/4.65$
 $C_e = 0.39 \mu\text{g/L}$

Acute WLA: $C_e = ((4.65 + 0.0)8.23 - (0.0 * 0.0))/4.65$
 $C_e = 8.23 \mu\text{g/L}$

$LTA_c = 0.39 (0.527) = 0.20 \mu\text{g/L}$

$LTA_a = 8.23 (0.321) = 2.64 \mu\text{g/L}$

[CV = 0.6, 99th Percentile]

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 0.20 (3.11) = 0.6 µg/L

AML = 0.20 (1.55) = 0.3 µg/L

[CV = 0.6, 99th Percentile]

[CV = 0.6, 95th Percentile, n = 4]

- **Chromium (III), Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 110 µg/L, Acute Criteria = 846 µg/L.

$$\begin{aligned}\text{Chronic} &= 110/0.860 = 127.96 \text{ µg/L} \\ \text{Acute} &= 846/0.316 = 2,676.88 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{Chronic WLA: } C_e &= ((4.65 + 0.0)127.96 - (0.0 * 0.0))/4.65 \\ C_e &= 127.96 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{Acute WLA: } C_e &= ((4.65 + 0.0)2,676.88 - (0.0 * 0.0))/4.65 \\ C_e &= 2,676.88 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{LTA}_c &= 127.96 (0.527) = 67.49 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{LTA}_a &= 2,676.88 (0.321) = 859.50 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]\end{aligned}$$

Use most protective number of LTA_c or LTA_a .

$$\begin{aligned}\text{MDL} &= 67.49 (3.11) = 210.2 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{AML} &= 67.49 (1.55) = 104.8 \text{ µg/L} & [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]\end{aligned}$$

- **Chromium (VI), Dissolved.** Protection of Aquatic Life Chronic Criteria = 10.0 µg/L, Acute Criteria = 15.0 µg/L.

$$\begin{aligned}\text{Chronic WLA: } C_e &= ((4.65 + 0.0)10.0 - (0.0 * 0.0))/4.65 \\ C_e &= 10.0 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{Acute WLA: } C_e &= ((4.65 + 0.0)15.0 - (0.0 * 0.0))/4.65 \\ C_e &= 15.0 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{LTA}_c &= 10.0 (0.527) = 5.27 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{LTA}_a &= 15.0 (0.321) = 4.82 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]\end{aligned}$$

Use most protective number of LTA_c or LTA_a .

$$\begin{aligned}\text{MDL} &= 4.82 (3.11) = 15.0 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{AML} &= 4.82 (1.55) = 7.5 \text{ µg/L} & [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]\end{aligned}$$

- **Copper, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 13.5 µg/L, Acute Criteria = 21.1 µg/L.

$$\begin{aligned}\text{Chronic} &= 13.5/0.960 = 14.09 \text{ µg/L} \\ \text{Acute} &= 21.2/0.960 = 22.05 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{Chronic WLA: } C_e &= ((4.65 + 0.0)14.09 - (0.0 * 0.0))/4.65 \\ C_e &= 14.09 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{Acute WLA: } C_e &= ((4.65 + 0.0)22.05 - (0.0 * 0.0))/4.65 \\ C_e &= 22.05 \text{ µg/L}\end{aligned}$$

$$\begin{aligned}\text{LTA}_c &= 14.09 (0.527) = 7.43 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{LTA}_a &= 22.05 (0.321) = 7.08 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]\end{aligned}$$

Use most protective number of LTA_c or LTA_a .

$$\begin{aligned}\text{MDL} &= 7.08 (3.11) = 22.0 \text{ µg/L} & [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}] \\ \text{AML} &= 7.08 (1.55) = 11.0 \text{ µg/L} & [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]\end{aligned}$$

- **Iron, Total Recoverable.** Monitoring only requirements have been added to this permit in order to determine if the facility has a reasonable potential to cause a violation of water quality standards in the receiving stream. Data collected will be reviewed upon renewal to determine if an effluent limitation is necessary to protect water quality. The protection of Aquatic Life Chronic Criteria = 1,000 µg/L. This is listed so the permittee may test sensitive enough to demonstrate the facility is discharging below the criteria.

- **Lead, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 4.2 µg/L, Acute Criteria = 109 µg/L.

$$\text{Chronic} = 4.2/0.721 = 5.88 \text{ µg/L}$$

$$\text{Acute} = 109/0.721 = 150.82 \text{ µg/L}$$

$$\begin{aligned} \text{Chronic WLA: } C_e &= ((4.65 + 0.0)5.88 - (0.0 * 0.0))/4.65 \\ C_e &= 5.88 \text{ µg/L} \end{aligned}$$

$$\begin{aligned} \text{Acute WLA: } C_e &= ((4.65 + 0.0)150.82 - (0.0 * 0.0))/4.65 \\ C_e &= 150.82 \text{ µg/L} \end{aligned}$$

$$\text{LTA}_c = 5.88 (0.527) = 3.10 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{LTA}_a = 150.82 (0.321) = 48.42 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 3.10 (3.11) = 9.7 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 3.10 (1.55) = 4.8 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Mercury, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 0.5 µg/L, Acute Criteria = 2.4 µg/L.

$$\text{Acute} = 2.4/0.85 = 2.82 \text{ µg/L}$$

$$\begin{aligned} \text{Chronic WLA: } C_e &= ((4.65 + 0.0)0.5 - (0.0 * 0.0))/4.65 \\ C_e &= 0.5 \text{ µg/L} \end{aligned}$$

$$\begin{aligned} \text{Acute WLA: } C_e &= ((4.65 + 0.0)2.82 - (0.0 * 0.0))/4.65 \\ C_e &= 2.82 \text{ µg/L} \end{aligned}$$

$$\text{LTA}_c = 0.5 (0.527) = 0.26 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{LTA}_a = 2.82 (0.321) = 0.91 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 0.26 (3.11) = 0.8 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 0.26 (1.55) = 0.4 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Nickel, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 78.3 µg/L, Acute Criteria = 705 µg/L.

$$\text{Chronic} = 78.3/0.997 = 78.50 \text{ µg/L}$$

$$\text{Acute} = 705/0.998 = 706.10 \text{ µg/L}$$

$$\begin{aligned} \text{Chronic WLA: } C_e &= ((4.65 + 0.0)78.50 - (0.0 * 0.0))/4.65 \\ C_e &= 78.50 \text{ µg/L} \end{aligned}$$

$$\begin{aligned} \text{Acute WLA: } C_e &= ((4.65 + 0.0)706.10 - (0.0 * 0.0))/4.65 \\ C_e &= 706.10 \text{ µg/L} \end{aligned}$$

$$\text{LTA}_c = 78.50 (0.527) = 41.40 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{LTA}_a = 706.10 (0.321) = 226.72 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA_c or LTA_a .

$$\text{MDL} = 41.40 (3.11) = 128.9 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 41.40 (1.55) = 64.3 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Selenium, Total Recoverable.** Monitoring only requirements have been added to this permit in order to determine if the facility has a reasonable potential to cause a violation of water quality standards in the receiving stream. Data collected will be reviewed upon renewal to determine if an effluent limitation is necessary to protect water quality. The protection of Aquatic Life Chronic Criteria = 5 µg/L. This is listed so the permittee may test sensitive enough to demonstrate the facility is discharging below the criteria.

- **Zinc, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 176.71 µg/L, Acute Criteria = 176.71 µg/L.

Chronic = $176.71/0.986 = 179.22$ µg/L

Acute = $176.71/0.978 = 180.69$ µg/L

Chronic WLA: $C_e = ((4.65 + 0.0)179.22 - (0.0 * 0.0))/4.65$
 $C_e = 179.22$ µg/L

Acute WLA: $C_e = ((4.65 + 0.0)180.69 - (0.0 * 0.0))/4.65$
 $C_e = 180.69$ µg/L

$LTA_c = 179.22 (0.527) = 94.53$ µg/L [CV = 0.6, 99th Percentile]

$LTA_a = 180.69 (0.321) = 58.02$ µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = $58.02 (3.11) = 180.7$ µg/L [CV = 0.6, 99th Percentile]

AML = $58.02 (1.55) = 90.1$ µg/L [CV = 0.6, 95th Percentile, n = 4]

Sampling Frequency Justification:

Sampling and reporting frequency was changed from once/week to twice/month for ammonia and nitrates, from once/week to once/quarter for total hardness, oil & grease, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, cyanide amenable to chlorination, phenol, sulfates, total dissolved boron, total recoverable cadmium, total recoverable chromium (III), dissolved chromium (VI), total recoverable copper, total recoverable lead, total recoverable mercury, total recoverable nickel, and total recoverable zinc. These changes in sampling and reporting frequency are due to the infrequency of the discharge at these locations along with the determination made by the permit writer that the effluent concentrations for the above listed parameters consistency of the discharges. This determination will be reevaluated upon renewal. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

Sampling Type Justification:

As per 10 CSR 20-7.015, BOD₅, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli*, TRC, Oil & Grease, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia and TRC, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved, these samples are to be collected as a grab.

Comments:

- **Monitoring Requirements.** This permit includes both individual and combined requirements for Outfall #002 and Internal Monitoring Point #IP2, as all effluent limitations and monitoring requirements for these permitted features are identical except for total phosphorus. Outfall #002 has been granted a schedule of compliance to meet final effluent limitations for total phosphorus whereas Internal Monitoring Point #IP2 is only required to monitor for total phosphorus. In order to demonstrate this, the permit writer has created Tables A-5 and A-6 for Outfall #002 and Table A-7 for Internal Monitoring Point #IP2 as it relates to total phosphorus. All other requirements for Outfall #002 and Internal Monitoring Point #IP2 can be found on Tables A-8, A-9, and A-10. Although the two permitted features are included in Tables A-8, A-9, and A-10 together, the requirements identified in these tables apply to the two permitted features separately. This means that if a discharge occurs from both Outfall #002 and Internal Monitoring Point #IP2, the facility will be required to sample and report effluent results from both permitted feature locations. Sample results are not to be averaged between the different permitted features.
- **Expanded Effluent Testing.** It has been determined by the permit writer that expanded effluent testing requirements of the renewal application are not required for Outfall #002 or Internal Monitoring Point #IP2. Expanded effluent testing allows the permit writer to make decisions regarding potential effluent limitation or monitoring requirements, which will not be a result of this sampling at Outfall #002 or Internal Monitoring Point #IP2. Discharges from Outfall #002 historically are rare in frequency and occur during high flow events due to Inflow and Infiltration (I&I) into the collection system. As a result, samples taken from Outfall #002 would not be representative of the seasonal variation in the discharge since they will occur during the same stream and effluent conditions. Expanded effluent testing is required by the application for renewal at Outfall #001, which will include effluent from both wastewater plants and will allow for the permittee to collect samples representative of seasonal variation.

INTERNAL MONITORING POINT #IP3 (TBEL MONITORING LOCATION FOR NEOSHO CROWDER WWTP)

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/day	monthly	T
BOD ₅	mg/L	1		65	45	***	1/week	monthly	C
TSS	mg/L	1		65	45	***	1/week	monthly	C
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.0		9.0	6.5-9.0	1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Monthly Average Minimum			Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD ₅ Percent Removal	%	1	65			65	1/month	monthly	M
TSS Percent Removal	%	1	65			65	1/month	monthly	M

* - Monitoring requirement only.

*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite

G = Grab

T = 24-hr. total

M = Measured/Calculated

Basis for Limitations Codes:

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

INTERNAL MONITORING POINT #IP3 – 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 (BOD₅).** Technology based effluent limitations [10 CSR 20-7.015] of 65 mg/L as a weekly average and 45 mg/L as a monthly average have been included in the permit due to the fact that effluent at this location is from the Neosho Crowder WWTP, which is a trickling filter.
- **Total Suspended Solids (TSS).** Technology based effluent limitations [10 CSR 20-7.015] of 65 mg/L as a weekly average and 45 mg/L as a monthly average have been included in the permit due to the fact that effluent at this location is from the Neosho Crowder WWTP, which is a trickling filter.
- **pH.** 6.0-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are required at this location in order to demonstrate that the Neosho Crowder WWTP is meeting the requirements of 10 CSR 20-7.015 prior to the mixing of effluents from Neosho Crowder WWTP and Neosho Shoal Creek WWTP.
- **Biochemical Oxygen Demand (BOD₅) Percent Removal.** In accordance with 40 CFR Part 133.102(a)(3) & (b)(3), 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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for BOD₅.
- **Total Suspended Solids (TSS) Percent Removal.** In accordance with 40 CFR Part 133.105(a)(3) & (b)(3), 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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for TSS.

Sampling Frequency Justification:

Sampling and reporting frequency has been established to match the sampling frequency in the previous permit.

Sampling Type Justification:

As per 10 CSR 20-7.015, BOD₅ and TSS samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH. This is due to the fact that pH cannot be preserved and must be sampled in the field.

INTERNAL MONITORING POINT #IP5 (TBEL MONITORING LOCATION FOR NEOSHO SHOAL CREEK WWTP)

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/day	monthly	T
BOD ₅	mg/L	1		45	30	***	1/week	monthly	C
TSS	mg/L	1		45	30	***	1/week	monthly	C
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.0		9.0	6.5-9.0	1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Monthly Average Minimum			Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD ₅ Percent Removal	%	1	85			85	1/month	monthly	M
TSS Percent Removal	%	1	85			85	1/month	monthly	M

* - Monitoring requirement only.

*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite

G = Grab

T = 24-hr. total

M = Measured/Calculated

Basis for Limitations Codes:

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

INTERNAL MONITORING POINT #IP5 – 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 (BOD₅).** Technology based effluent limitations [10 CSR 20-7.015] of 45 mg/L as a weekly average and 30 mg/L as a monthly average have been included in the permit due to the fact that effluent at this location is from the Neosho Shoal Creek WWTP.
- **Total Suspended Solids (TSS).** Technology based effluent limitations [10 CSR 20-7.015] of 45 mg/L as a weekly average and 30 mg/L as a monthly average have been included in the permit due to the fact that effluent at this location is from the Neosho Shoal Creek WWTP.
- **pH.** 6.0-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are required at this location in order to demonstrate that the Neosho Shoal Creek WWTP is meeting the requirements of 10 CSR 20-7.015 prior to the mixing of effluents from Neosho Crowder WWTP and Neosho Shoal Creek WWTP.
- **Biochemical Oxygen Demand (BOD₅) Percent Removal.** In accordance with 40 CFR Part 133.102(a)(3) & (b)(3), 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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD₅.
- **Total Suspended Solids (TSS) Percent Removal.** In accordance with 40 CFR Part 133.105(a)(3) & (b)(3), 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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

Sampling Frequency Justification:

Sampling and reporting frequency has been established to match the sampling frequency in the previous permit.

Sampling Type Justification:

As per 10 CSR 20-7.015, BOD₅ and TSS samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH. This is due to the fact that pH cannot be preserved and must be sampled in the field.

As total hardness samples must be immediately preserved; these samples are to be collected as a grab.

Part VIII – Cost Analysis for Compliance

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

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

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

Part IX – 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.

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 4th Quarter of calendar year 2017. If the department issues the permit at this time, the effective period of the permit would be less than one year in length. To ensure efficient use of department staff, reduce the department’s permitting back log and to provide better service to the permittee by avoiding another renewal application to be submitted in such a short time period this operating permit will be issued for the maximum timeframe of five years and synched with other permits in the watershed at a later date.

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 February 10, 2017 to March 13, 2017. No responses received.

DATE OF FACT SHEET: SEPTEMBER 27, 2016

REVISED: JANUARY 18, 2017

COMPLETED BY:

CAMERON EISTERHOLD, ENVIRONMENTAL SPECIALIST

MISSOURI DEPARTMENT OF NATURAL RESOURCES

WATER PROTECTION PROGRAM

OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT

(573) 751-7326

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Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	6
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	6
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	-
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	-
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	-
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT – Headworks		
Screening and/or comminution	3	3
Grit removal	3	-
Plant pumping of main flow (lift station at the headworks)	3	-
PRIMARY TREATMENT		
Primary clarifiers	5	5
Combined sedimentation/digestion	5	-
Chemical addition (except chlorine, enzymes)	4	-
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Push – button or visual methods for simple test such as pH, Settleable solids	3	-
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	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	-
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	-
Land Disposal – low rate	3	3
High rate	5	-
Overland flow	4	-
Total from page ONE (1)	----	31

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	-
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	-
Raw wastes subject to toxic waste discharge	6	-
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	10
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	-
Aerated lagoon	8	-
Advanced Waste Treatment Polishing Pond	2	-
Chemical/physical – without secondary	15	-
Chemical/physical – following secondary	10	-
Biological or chemical/biological	12	-
Carbon regeneration	4	-
DISINFECTION		
Chlorination or comparable	5	5
Dechlorination	2	2
On-site generation of disinfectant (except UV light)	5	-
UV light	4	4
SOLIDS HANDLING – SLUDGE		
Solids Handling Thickening	5	5
Anaerobic digestion	10	-
Aerobic digestion	6	6
Evaporative sludge drying	2	2
Mechanical dewatering	8	-
Solids reduction (incineration, wet oxidation)	12	-
Land application	6	6
Total from page TWO (2)	----	55
Total from page ONE (1)	---	31
Grand Total	---	86

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

APPENDIX – RPA RESULTS:

OUTFALL #001

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	120.45	1.5	117.33	27.00	21.9/0.027	2.30	5.50	YES
Total Ammonia as Nitrogen (Winter) mg/L	12.1	123.43	3.1	120.23	28.00	22.3/0.025	3.01	5.54	YES
Cadmium, Total Recoverable	8.2	4.30	0.4	4.29	19.00	3.4/0.25	0.47	1.26	YES
Chromium (III), Total Recoverable	<i>Over the previous five years, the permittee has reported non-detects which are less than the water quality standards.</i>								
Chromium (VI), Dissolved	15.0	6.11	10.0	6.10	19.00	5/0.005	0.40	1.22	NO
Copper, Total Recoverable	22.0	11.30	14.1	11.27	17.00	7.2/0.5	0.39	1.57	NO
Iron, Total Recoverable	NA	NA	1000.0	1216.94	14.00	308/18.5	1.12	3.96	YES
Lead, Total Recoverable	150.8	3.05	5.9	3.04	13.00	2.5/0.5	0.34	1.22	NO
Mercury, Total Recoverable	2.8	0.14	0.5	0.14	13.00	0.13/0.1	0.08	1.05	NO
Nickel, Total Recoverable	706.1	6.74	78.5	6.72	17.00	4.7/1.3	0.29	1.43	NO
Selenium, Total Recoverable	NA	NA	5.0	13.07	47.00	7/0.15	1.54	1.87	YES
Zinc, Total Recoverable	180.7	178.71	179.2	178.28	20.00	94.2/10.6	0.52	1.90	NO
Phenol	10200.0	6612.76	2560.0	6596.80	10.00	520/0.025	2.54	12.72	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.

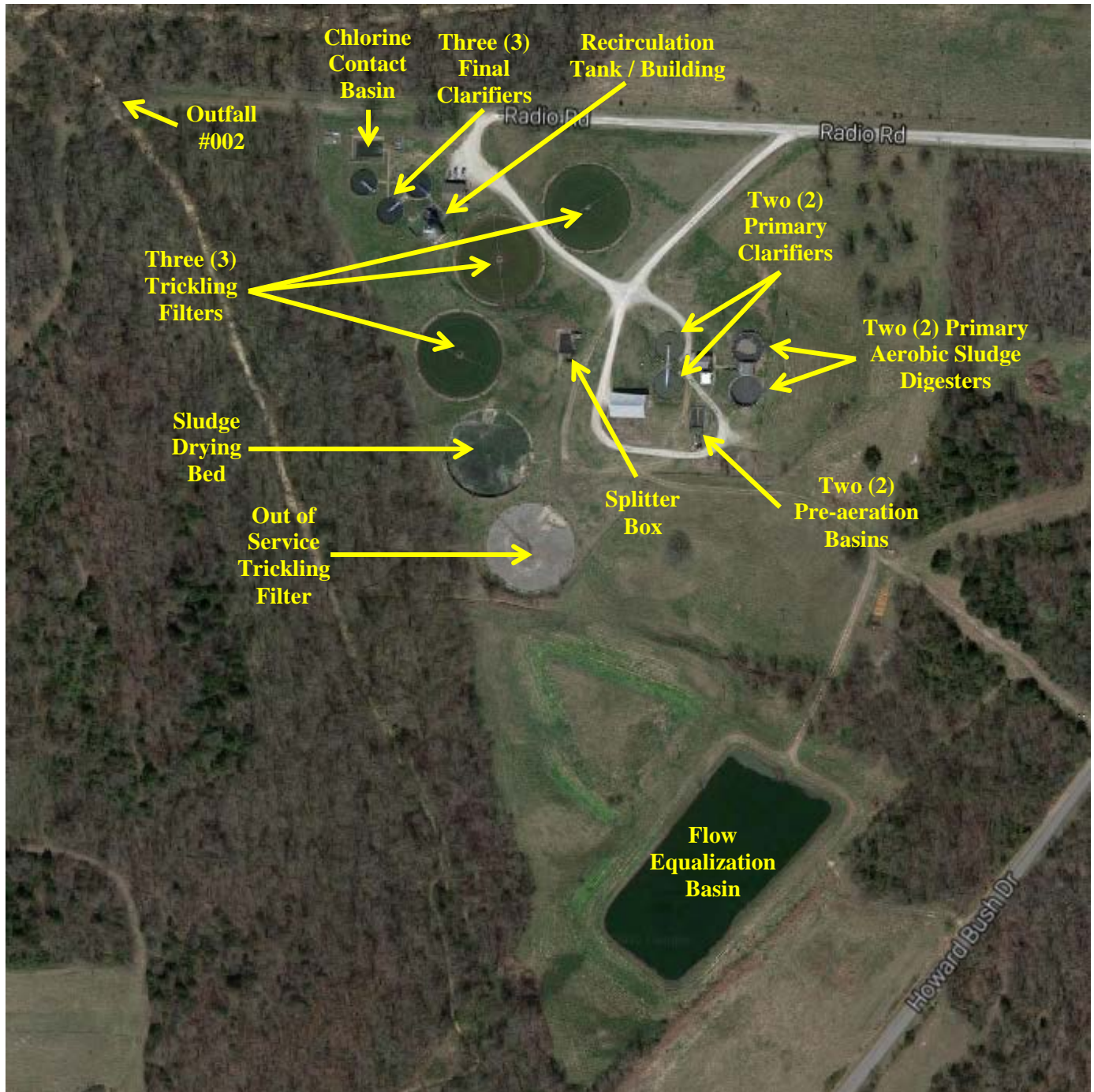
RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

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.

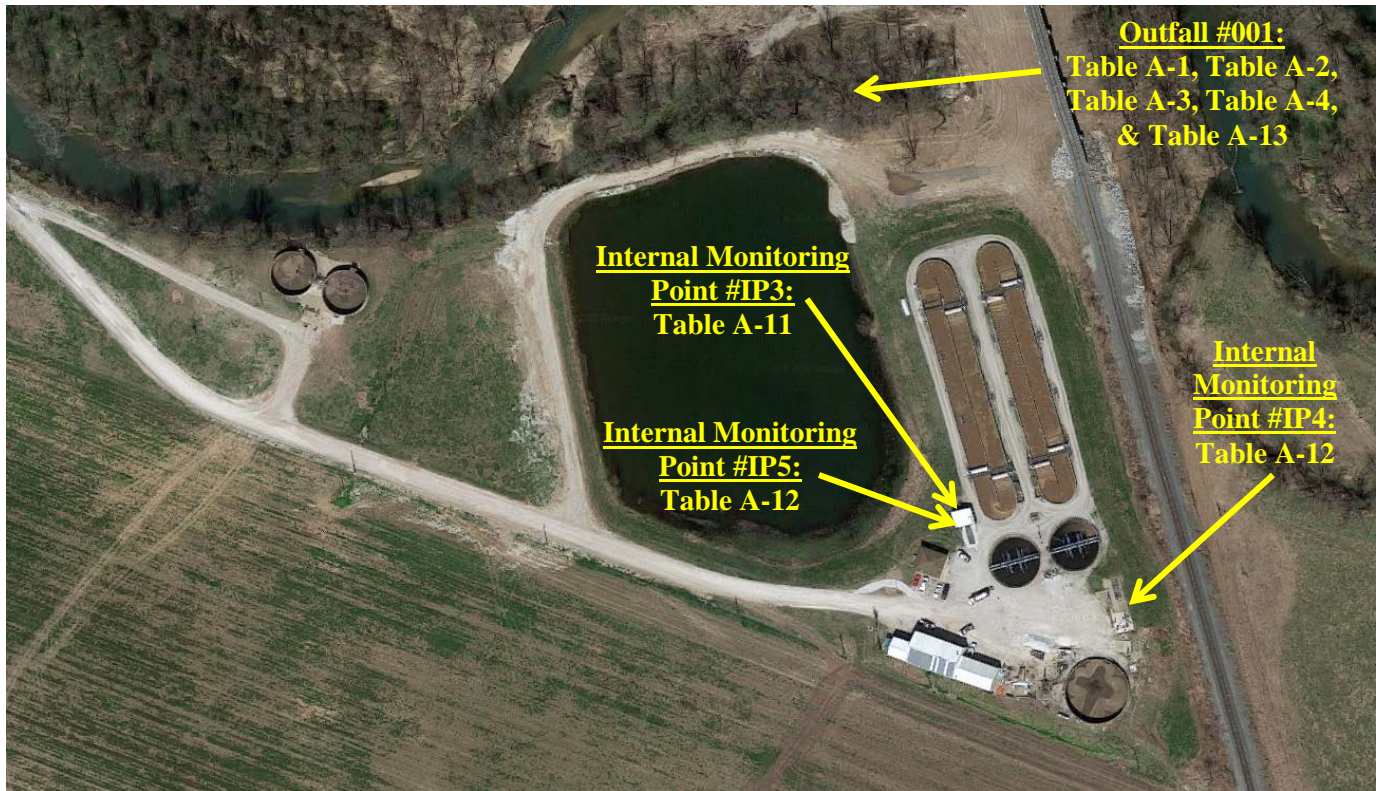
APPENDIX – ALTERNATIVE: FACILITY AERIAL FOR SHOAL CREEK WWTP



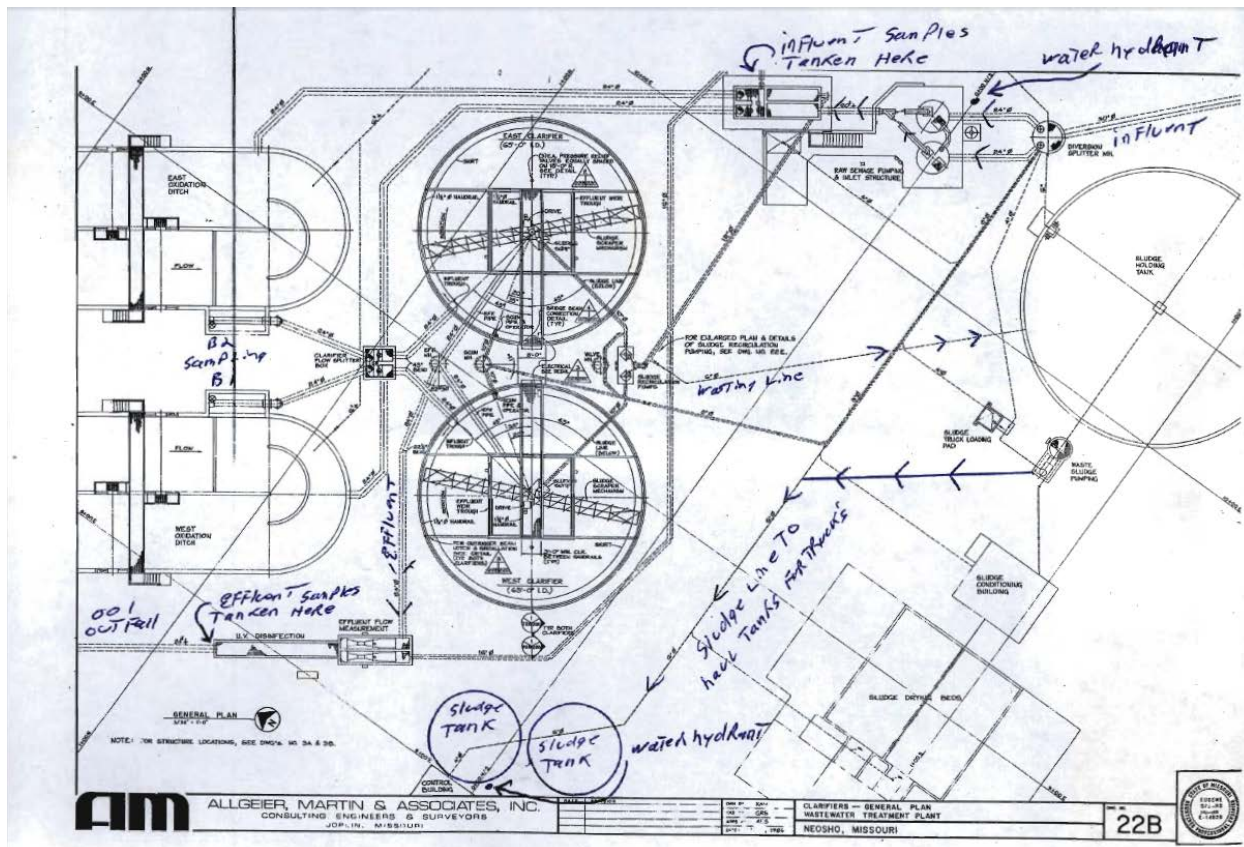
APPENDIX – ALTERNATIVE: FACILITY AERIAL FOR NEOSHO CROWDER WWTP



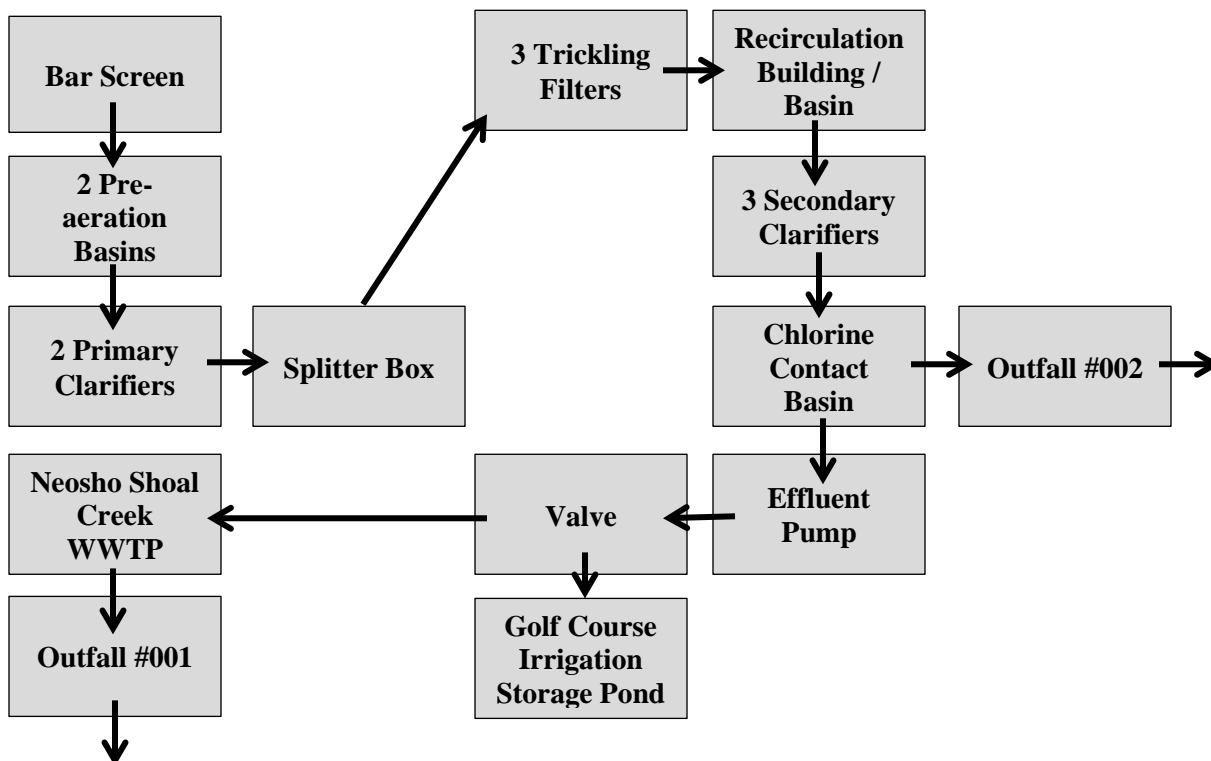
APPENDIX – ALTERNATIVE: MONITORING LOCATIONS AND ASSOCIATED TABLES



APPENDIX – ALTERNATIVE: PROCESS FLOW DIAGRAM FOR NEOSHO SHOAL CREEK WWTP



APPENDIX – ALTERNATIVE: PROCESS FLOW DIAGRAM FOR NEOSHO CROWDER WWTP



APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

**Neosho Wastewater Treatment Plant, Permit Renewal
City of Neosho
Missouri State Operating Permit #MO-0104906**

Section 644.145 RSMo requires the Department of Natural Resources (DNR) 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 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 DNR website (<http://dnr.mo.gov/forms/780-2511-f.pdf>) should have been submitted with the permit renewal application. If it was not received with the renewal application, the Department sent a request to complete it with the welcome letter. The Department currently uses software to estimate the cost for reconstruction of a treatment plant titled CAPDEWORKS (CapDet). CapDet is a preliminary design and costing software program from Hydromantis¹ for wastewater treatment plants that uses national indices, such as the Marshall and Swift Index and Engineering News Records Cost Index for pricing in development of capital, operating, maintenance, material, and energy costs for each treatment technology. As the program works from national indices and each community is unique in its budget commitments and treatment design, the estimated costs are expected to be higher than actual costs. The cost estimates located within this document are for the construction of a brand new treatment facility or system that is the most practical to facilitate compliance with new requirements. 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 Department is required to issue a permit with final effluent limits in accordance with 644.051.1.(1) RSMo, 644.051.1.(2) RSMo, and the Clean Water Act. The table below summarizes the results of this cost analysis for the City of Neosho. The practical result of this analysis is to incorporate a long compliance schedule into the permit in order to mitigate adverse impact to distressed populations resulting from the costs of upgrading the wastewater treatment facility.

Cost Analysis for Compliance Summary Table		
Estimated present worth for adding chemical addition for phosphorus removal at Outfall #002	Median Household Income (MHI) for the City of Neosho	Estimated monthly cost per user as a percent of MHI (including estimated costs per user per month for additional monitoring requirements)
\$841,000	\$36,422	0.79%

Facility Description:

This permit includes two wastewater treatment facilities which serve the City of Neosho. These facilities were previously permitted separately – Neosho Crowder WWTP (MO-0039926) and Neosho Shoal Creek WWTP (MO-0104906). During normal operations at the Neosho Crowder WWTP, effluent is sent to the Neosho Shoal Creek WWTP, where effluent from the two plants mix together prior to the ultraviolet disinfection unit at the Neosho Shoal Creek WWTP. Therefore, it has been determined by the permit writer that combining the two permits into one permit is appropriate.

Outfall #001 – Main Facility Outfall at Neosho Shoal Creek WWTP – POTW – SIC #4952

Flow equalization basin / bar screen / 2 oxidation ditches / 2 final clarifiers / ultraviolet disinfection / aerobic sludge digester / 2 aerated sludge holding basins / sludge is land applied.

Outfall #002 – Discharge at Neosho Crowder WWTP (previously permitted as Outfall #001 in MO-0039926) – POTW – SIC #4952

Flow equalization basin / bar screen / 2 pre-aeration basins / 2 primary clarifiers / 3 trickling filters / recirculation basin / 3 secondary clarifiers / chlorine disinfection / chlorine contact basin / dechlorination / 2 primary aerobic sludge digesters / sludge drying bed / sludge is land applied.

Facility Description (continued):

Flow evaluated for potential construction projects:

Design flow of 3.0 MGD (Neosho Crowder WWTP design flow only – Outfall #002 is the only location required to meet a total phosphorus effluent limitation).

City of Neosho Total Number of Connections: Neosho Shoal Creek WWTP & Neosho Crowder WWTP	
Residential Connections:	4,246
Commercial Connections:	Not provided by applicant.
Industrial Connections:	132
Total Connections for this facility:	4,378

New Permit Requirements:

The permit requires compliance at Outfall #002 with new effluent limitations for total phosphorus, which may require the design, construction and operation of different treatment technology. The cost assumptions in this cost analysis do not assume the complete replacement of the existing facility, rather that if construction does occur, it will be in addition to the current facility. To calculate the estimated user cost per 5,000 gallons, the Department used the equations currently being used in the Financial Assistance Center's rate calculator. The equations account for replacement of equipment during the life of the treatment facility, debt retirement, capital costs, and an inflation factor. The calculator evaluates multiple technologies through CapDet at a range of flows, then, using a linear interpolation, develops a spreadsheet outlining high and low costs for treatment plants. For this analysis the Department has selected the mechanical treatment technology that could be the most practical solution to meet the new requirements for the community. Because the methods used to derive the analysis estimate costs that are greater than actual costs associated with an upgrade, it reflects a conservative estimate anticipated for a community. An overestimation of costs is due to the fact that it is not possible for the permit writer to determine what existing equipment and structures will be reused in the upgraded facility before an engineer completes a facility design.

This permit also requires compliance with new monitoring requirements illustrated in the table below.

Permitted Feature	New Monitoring Requirements Included in the Permit
Outfall #001	New quarterly monitoring requirements for total nitrogen and total phosphorus and new requirements to conduct a Chronic Whole Effluent Toxicity (WET) test once during the permit cycle.
Outfall #002	New daily monitoring for total phosphorus and new quarterly monitoring requirements for total nitrogen, total recoverable iron, and total recoverable selenium.
Internal Monitoring Point #IP2	New quarterly monitoring requirements for total nitrogen, total phosphorus, total recoverable iron, and total recoverable selenium.
Internal Monitoring Point #IP4	Increased influent monitoring requirements for Biochemical Oxygen Demand ₅ and Total Suspended Solids from once/quarter to once/month.
Instream (Upstream) Monitoring Location #SM1	New quarterly monitoring requirements for total nitrogen and total phosphorus.
Instream (Downstream) Monitoring Location #SM2	New quarterly monitoring requirements for total hardness.
Additional Requirements	New requirements that the permittee shall implement a Stormwater Pollution Prevention Plan (SWPPP).

The size of the facility evaluated for upgrades was chosen based on the permitted design flow. If significant population growth is expected in the community, or if a significant portion of the flow is due to I&I, the flows used in the Facility Plan prepared by a consulting engineer may be different than this flow.

Anticipated Costs Associated with Complying with the New Requirements:

Cost associated with chemical addition for phosphorus removal:

The total present worth to add chemical addition treatment for phosphorus removal is estimated at \$841,000 (*CAPDETWORKS cost estimator was used*). This cost, if financed through user fees, might cost each household approximately \$0.97 per month. Due to the design limitations in the CapDet cost estimator, these costs have been over estimated. It is the Department's opinion that chemical addition for phosphorus removal is the most practical treatment technology for your community based on the current design flow. A more detailed engineering and design report conducted for your specific facility will be completed by your hired engineer. This may reflect a different type of treatment option than what is described within this analysis and may include additional collection system work or additional upgrades at the treatment plant.

Cost associated with new sampling requirements:

Permitted Feature	Total Annual Cost of New Monitoring Requirements
Outfall #001	\$698.00
Outfall #002	\$688.00
Internal Monitoring Point #IP2	\$688.00
Internal Monitoring Point #IP4	\$684.00
Instream (Upstream) Monitoring Location #SM1	\$388.00
Instream (Downstream) Monitoring Location #SM2	\$188.00
Additional Requirements – SWPPP	\$2,000.00
Total Annual Cost	\$5,334.00

The total cost estimated for new monitoring requirements is \$5,334.00 annually. This cost, if financed through user fees, might cost each household an extra \$0.10 per month. A community sets their user rates based on several factors. The percentage of the current user rate that is available to cover new debt is unknown to the Department. Therefore, the permit writer has added this additional sampling cost per user per month to the estimated resulting user cost per household per month in Table B below.

This cost analysis does not dictate that a permittee will upgrade their facility, or how they will comply with the new permit requirements. For any questions associated with the *CAPDEWORKS cost estimator*, please contact the Engineering Section at (573) 751-6621.

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

Current Monthly User Rates:	\$22.83
Rate Capacity or Pay as You Go Option:	Not provided by the applicant.
Municipal Bond Rating (if applicable):	Not provided by the applicant.
Bonding Capacity: (General Obligation Bond capacity allowed by constitution: cities=up to 20% of taxable tangible property sewer districts or villages=up to 5% of taxable tangible property)	Not provided by the applicant.
Current outstanding debt for the WWTP:	Not provided by the applicant.
Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	Not provided by the applicant.

Though the Department has made attempts to gather financial information from the City of Neosho; no information has been provided. The Department has relied heavily on readily available data to complete this analysis.

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

A Current Costs

Current annual operating costs (exclude depreciation):	Not provided by the applicant.
Current monthly user rate:	\$22.83

B Estimated Costs for Chemical Addition for Phosphorus Removal Control Option

Estimated total present worth of pollution control:*	\$841,000
Estimated capital cost of pollution control:**	\$301,000
Annual cost of operation and maintenance:***	\$27,000
Estimated additional user cost per household per month for chemical addition for phosphorus removal:	\$0.97
Estimated additional user cost per household per month for new monitoring requirements:	\$0.10
Estimated resulting user cost per household per month:****	\$23.90
Estimated resulting user cost per household per month plus the amount within the current user rate used toward payments on outstanding debt:	The community did not provide the Department with information regarding the current outstanding debt.
Median household income(MHI): ²	\$36,422
Cost per household as a percent of median household income: ³	0.79%
Estimated cost per household per month plus the amount within the current user rate used toward payments on outstanding debt as a percent of median household income: ⁴	The community did not provide the Department with information regarding the current outstanding debt.

CAPDET estimates the total present worth to finance the addition of chemical addition for phosphorus removal to be approximately \$841,000. If financed through user costs, the future user costs have the potential to be estimated at \$23.90 per month, which includes the estimated costs per user per month for additional monitoring requirements. These costs assume a 5% interest rate over 20 years. It is the Department's opinion that chemical addition for phosphorus removal is the most practical mechanical treatment option for the design flow of this facility.

The resulting cost per household as a percent of MHI will be used as the residential indicator in Criteria 7 below.

- * Total Present Worth includes a five percent interest rate to construct and perform annual operation and maintenance of the new treatment plant over the term of the loan.
- ** Capital Cost includes project costs from CapDet with design, inspection and contingency costs.
- *** O&M cost shown in Table B includes operations, maintenance, materials, chemical and electrical costs for the facility on an annual basis. It includes items that are expected to replace during operations, such as pumps. O&M is estimated between 15% and 45% of the user cost.
- **** The Estimated User Cost shown in Table B is composed of the Current User Rate plus Operation & Maintenance (O&M) plus Debt Retirement Costs plus the estimated additional user cost per household per month for new monitoring requirements (\$22.83 + \$0.97 + \$0.10 = \$23.90).

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

The investment in wastewater treatment will provide several social, environmental and economic benefits. 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 fulfill the goals of restoring and maintaining the chemical, physical and biological integrity of the receiving stream; and, where attainable, to achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife and recreation in and on the water.

Nutrient Monitoring

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

Total Recoverable Metals

Total recoverable metals can cause water quality issues instream. Monitoring requirements and effluent limitations will ensure the protection and propagation of fish, shellfish, wildlife and recreation in and on the water.

Total Hardness

This permit contains final effluent limitations for total recoverable hardness dependent metals. Quarterly hardness monitoring will ensure the facility does not exceed water quality standards for total recoverable metals by utilizing a site-specific hardness in final effluent limitation derivations.

Whole Effluent Toxicity (WET) test

The WET Test is a quantifiable method of determining if discharge from a facility may be causing toxicity to aquatic life by itself or in combination with receiving stream water. WET tests are required under 10 CSR 20-6.010(8)(A)4 to be performed by specialists properly trained in conducting the test according to 40 CFR 136. This test will help ensure that the existing permit limits are providing adequate protection for aquatic life at minimal expense to the permittee.

Stormwater Pollution Prevention Plan

Stormwater runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces such as buildings, parking lots, and roads, the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads. Stormwater runoff picks up industrial pollutants and typically discharges them directly into nearby waterbodies or indirectly via storm sewer systems. Runoff from areas where industrial activities occur can contain toxic pollutants (e.g., heavy metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease, when facility practices allow exposure of industrial materials to stormwater. This increased flow and pollutant load can impair waterbodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes to the receiving water, such as channel erosion. Industrial facilities typically perform a portion of their activities in outdoor areas exposed to the elements. This may include activities such as material storage and handling, vehicle fueling and maintenance, shipping and receiving, and salt storage, all of which can result in pollutants being exposed to precipitation and capable of being carried off in stormwater runoff. Also, facilities may have performed industrial activities outdoors in the past and materials from those activities still remain exposed to precipitation. In addition, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into stormwater runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or stormwater control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

(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 did not provide the Department with information, nor could it be found through readily available data.

(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.

Socioeconomic Data^{5-13:}

Potentially Distressed Populations – City of Neosho	
Total Population (2015)	12,102
Percent Population Growth/Decline (2000-2015)	+15.2%
2015 MHI (in First-Half-of-2016 Dollar)	\$36,422
Percent Change in MHI (2000-2015)	-15.72%
Median Age (2015)	34.2
Percent Change in Median Age (2000-2015)	-3.1%
Unemployment Rate (2015)	4.3%
Percent of Households in Poverty (2015)	20.2%
Percent of Households Receiving Food Stamps (2015)	19.3%

Opportunity for cost savings or cost avoidance:

- If available, connection to a larger centralized sewer system in the area may be more cost effective for the community.
- An opportunity may exist for the relocation of the point of discharge to a receiving stream capable of a greater mixing zone.
- The permittee may apply for State Revolving Fund (SRF) financial support in order to help fund a Capital Improvements Plan. Other loans and grants also exist for which the facility may be eligible. Contact information for the Department's Financial Assistance Center (FAC) and more information can be found on the Department's website at <http://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm>.

Opportunity for changes to implementation/compliance schedule, new technology, site specific criteria, use attainability analysis:

- The facility may propose changes to the schedule of compliance based on their own cost estimate or financial information.
- An integrated plan may be an appropriate option if they community needs to meet other environmental obligations as well as the new requirements within this permit. The integrated plan needs to be well thought out with specific timeframes built into the management plan that the municipality can reasonably commit to. The plan should be designed that will allow each municipality to meet their Clean Water Act obligations by maximizing their infrastructure improvement dollars through the appropriate sequencing of work.
- If the permittee can demonstrate that the proposed pollution controls result in substantial and widespread economic and social impact, the permittee may use Factor 6 of the Use Attainability Analysis (UAA) 40 CFR 131.10(g)(6) in the form of a variance. This process is completed by determining the treatment type with the highest attainable effluent quality that would not result in a socio-economic hardship. This process could potentially become expensive in itself.

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

The community did not provide the Department with information, nor could it be found through readily available data.

- (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;

Secondary indicators for consideration:

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond Rating Indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	Not provided by the applicant.
Overall Net Debt as a % of Full Market Property Value	Below 2%	2% - 5%	Above 5%	Not provided by the applicant.
Unemployment Rate	>1 below Missouri average of 8.1%	± 1 of Missouri average of 8.1%	>1 above Missouri average of 8.1%	3
Median Household Income	More than 25% above Missouri MHI (\$48,380)	± 25% of Missouri MHI (\$48,380)	More than 25% below Missouri MHI (\$48,380)	2
Percent of Households in Poverty*	>10% below Missouri average of 15.6%	± 10% of Missouri average of 15.6%	>10% above Missouri average of 15.6%	2
Percent of Households Receiving Food Stamps*	>5% below Missouri average of 13.5%	± 5% of Missouri average of 13.5%	>5% above Missouri average of 13.5%	1
Property Tax Revenues as a % of Full Market Property Value	Below 2%	2% - 4%	Above 4%	Not provided by the applicant.
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%	Not provided by the applicant.

* Financial Capability Indicators are specific to the State of Missouri

Financial Capability (FCI) Indicators Average Score: 2.0
Chemical Addition for Phosphorus Removal Residential Indicator (RI, from Criteria #2 above): 0.79%

Financial Capability Matrix:

Financial Capability Indicators Score from above ↓	Residential Indicator (User cost as a % of MHI)		
	Low (Below 1%)	Mid-Range (Between 1.0% and 2.0%)	High (Above 2.0%)
Weak (below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden (Chemical Addition for Phosphorus Removal)	Medium Burden	High Burden
Strong (above 2.5)	Low Burden	Medium Burden	High Burden

Estimated Financial Burden for Chemical Addition for Phosphorus Removal: Low Burden

The resulting financial burden has been determined by comparing the Financial Capability Indicator score (FCI) with the Residential Indicator (RI) stated in Criteria #2. The cost associated with chemical addition for phosphorus removal could result in a Low financial burden placed on the community due to the Mid-Range FCI paired with the Low RI. Please see Criteria #2 for more information on the costs specific this treatment technology.

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

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

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 upgrade the facility, construct new control technologies, and to increase monitoring.

The Department considered the eight (8) criteria presented in subsection 644.145.3 when evaluating the cost associated with the relevant actions. The Department estimates the resulting monthly user costs for adding chemical addition to the existing treatment facility in order to meet new total phosphorus effluent limitations at Outfall #002 plus new and increased monitoring requirements could be \$23.90. Using this analysis, the Department finds that chemical addition for phosphorus removal is the most practical and affordable option for your community. The construction and operation of chemical addition for phosphorus removal will ensure that the individuals within the community will not be required to make unreasonable sacrifices in their essential lifestyle or spending patterns or undergo hardships in order to make the projected monthly payments for sewer connections. The Department finds that chemical addition for phosphorus removal may require user costs to be as high as 0.79% of the community's MHI (shown in Criteria #2).

In accordance with 40 CFR § 122.47(a)(1) and 10 CSR 20-7.031(11), compliance must occur as soon as possible. Therefore, based on this analysis the City of Neosho has received a five (5) year schedule of compliance for the design and construction of chemical addition for phosphorus removal. The following timeline illustrates milestones on which the five (5) year schedule of compliance should focus to maintain compliance with the permit requirements.

Timeline 1: (not drawn to scale)

5 Year Renewal

Year 1	Year 2	Year 3	Year 4	Year 5

Five (5) year Schedule of Compliance

20 year Estimated Life of Facility

Suggested milestones to meet within each year listed below:

- Year 1. Hire an engineer and conduct an evaluation of both the rate structure and the treatment plant.
- Year 2. Hold a bond election, apply for State Revolving Fund loans and/or grants, and submit a facility plan.
- Year 3. Apply for a Construction Permit and close on the loan.
- Year 4. Construction. The facility should also submit an application for renewal of the existing operating permit with new financial and socio-economic data.
- Year 5. Complete construction.

The schedule of compliance allows the community the five years to hire an engineer, evaluate operations and rate structure, obtain an engineering report, hold a bond election, close on a loan, construct the facility upgrades, and complete the project. At this time the community will know what the user rates will be based on the present worth of the chosen treatment type decided on by the community and the design engineer hired by the community. It is anticipated by the Department that rates will be increased at the end of the permit cycle to mitigate the cost of compliance of the new requirements.

The Department is committed to reassessing the cost analysis for compliance at renewal to determine if the initial schedule of compliance will accommodate the socioeconomic data and financial capability of the community at that time. In this longer time frame, the Department will work with you to explore the wastewater treatment options that make the most sense for your community. By working more closely with your community, the Department and permittees will be able to identify opportunities to extend the schedule of compliance, if appropriate. Because each community is unique, we want to make sure that you have the opportunity to consider all your options and tailor solutions to best meet your community's needs. The Department understands the economic challenges associated with achieving compliance, and is committed to using all available tools to make an accurate and practical finding of affordability for the communities in the State. If the community wishes to seek funding from the Department, please contact the Financial Assistance Center for more information. <http://www.dnr.mo.gov/env/Wpp/srf/index.html>

This determination is based on readily available data and may overestimate the financial impact on the community. The community's facility plan that is submitted as a part of the construction permit process includes a discussion of community details, what the community can afford, existing obligations, future growth potential, an evaluation of options available to the community with cost information, and a discussion on no-discharge alternatives. The cost information provided through the facility plan process, which is developed by the community and their engineer, is more comprehensive of the community's individual factors in relation to selected treatment technology and costing information.

References:

Additional Information Regarding New Costs	
Current User Costs / 5,000 gallons	\$22.83
Monthly O&M	$((\$27,000 / 12 \text{ months}) / 4,378 \text{ users}) = \0.51
Annual Debt Retirement	\$24,153
Monthly Debt Retirement per user	$((\$24,153 / 12 \text{ months}) / 4,378 \text{ users}) = \0.46
Estimated User Costs / 5,000 gallons	$\$0.51 + \$0.46 = \mathbf{\$0.97}$
Monthly New Sampling / User	$((\$5,334.00 / 4,378 \text{ users}) / 12 \text{ months}) = \mathbf{\$0.10}$
Estimated User Costs including Monthly New Sampling / 5,000 gallons	$\$22.83 + \$0.97 + \$0.10 = \mathbf{\$23.90}$

1. <http://www.hydromantis.com/>
2. U.S. Census Bureau. 2010-2015 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2015 Inflation-Adjusted Dollars).
http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B19013&prodType=table. U.S. Department of Labor Bureau of Labor Statistics (2016) Consumer Price Index - All Urban Consumers, All items, 1982-84=100, Midwest Urban Areas. http://data.bls.gov/timeseries/CUUR0300SA0?data_tool=Xgtable.
3. $(\$23.90/(\$36,422/12))100\% = 0.79\%$ (chemical addition for phosphorus removal)
4. Outstanding debt was not provided by the community
5. U.S. Census Bureau. 2011-2015 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_15_5YR_B01003&prodType=table.
6. U.S. 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>. U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. <http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.
7. U.S. Census Bureau. 2010-2015 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2015 Inflation-Adjusted Dollars).
http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B19013&prodType=table.
8. U.S. 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., Page 5. <https://www.census.gov/prod/cen2000/phc-2-1-pt1.pdf>. U.S. 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., Pages 223-237. <https://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.
9. U.S. Department of Labor Bureau of Labor Statistics (2016) Consumer Price Index - All Urban Consumers, U.S. City Average, All items, 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable. U.S. Department of Labor Bureau of Labor Statistics (2016) Consumer Price Index - All Urban Consumers, All items, 1982-84=100, Midwest Urban Areas. http://data.bls.gov/timeseries/CUUR0300SA0?data_tool=Xgtable.
10. U.S. Census Bureau. 2011-2015 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_15_5YR_B01002&prodType=table.
11. U.S. 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>. U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. <http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.
12. U.S. Census Bureau. 2011-2015 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_15_5YR_B23025&prodType=table.
13. U.S. Census Bureau. 2011-2015 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_15_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.



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- 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.
- 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 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.

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



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- 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 permittee 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.



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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.



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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

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

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address the federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
 - a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
 - b. The permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
 - c. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
4. Sludge Received from other Facilities:
 - a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
 - b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to STANDARD CONDITIONS, the Department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.

Where deemed appropriate, the Department may require an individual site specific permit in order to authorize alternate limitations:

 - a. A site specific permit must be obtained for each operating location, including application sites.
 - b. To request a site specific permit, an individual permit application, permit fee, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the Department, as follows:
 - a. The Department will prepare a permit modification and follow permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owner of the property located adjacent to each land application site, where appropriate.
 - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.

SECTION B – DEFINITIONS

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

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E – INCINERATION OF SLUDGE

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

SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

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

SECTION G – LAND APPLICATION

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

5. Public Contact Sites:

Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the Department after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.

- a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
- b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.

6. Agricultural and Silvicultural Sites:

Septage – Based on Water Quality guide 422 (WQ422) published by the University of Missouri

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

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

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

TABLE 1

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

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

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

TABLE 2

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

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

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

TABLE 3

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

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

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

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

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

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

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

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

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

- a. Use best management practices when applying biosolids.
- b. Biosolids cannot discharge from the land application site
- c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
- d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
- e. Do not apply more than the agronomic rate of nitrogen needed.
- f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.
 - i. PAN can be determined as follows and is in accordance with WQ426
(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor¹).
¹ Volatilization factor is 0.7 for surface application and 1 for subsurface application.
- g. Buffer zones are as follows:
 - i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
 - ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
 - iii. 150 feet if dwellings;
 - iv. 100 feet of wetlands or permanent flowing streams;
 - v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
- h. Slope limitation for application sites are as follows;
 - i. A slope 0 to 6 percent has no rate limitation
 - ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels
 - iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
- i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
- j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the Department.
- k. Biosolids / sludge applicators must keep detailed records up to five years.

SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the Department. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6.010 and 10 CSR 20 – 6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
 - a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
 - b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
 - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre.
 - i. PAN can be determined as follows:
$$(\text{Nitrate} + \text{nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor}^1).$$

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

SECTION I – MONITORING FREQUENCY

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

TABLE 5

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

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

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

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

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

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids.

This data shall be used to calculate the dry tons of sludge applied per acre.

Note 2: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.

Note 3: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

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

SECTION J – RECORD KEEPING AND REPORTING REQUIREMENTS

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

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

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

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

5. Annual report contents. The annual report shall include the following:
- a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the permit.
 - b. Sludge or biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at the end of the year, and the quantity used or disposed.
 - c. Gallons and % solids data used to calculate the dry ton amounts.
 - d. Description of any unusual operating conditions.
 - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
 - i. This must include the name, address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
 - ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
 - f. Contract Hauler Activities:

If contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge or biosolids use permit.
 - g. Land Application Sites:
 - i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
 - ii. If the "Low Metals" criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
 - iii. Report the method used for compliance with pathogen and vector attraction requirements.
 - iv. Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

JUL 18 2016



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

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

Shoal Creek Neosho MO.

PERMIT NO.

MO 0104906

COUNTY

Newton

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

RECEIVED

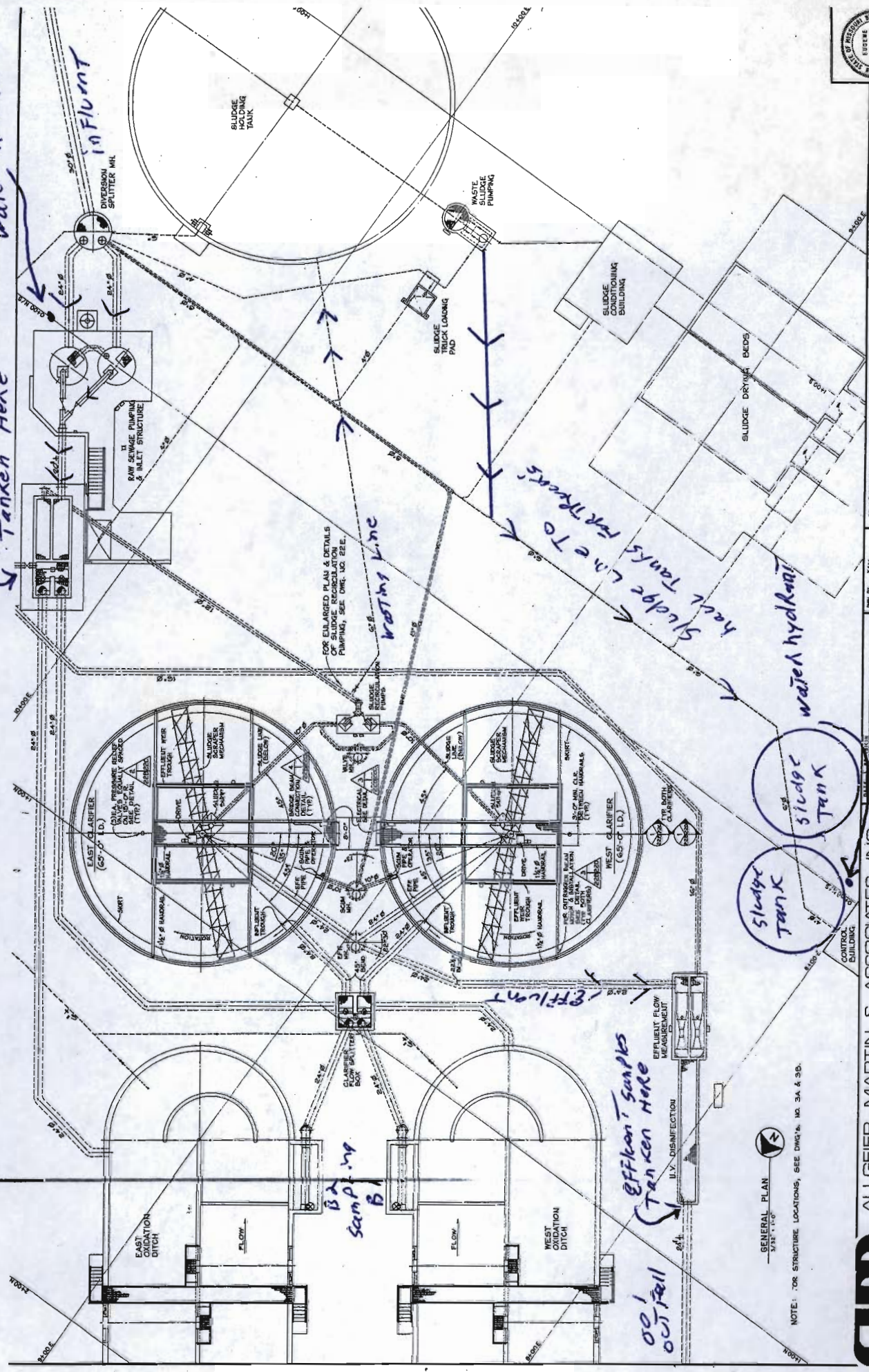
JUL 18 2016

 MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH FORM B2 – APPLICATION FOR AN OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY		Water Protection Program		FOR AGENCY USE ONLY CHECK NUMBER _____ DATE RECEIVED <u>7/18/16</u> FEE SUBMITTED <u>08B</u>	
PART A – BASIC APPLICATION INFORMATION					
1. THIS APPLICATION IS FOR:					
<input type="checkbox"/> An operating permit for a new or unpermitted facility. Construction Permit # _____ (Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions) <input checked="" type="checkbox"/> An operating permit renewal: Permit #MO- <u>0104906</u> Expiration Date <u>12/31/2016</u> <input type="checkbox"/> An operating permit modification: Permit #MO- _____ Reason: _____					
1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? <input type="checkbox"/> YES <input type="checkbox"/> NO					
2. FACILITY					
NAME Shoal Creek				TELEPHONE NUMBER WITH AREA CODE 417-451-8080	
ADDRESS (PHYSICAL) 2201 OLD scenic DR		CITY Neosho		STATE MO	ZIP CODE 64850
2.1 LEGAL DESCRIPTION (Facility Site): NE ¼, NE ¼, ¼, Sec. 13, T 25n, R 32W					COUNTY Newton
2.2 UTM Coordinates Easting (X): <u>377635</u> Northing (Y): <u>4083914</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)					
2.3 Name of receiving stream: Shoal Creek					
2.4 Number of Outfalls: 1 wastewater outfalls, 1 stormwater outfalls, 0 instream monitoring sites					
3. OWNER					
NAME City of Neosho		EMAIL ADDRESS		TELEPHONE NUMBER WITH AREA CODE 417-451-8080	
ADDRESS 203 East Main St		CITY Neosho		STATE MO	ZIP CODE 64850
3.1 Request review of draft permit prior to Public Notice? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
3.2 Are you a Publically Owned Treatment Works (POTW)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If yes, is the Financial Questionnaire attached? <input type="checkbox"/> YES <input type="checkbox"/> NO					
3.3 Are you a Privately Owned Treatment Facility? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
3.4 Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.					
NAME City of Neosho		EMAIL ADDRESS kbrady@alliancewater.com		TELEPHONE NUMBER WITH AREA CODE 417-451-8080	
ADDRESS 203 E Main		CITY Neosho		STATE MO	ZIP CODE 64850
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 Tim E Parvin		TITLE Operator		CERTIFICATE NUMBER (IF APPLICABLE) 9806	
EMAIL ADDRESS Shoalcreek@alliancewater.com		TELEPHONE NUMBER WITH AREA CODE 417-451-8080			
6. FACILITY CONTACT					
NAME Ken Brady		TITLE Local Manager			
EMAIL ADDRESS kbrady@alliancewater.com		TELEPHONE NUMBER WITH AREA CODE 417-451-8080			
ADDRESS 15318 Kentucky Rd		CITY Neosho		STATE MO	ZIP CODE 64850

FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001
PART A – BASIC APPLICATION INFORMATION		
7. FACILITY INFORMATION		
<p>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.</p> <p>See Attachments.</p>		

Influent Samples Taken Here

water hydrant



GENERAL PLAN
5/12/11

NOTE: FOR STRUCTURE LOCATIONS, SEE DWG. NO. 3A & 3B.



ALLGIEIER, MARTIN & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
JOP., IN. MISSOURI

CLARIFIERS - GENERAL PLAN
WASTEWATER TREATMENT PLANT
NEOSHO, MISSOURI

22B

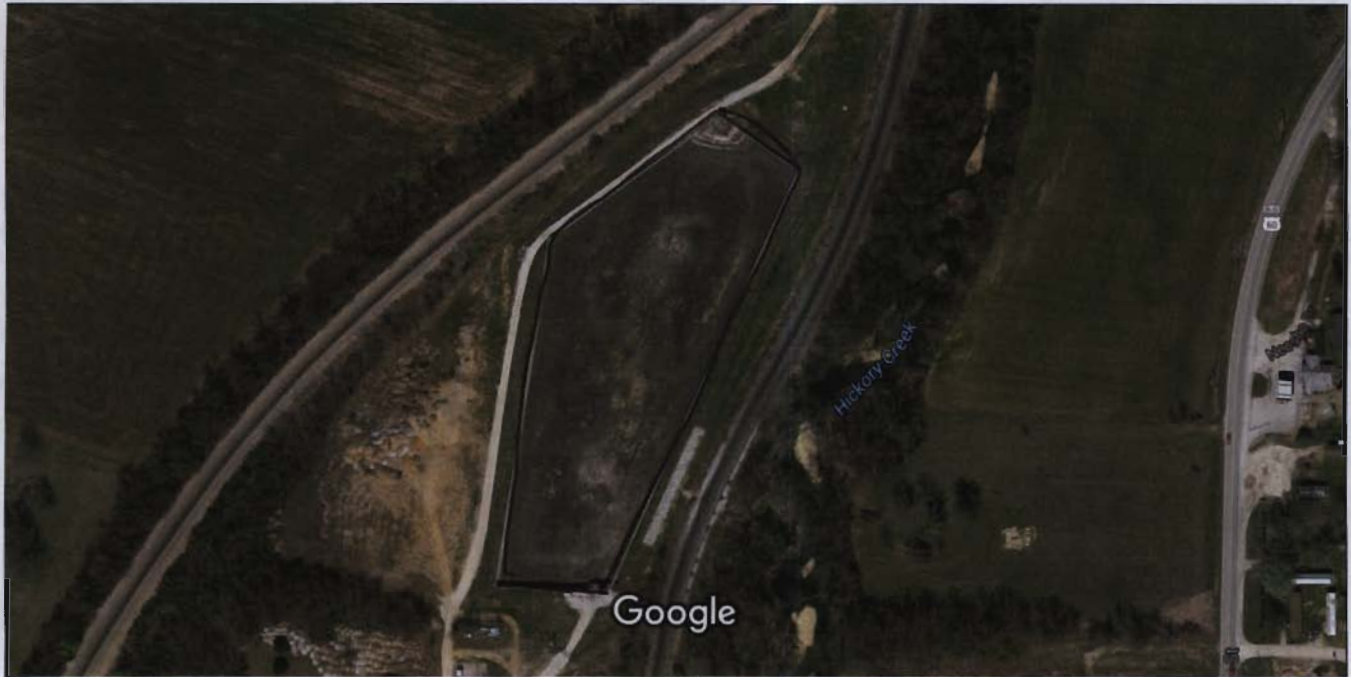
FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001
PART A – BASIC APPLICATION INFORMATION		
7. FACILITY INFORMATION (continued)		
<p>7.2 Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information.</p> <ul style="list-style-type: none"> a. The area surrounding the treatment plant, including all unit processes. b. The location of the downstream landowner(s). (See Item 10.) c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. d. The actual point of discharge. e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed. g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed. 		
<p>7.3 Facility SIC Code: <u>4952</u></p>	<p>Discharge SIC Code: <u>4952</u></p>	
<p>7.4 Number of people presently connected or population equivalent (P.E.): <u>12,000</u> Design P.E. <u>30,000</u></p>		
<p>7.5 Connections to the facility:</p> <p>Number of units presently connected:</p> <p>Homes <u>4800</u> Trailers _____ Apartments _____ Other (including industrial) <u>2</u></p> <p>Number of Commercial Establishments: _____</p>		
<p>7.6 Design Flow 3.0 MGD</p>	<p>Actual Flow 1.8 MGD</p>	
<p>7.7 Will discharge be continuous through the year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Discharge will occur during the following months: How many days of the week will discharge occur? <div style="text-align: right;">January Thru Dec Seven days a week.</div></p>		
<p>7.8 Is industrial wastewater discharged to the facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary Rembrandt Foods Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.</p>		
<p>7.9 Does the facility accept or process leachate from landfills?: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
<p>7.10 Is wastewater land applied? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, is Form I attached? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
<p>7.11 Does the facility discharge to a losing stream or sinkhole? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
<p>7.12 Has a wasteload allocation study been completed for this facility? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
8. LABORATORY CONTROL INFORMATION		
LABORATORY WORK CONDUCTED BY PLANT PERSONNEL		
Lab work conducted outside of plant.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>

Google Maps



Imagery ©2016 Google, Map data ©2016 Google 100 ft

Google Maps



EQ BASIN

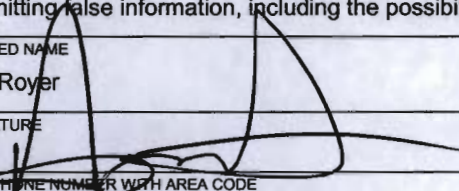
Imagery ©2016 Google, Map data ©2016 Google 100 ft

FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001
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 <input type="checkbox"/> No <input checked="" type="checkbox"/>		
9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year 630 Actual Dry Tons/Year 334.30		
9.3 Sludge storage provided: <u>yes</u> Cubic feet; <u>1280</u> Days of storage; <u>45</u> Average percent solids of sludge; <input type="checkbox"/> No sludge storage is provided. <input type="checkbox"/> Sludge is stored in lagoon.		
9.4 Type of storage: <input checked="" type="checkbox"/> Holding Tank <input type="checkbox"/> Building <input type="checkbox"/> Basin <input type="checkbox"/> Lagoon <input type="checkbox"/> Concrete Pad <input type="checkbox"/> Other (Describe) _____		
9.5 Sludge Treatment: <input type="checkbox"/> Anaerobic Digester <input checked="" type="checkbox"/> Storage Tank <input type="checkbox"/> Lime Stabilization <input type="checkbox"/> Lagoon <input checked="" type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying <input type="checkbox"/> Composting <input type="checkbox"/> Other (Attach Description)		
9.6 Sludge use or disposal: <input checked="" type="checkbox"/> Land Application <input type="checkbox"/> Contract Hauler <input type="checkbox"/> Hauled to Another Treatment Facility <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) <input type="checkbox"/> Incineration <input type="checkbox"/> Other (Attach Explanation Sheet) _____		
9.7 Person responsible for hauling sludge to disposal facility: <input type="checkbox"/> By Applicant <input type="checkbox"/> By Others (complete below)		
NAME		EMAIL ADDRESS
ADDRESS	CITY	STATE ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-
9.8 Sludge use or disposal facility: <input type="checkbox"/> By Applicant <input type="checkbox"/> By Others (Complete below)		
NAME		EMAIL ADDRESS
ADDRESS	CITY neosho	STATE MO 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain)		
END OF PART A		

FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001
PART B – ADDITIONAL APPLICATION INFORMATION		
10. COLLECTION SYSTEM		
10.1 Length of sanitary sewer collection system in miles <u>108</u>		
10.2 Does significant infiltration occur in the collection system? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, briefly explain any steps underway or planned to minimize inflow and infiltration: Taking Bids on lining certain areas deemed necessary by our collection Supervisor that cleans and cameras the city mains.		
11. BYPASSING		
Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, explain: <i>Certain man holes run over in the places where we have not made improvements.</i>		
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 <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 Alliance Water Resources		
MAILING ADDRESS 15318 Kentucky Rd. Neosho, Mo 64850		
TELEPHONE NUMBER WITH AREA CODE 417-451-8080	EMAIL ADDRESS kbrady@alliancewater.com	
RESPONSIBILITIES OF CONTRACTOR All operations and maintenance		
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 Shoal Creek		PERMIT NO. MO- 0104906		OUTFALL NO. 001				
PART B – ADDITIONAL APPLICATION INFORMATION								
14. EFFLUENT TESTING DATA								
Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data for each outfall through which effluent is discharged . Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.								
Outfall Number								
PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE					
	Value	Units	Value	Units	Number of Samples			
pH (Minimum)	6.76 6.67 6.91	S.U.	6.78	S.U.	3			
pH (Maximum)	7.68 8.74 7.81	S.U.	8.07	S.U.	3			
Flow Rate	2.0 2.7 2.0	MGD	2.2	MGD	3			
*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		mg/L		mg/L	3	SM5210B	2.0/63.6
	CBOD ₅		mg/L		mg/L	NA	NA	NA/NA
E. COLI			#/100 mL		#/100 mL	3	SM9223B	150.0/235900
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L	3	SM2540D	21.0/128
AMMONIA (as N)			mg/L		mg/L	3	EPA350.1	<.50/177
CHLORINE* (TOTAL RESIDUAL, TRC)			mg/L		mg/L	NA	NA	NA
DISSOLVED OXYGEN			mg/L		mg/L	3	SM4500-OG	1.21/8.28
OIL and GREASE			mg/L		mg/L	3	EPA 1664A	<5.0/.71
OTHER			mg/L		mg/L	0		
*Report only if facility chlorinates								
END OF PART B								

* See attached

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
PART C – CERTIFICATION		
15. CERTIFICATION		
<p>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.</p>		
ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.		
<p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</p>		
PRINTED NAME Troy Royer	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) City Manager	
SIGNATURE 		
TELEPHONE NUMBER WITH AREA CODE 417-451-8050		
DATE SIGNED 7-6-2016		
<p>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.</p>		
<p>Send Completed Form to:</p> <p style="text-align: center;">Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102</p>		
END OF PART C		
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.		
<p>Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:</p> <ol style="list-style-type: none"> 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. 		
<p>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.</p>		

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Shoal Creel Wastewater Plant	PERMIT NO. MO- 0104906	OUTFALL NO. 001
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PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

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

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

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		

METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS

ALUMINUM											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM III											
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as CaCO ₃)											

VOLATILE ORGANIC COMPOUNDS

ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

* See attached

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYL VINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											

ACID-EXTRACTABLE COMPOUNDS

P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											

* See attached

FACILITY NAME	Shoal Creek Wastewater Plant	PERMIT NO. MO- 0104906	OUTFALL NO. 001
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PART D – EXPANDED EFFLUENT TESTING DATA
16. EXPANDED EFFLUENT TESTING DATA

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

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

* See attached

RECEIVED

JUL 18 2016

ANALYTICAL RESULTS

Water Protection Program

Project: WET TEST
Pace Project No.: 60175707

Sample: SHOAL-EFFLUENT (C2 YEARLY) Lab ID: 60175707001 Collected: 08/13/14 08:30 Received: 08/13/14 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Acute Toxicity								
Analytical Method: EPA 821/R-02/012								
Toxicity, Acute	Complete		1.0	1		08/13/14 15:15		

Sample: SHOAL EFFLUENT Lab ID: 60175707002 Collected: 08/13/14 08:30 Received: 08/13/14 18:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
608 PCBs								
Analytical Method: EPA 608 Preparation Method: EPA 3535								
PCB-1016 (Aroclor 1016)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	12674-11-2	
PCB-1221 (Aroclor 1221)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	11104-28-2	
PCB-1232 (Aroclor 1232)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	11141-16-5	
PCB-1242 (Aroclor 1242)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	53469-21-9	
PCB-1248 (Aroclor 1248)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	12672-29-6	
PCB-1254 (Aroclor 1254)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	11097-69-1	
PCB-1260 (Aroclor 1260)	ND ug/L		1.0	1	08/19/14 12:11	08/22/14 21:22	11096-82-5	
Surrogates								
Tetrachloro-m-xylene (S)	57 %		18-119	1	08/19/14 12:11	08/22/14 21:22	877-09-8	
Tetrachloro-m-xylene (S)	69 %		18-119	1	08/19/14 12:11	08/22/14 21:22	877-09-8	
Decachlorobiphenyl (S)	80 %		10-137	1	08/19/14 12:11	08/22/14 21:22	2051-24-3	
Decachlorobiphenyl (S)	80 %		10-137	1	08/19/14 12:11	08/22/14 21:22	2051-24-3	

608 GCS Pesticides

Analytical Method: EPA 608 Preparation Method: EPA 3535

Aldrin	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	309-00-2	
alpha-BHC	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	319-84-6	
beta-BHC	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	319-85-7	
delta-BHC	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	319-86-8	
gamma-BHC (Lindane)	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	58-89-9	
alpha-Chlordane	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	5103-71-9	
gamma-Chlordane	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	5103-74-2	
4,4'-DDD	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	72-54-8	
4,4'-DDE	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	72-55-9	
4,4'-DDT	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	50-29-3	
Dieldrin	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	60-57-1	
Endosulfan I	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	959-98-8	
Endosulfan II	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	33213-65-9	
Endosulfan sulfate	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	1031-07-8	
Endrin	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	72-20-8	
Endrin aldehyde	ND ug/L		0.10	1	08/19/14 12:10	08/21/14 18:28	7421-93-4	
Heptachlor	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	76-44-8	
Heptachlor epoxide	ND ug/L		0.050	1	08/19/14 12:10	08/21/14 18:28	1024-57-3	
Toxaphene	ND ug/L		2.0	1	08/19/14 12:10	08/21/14 18:28	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	62 %		18-119	1	08/19/14 12:10	08/21/14 18:28	877-09-8	
Tetrachloro-m-xylene (S)	66 %		18-119	1	08/19/14 12:10	08/21/14 18:28	877-09-8	
Decachlorobiphenyl (S)	77 %		10-137	1	08/19/14 12:10	08/21/14 18:28	2051-24-3	
Decachlorobiphenyl (S)	77 %		10-137	1	08/19/14 12:10	08/21/14 18:28	2051-24-3	

REPORT OF LABORATORY ANALYSIS

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Date: 08/27/2014 06:05 PM

Page 5 of 28

ANALYTICAL RESULTS

Project: WET TEST
Pace Project No.: 60175707

Sample: SHOAL EFFLUENT		Lab ID: 60175707002	Collected: 08/13/14 08:30	Received: 08/13/14 18:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Cadmium	ND ug/L		0.50	1	08/19/14 11:00	08/20/14 15:00	7440-43-9	
Chromium	ND ug/L		1.0	1	08/19/14 11:00	08/20/14 15:00	7440-47-3	
Copper	1.2 ug/L		1.0	1	08/19/14 11:00	08/20/14 15:00	7440-50-8	
Iron	ND ug/L		50.0	1	08/19/14 11:00	08/21/14 11:02	7439-89-6	
Lead	ND ug/L		1.0	1	08/19/14 11:00	08/20/14 15:00	7439-92-1	
Nickel	1.5 ug/L		1.0	1	08/19/14 11:00	08/20/14 15:00	7440-02-0	
Selenium	ND ug/L		1.0	1	08/19/14 11:00	08/20/14 15:00	7782-49-2	
Zinc	34.2 ug/L		10.0	1	08/19/14 11:00	08/20/14 15:00	7440-66-6	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	ND ug/L		0.20	1	08/18/14 16:30	08/19/14 13:02	7439-97-6	
625 MSSV		Analytical Method: EPA 625 Preparation Method: EPA 625						
Acenaphthene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	83-32-9	
Acenaphthylene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	208-96-8	
Anthracene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	120-12-7	
Benzidine	ND ug/L		50.0	1	08/15/14 00:00	08/18/14 12:15	92-87-5	
Benzo(a)anthracene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	56-55-3	
Benzo(a)pyrene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	50-32-8	
Benzo(b)fluoranthene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	191-24-2	
Benzo(k)fluoranthene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	207-08-9	
4-Bromophenylphenyl ether	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	101-55-3	
Butylbenzylphthalate	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	85-68-7	
4-Chloro-3-methylphenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	59-50-7	
bis(2-Chloroethoxy)methane	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	111-91-1	
bis(2-Chloroethyl) ether	ND ug/L		6.0	1	08/15/14 00:00	08/18/14 12:15	111-44-4	
bis(2-Chloroisopropyl) ether	ND ug/L		6.0	1	08/15/14 00:00	08/18/14 12:15	39638-32-9	
2-Chloronaphthalene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	91-58-7	
2-Chlorophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	95-57-8	
4-Chlorophenylphenyl ether	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	7005-72-3	
Chrysene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	53-70-3	
3,3'-Dichlorobenzidine	ND ug/L		20.0	1	08/15/14 00:00	08/18/14 12:15	91-94-1	
2,4-Dichlorophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	120-83-2	
Diethylphthalate	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	84-66-2	
2,4-Dimethylphenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	105-67-9	
Dimethylphthalate	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	131-11-3	
Di-n-butylphthalate	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	84-74-2	
4,6-Dinitro-2-methylphenol	ND ug/L		25.0	1	08/15/14 00:00	08/18/14 12:15	534-52-1	
2,4-Dinitrophenol	ND ug/L		50.0	1	08/15/14 00:00	08/18/14 12:15	51-28-5	
2,4-Dinitrotoluene	ND ug/L		6.0	1	08/15/14 00:00	08/18/14 12:15	121-14-2	
2,6-Dinitrotoluene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	606-20-2	
Di-n-octylphthalate	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	117-84-0	
bis(2-Ethylhexyl)phthalate	8.4 ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	117-81-7	
Fluoranthene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	206-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WET TEST
Pace Project No.: 60175707

Sample: SHOAL EFFLUENT		Lab ID: 60175707002	Collected: 08/13/14 08:30	Received: 08/13/14 18:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV		Analytical Method: EPA 625 Preparation Method: EPA 625						
Fluorene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	86-73-7	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	87-68-3	
Hexachlorobenzene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	118-74-1	
Hexachlorocyclopentadiene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	77-47-4	
Hexachloroethane	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	67-72-1	
Indeno(1,2,3-cd)pyrene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	193-39-5	
Isophorone	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	78-59-1	
Naphthalene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	91-20-3	
Nitrobenzene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	98-95-3	
2-Nitrophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	88-75-5	
4-Nitrophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	100-02-7	
N-Nitrosodimethylamine	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	62-75-9	
N-Nitroso-di-n-propylamine	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	621-64-7	
N-Nitrosodiphenylamine	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	86-30-6	
Pentachlorophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	87-86-5	
Phenanthrene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	85-01-8	
Phenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	108-95-2	
Pyrene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	129-00-0	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	120-82-1	
2,4,6-Trichlorophenol	ND ug/L		5.0	1	08/15/14 00:00	08/18/14 12:15	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	60 %		33-120	1	08/15/14 00:00	08/18/14 12:15	4165-60-0	
2-Fluorobiphenyl (S)	65 %		39-120	1	08/15/14 00:00	08/18/14 12:15	321-60-8	
Terphenyl-d14 (S)	80 %		45-120	1	08/15/14 00:00	08/18/14 12:15	1718-51-0	
Phenol-d6 (S)	15 %		11-120	1	08/15/14 00:00	08/18/14 12:15	13127-88-3	
2-Fluorophenol (S)	26 %		17-120	1	08/15/14 00:00	08/18/14 12:15	367-12-4	
2,4,6-Tribromophenol (S)	65 %		39-120	1	08/15/14 00:00	08/18/14 12:15	118-79-6	
624 Volatile Organics		Analytical Method: EPA 624 Low						
1,2-Dichloroethane	ND ug/L		1.0	1		08/18/14 17:15	107-06-2	
1,1,1-Trichloroethane	ND ug/L		1.0	1		08/18/14 17:15	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	1		08/18/14 17:15	79-00-5	
Surrogates								
4-Bromofluorobenzene (S)	100 %		80-120	1		08/18/14 17:15	460-00-4	
Toluene-d8 (S)	101 %		80-120	1		08/18/14 17:15	2037-26-5	
1,2-Dichloroethane-d4 (S)	95 %		80-120	1		08/18/14 17:15	17060-07-0	
Preservation pH	6.0		1.0	1		08/18/14 17:15		
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation						
Chromium, Trivalent	ND mg/L		0.010	1		08/22/14 08:23	16065-83-1	
Chromium, Hexavalent		Analytical Method: SM 3500-Cr B						
Chromium, Hexavalent	ND mg/L		0.010	1		08/14/14 08:17	18540-29-9	
350.1 Ammonia		Analytical Method: EPA 350.1						
Nitrogen, Ammonia	ND mg/L		0.10	1		08/20/14 12:34	7664-41-7	

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ANALYTICAL RESULTS

Project: WET TEST
Pace Project No.: 60175707

Sample: SHOAL EFFLUENT		Lab ID: 60175707002	Collected: 08/13/14 08:30		Received: 08/13/14 18:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Phenolics, Total Recoverable	Analytical Method: EPA 420.1							
Phenolics, Total Recoverable	ND	mg/L	0.050	1		08/21/14 16:14		
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		08/20/14 23:22	57-12-5	

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ANALYTICAL RESULTS

Project: SHOAL YEARLY
Pace Project No.: 60200398

Sample: YEARLY SHOAL EFFLUENT **Lab ID: 60200398001** Collected: 08/12/15 08:45 Received: 08/12/15 15:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: EPA 821/R-02/012									
Acute Toxicity	Complete		1.0	1.0	1		08/12/15 15:30		

Sample: YEARLY SHOAL EFFLUENT **Lab ID: 60200398002** Collected: 08/12/15 08:45 Received: 08/12/15 20:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: EPA 608 Preparation Method: EPA 3535									
608 PCBs									
PCB-1016 (Aroclor 1016)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.20	0.10	1	08/19/15 13:34	08/19/15 19:55	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	65	%	18-119		1	08/19/15 13:34	08/19/15 19:55	877-09-8	
Tetrachloro-m-xylene (S)	87	%	18-119		1	08/19/15 13:34	08/19/15 19:55	877-09-8	
Decachlorobiphenyl (S)	94	%	10-137		1	08/19/15 13:34	08/19/15 19:55	2051-24-3	
Decachlorobiphenyl (S)	96	%	10-137		1	08/19/15 13:34	08/19/15 19:55	2051-24-3	

608 GCS Pesticides Analytical Method: EPA 608 Preparation Method: EPA 3535

Aldrin	ND	ug/L	0.010	0.0050	1	08/19/15 13:40	08/19/15 20:42	309-00-2	
alpha-BHC	ND	ug/L	0.050	0.025	1	08/19/15 13:40	08/19/15 20:42	319-84-6	
beta-BHC	ND	ug/L	0.050	0.025	1	08/19/15 13:40	08/19/15 20:42	319-85-7	
delta-BHC	ND	ug/L	0.050	0.025	1	08/19/15 13:40	08/19/15 20:42	319-86-8	
gamma-BHC (Lindane)	ND	ug/L	0.050	0.025	1	08/19/15 13:40	08/19/15 20:42	58-89-9	
Chlordane (Technical)	ND	ug/L	0.20	0.10	1	08/19/15 13:40	08/19/15 20:42	57-74-9	
4,4'-DDD	ND	ug/L	0.10	0.050	1	08/19/15 13:40	08/19/15 20:42	72-54-8	
4,4'-DDE	ND	ug/L	0.10	0.050	1	08/19/15 13:40	08/19/15 20:42	72-55-9	
4,4'-DDT	ND	ug/L	0.020	0.010	1	08/19/15 13:40	08/19/15 20:42	50-29-3	
Dieldrin	ND	ug/L	0.020	0.010	1	08/19/15 13:40	08/19/15 20:42	60-57-1	
Endosulfan I	ND	ug/L	0.010	0.0080	1	08/19/15 13:40	08/19/15 20:42	959-98-8	
Endosulfan II	ND	ug/L	0.020	0.010	1	08/19/15 13:40	08/19/15 20:42	33213-65-9	
Endosulfan sulfate	ND	ug/L	0.10	0.050	1	08/19/15 13:40	08/19/15 20:42	1031-07-8	
Endrin	ND	ug/L	0.020	0.010	1	08/19/15 13:40	08/19/15 20:42	72-20-8	
Endrin aldehyde	ND	ug/L	0.10	0.050	1	08/19/15 13:40	08/19/15 20:42	7421-93-4	
Heptachlor	ND	ug/L	0.010	0.0050	1	08/19/15 13:40	08/19/15 20:42	76-44-8	
Heptachlor epoxide	ND	ug/L	0.010	0.0060	1	08/19/15 13:40	08/19/15 20:42	1024-57-3	
Toxaphene	ND	ug/L	0.30	0.15	1	08/19/15 13:40	08/19/15 20:42	8001-35-2	
Surrogates									
Tetrachloro-m-xylene (S)	73	%	18-119		1	08/19/15 13:40	08/19/15 20:42	877-09-8	
Tetrachloro-m-xylene (S)	71	%	18-119		1	08/19/15 13:40	08/19/15 20:42	877-09-8	
Decachlorobiphenyl (S)	82	%	10-137		1	08/19/15 13:40	08/19/15 20:42	2051-24-3	

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ANALYTICAL RESULTS

Project: SHOAL YEARLY
Pace Project No.: 60200398

Sample: YEARLY SHOAL EFFLUENT **Lab ID:** 60200398002 **Collected:** 08/12/15 08:45 **Received:** 08/12/15 20:00 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
608 GCS Pesticides Analytical Method: EPA 608 Preparation Method: EPA 3535									
Surrogates									
Decachlorobiphenyl (S)	112	%	10-137		1	08/19/15 13:40	08/19/15 20:42	2051-24-3	
200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic	ND	ug/L	1.0	0.25	1	08/13/15 16:05	08/14/15 11:59	7440-38-2	
Cadmium	ND	ug/L	0.50	0.082	1	08/13/15 16:05	08/14/15 11:59	7440-43-9	
Copper	0.63J	ug/L	1.0	0.21	1	08/13/15 16:05	08/14/15 11:59	7440-50-8	
Lead	0.46J	ug/L	1.0	0.23	1	08/13/15 16:05	08/14/15 11:59	7439-92-1	B
Molybdenum	1.0	ug/L	1.0	0.12	1	08/13/15 16:05	08/14/15 11:59	7439-98-7	
Nickel	2.0	ug/L	1.0	0.39	1	08/13/15 16:05	08/14/15 11:59	7440-02-0	
Silver	ND	ug/L	0.50	0.054	1	08/13/15 16:05	08/14/15 11:59	7440-22-4	
Zinc	10.6	ug/L	10.0	4.5	1	08/13/15 16:05	08/14/15 11:59	7440-66-6	
245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1									
Mercury	0.065J	ug/L	0.20	0.012	1	08/17/15 09:00	08/17/15 15:07	7439-97-6	
625 MSSV Analytical Method: EPA 625 Preparation Method: EPA 625									
Acenaphthene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	83-32-9	
Acenaphthylene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	208-96-8	
Anthracene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	120-12-7	
Benzidine	ND	ug/L	50.0	25.0	1	08/17/15 00:00	08/18/15 17:49	92-87-5	M1
Benzo(a)anthracene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	56-55-3	
Benzo(a)pyrene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	101-55-3	
Butylbenzylphthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	6.0	3.0	1	08/17/15 00:00	08/18/15 17:49	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	6.0	3.0	1	08/17/15 00:00	08/18/15 17:49	39638-32-9	
2-Chloronaphthalene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	91-58-7	
2-Chlorophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	7005-72-3	
Chrysene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	10.0	1	08/17/15 00:00	08/18/15 17:49	91-94-1	
2,4-Dichlorophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	120-83-2	
Diethylphthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	84-66-2	
2,4-Dimethylphenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	105-67-9	
Dimethylphthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	131-11-3	
Di-n-butylphthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	25.0	12.5	1	08/17/15 00:00	08/18/15 17:49	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	25.0	1	08/17/15 00:00	08/18/15 17:49	51-28-5	

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ANALYTICAL RESULTS

Project: SHOAL YEARLY
Pace Project No.: 60200398

Sample: YEARLY SHOAL EFFLUENT **Lab ID:** 60200398002 **Collected:** 08/12/15 08:45 **Received:** 08/12/15 20:00 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV Analytical Method: EPA 625 Preparation Method: EPA 625									
2,4-Dinitrotoluene	ND	ug/L	6.0	3.0	1	08/17/15 00:00	08/18/15 17:49	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	606-20-2	
Di-n-octylphthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	117-81-7	
Fluoranthene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	206-44-0	
Fluorene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	87-68-3	
Hexachlorobenzene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	77-47-4	
Hexachloroethane	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	193-39-5	
Isophorone	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	78-59-1	
Naphthalene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	91-20-3	
Nitrobenzene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	98-95-3	
2-Nitrophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	88-75-5	
4-Nitrophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	86-30-6	
Pentachlorophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	87-86-5	
Phenanthrene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	85-01-8	
Phenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	108-95-2	
Pyrene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	5.0	2.5	1	08/17/15 00:00	08/18/15 17:49	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	80	%	33-120		1	08/17/15 00:00	08/18/15 17:49	4165-60-0	
2-Fluorobiphenyl (S)	74	%	39-120		1	08/17/15 00:00	08/18/15 17:49	321-60-8	
Terphenyl-d14 (S)	80	%	45-120		1	08/17/15 00:00	08/18/15 17:49	1718-51-0	
Phenol-d6 (S)	32	%	11-120		1	08/17/15 00:00	08/18/15 17:49	13127-88-3	
2-Fluorophenol (S)	45	%	17-120		1	08/17/15 00:00	08/18/15 17:49	367-12-4	
2,4,6-Tribromophenol (S)	90	%	39-120		1	08/17/15 00:00	08/18/15 17:49	118-79-6	
350.1 Ammonia Analytical Method: EPA 350.1									
Nitrogen, Ammonia	7.7	mg/L	0.50	0.23	5		08/19/15 14:52	7664-41-7	
Phenolics, Total Recoverable Analytical Method: EPA 420.1									
Phenolics, Total Recoverable	ND	mg/L	0.050	0.020	1		08/18/15 12:42		

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ANALYTICAL RESULTS

Water Protection Program

Project: SHOAL BIOSOLIDS

Pace Project No.: 60150608

Sample: SHOAL BIOSOLIDS Lab ID: 60150608001 Collected: 08/07/13 07:00 Received: 08/07/13 18:30 Matrix: Solid
YEARLY'S

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	ND	mg/kg	4.3	1	08/12/13 11:45	08/13/13 11:26	7440-38-2	
Cadmium	4.5	mg/kg	2.1	1	08/12/13 11:45	08/13/13 11:26	7440-43-9	
Chromium	25.6	mg/kg	2.1	1	08/12/13 11:45	08/13/13 11:26	7440-47-3	
Copper	194	mg/kg	4.3	1	08/12/13 11:45	08/13/13 11:26	7440-50-8	
Lead	65.0	mg/kg	4.3	1	08/12/13 11:45	08/13/13 11:26	7439-92-1	
Molybdenum	ND	mg/kg	8.6	1	08/12/13 11:45	08/13/13 11:26	7439-98-7	
Nickel	20.3	mg/kg	2.1	1	08/12/13 11:45	08/13/13 11:26	7440-02-0	
Potassium	2670	mg/kg	214	1	08/12/13 11:45	08/13/13 11:26	7440-09-7	B
Selenium	8.1	mg/kg	6.4	1	08/12/13 11:45	08/13/13 11:26	7782-49-2	
Zinc	1510	mg/kg	42.9	1	08/12/13 11:45	08/13/13 11:26	7440-66-6	

6010 MET ICP, TCLP

Analytical Method: EPA 6010 Preparation Method: EPA 3010

Leachate Method/Date: EPA 1311; 08/16/13 00:00

Arsenic	ND	mg/L	0.50	1	08/16/13 00:00	08/19/13 10:58	7440-38-2	
Barium	ND	mg/L	2.5	1	08/16/13 00:00	08/19/13 10:58	7440-39-3	
Cadmium	ND	mg/L	0.050	1	08/16/13 00:00	08/19/13 10:58	7440-43-9	
Chromium	ND	mg/L	0.10	1	08/16/13 00:00	08/19/13 10:58	7440-47-3	
Lead	ND	mg/L	0.50	1	08/16/13 00:00	08/19/13 10:58	7439-92-1	
Selenium	ND	mg/L	0.50	1	08/16/13 00:00	08/19/13 10:58	7782-49-2	
Silver	ND	mg/L	0.10	1	08/16/13 00:00	08/19/13 10:58	7440-22-4	

7470 Mercury, TCLP

Analytical Method: EPA 7470 Preparation Method: EPA 7470

Leachate Method/Date: EPA 1311; 08/16/13 00:00

Mercury	ND	mg/L	0.0020	1	08/19/13 17:00	08/20/13 10:23	7439-97-6	
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7471 Mercury

Analytical Method: EPA 7471 Preparation Method: EPA 7471

Mercury	1.7	mg/kg	0.19	1	08/13/13 09:45	08/13/13 13:09	7439-97-6	
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8270 MSSV TCLP Sep Funnel

Analytical Method: EPA 8270 Preparation Method: EPA 3510

Leachate Method/Date: EPA 1311; 08/16/13 00:00

1,4-Dichlorobenzene	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	106-46-7	
2,4-Dinitrotoluene	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	121-14-2	
Hexachloro-1,3-butadiene	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	87-68-3	
Hexachlorobenzene	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	118-74-1	
Hexachloroethane	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	67-72-1	
2-Methylphenol(o-Cresol)	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	200	1	08/19/13 00:00	08/20/13 00:56		
Nitrobenzene	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	98-95-3	
Pentachlorophenol	ND	ug/L	500	1	08/19/13 00:00	08/20/13 00:56	87-86-5	
Pyridine	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	110-86-1	
2,4,5-Trichlorophenol	ND	ug/L	500	1	08/19/13 00:00	08/20/13 00:56	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	100	1	08/19/13 00:00	08/20/13 00:56	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	78	%	42-120	1	08/19/13 00:00	08/20/13 00:56	4165-60-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL BIOSOLIDS

Pace Project No.: 60150608

Sample: SHOAL BIOSOLIDS Lab ID: 60150608001 Collected: 08/07/13 07:00 Received: 08/07/13 18:30 Matrix: Solid
YEARLY'S

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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8270 MSSV TCLP Sep Funnel

Analytical Method: EPA 8270 Preparation Method: EPA 3510

Leachate Method/Date: EPA 1311; 08/16/13 00:00

Surrogates

2-Fluorobiphenyl (S)	79 %		43-120	1	08/19/13 00:00	08/20/13 00:56	321-60-8	
Terphenyl-d14 (S)	84 %		38-120	1	08/19/13 00:00	08/20/13 00:56	1718-51-0	
Phenol-d6 (S)	79 %		41-120	1	08/19/13 00:00	08/20/13 00:56	13127-88-3	
2-Fluorophenol (S)	74 %		40-120	1	08/19/13 00:00	08/20/13 00:56	367-12-4	
2,4,6-Tribromophenol (S)	80 %		38-126	1	08/19/13 00:00	08/20/13 00:56	118-79-6	

8260 MSV TCLP

Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 08/16/13 00:00

Benzene	ND ug/L		50.0	1		08/19/13 18:58	71-43-2	
2-Butanone (MEK)	ND ug/L		1000	1		08/19/13 18:58	78-93-3	
Carbon tetrachloride	ND ug/L		50.0	1		08/19/13 18:58	56-23-5	
Chlorobenzene	ND ug/L		50.0	1		08/19/13 18:58	108-90-7	
Chloroform	ND ug/L		200	1		08/19/13 18:58	67-66-3	
1,2-Dichloroethane	ND ug/L		50.0	1		08/19/13 18:58	107-06-2	
1,1-Dichloroethene	ND ug/L		50.0	1		08/19/13 18:58	75-35-4	
Tetrachloroethene	ND ug/L		50.0	1		08/19/13 18:58	127-18-4	
Trichloroethene	ND ug/L		50.0	1		08/19/13 18:58	79-01-6	
Vinyl chloride	ND ug/L		100	1		08/19/13 18:58	75-01-4	

Surrogates

1,2-Dichloroethane-d4 (S)	101 %		80-120	1		08/19/13 18:58	17060-07-0	
Toluene-d8 (S)	100 %		80-120	1		08/19/13 18:58	2037-26-5	
4-Bromofluorobenzene (S)	97 %		80-120	1		08/19/13 18:58	460-00-4	

8260/5035A Volatile Organics

Analytical Method: EPA 8260

Acetone	ND ug/kg		519	1		08/19/13 15:56	67-64-1	
Benzene	ND ug/kg		130	1		08/19/13 15:56	71-43-2	
Bromobenzene	ND ug/kg		130	1		08/19/13 15:56	108-86-1	
Bromochloromethane	ND ug/kg		130	1		08/19/13 15:56	74-97-5	
Bromodichloromethane	ND ug/kg		130	1		08/19/13 15:56	75-27-4	
Bromoform	ND ug/kg		130	1		08/19/13 15:56	75-25-2	
Bromomethane	ND ug/kg		130	1		08/19/13 15:56	74-83-9	
2-Butanone (MEK)	ND ug/kg		259	1		08/19/13 15:56	78-93-3	
n-Butylbenzene	ND ug/kg		130	1		08/19/13 15:56	104-51-8	
sec-Butylbenzene	ND ug/kg		130	1		08/19/13 15:56	135-98-8	
tert-Butylbenzene	ND ug/kg		130	1		08/19/13 15:56	98-06-6	
Carbon disulfide	ND ug/kg		130	1		08/19/13 15:56	75-15-0	
Carbon tetrachloride	ND ug/kg		130	1		08/19/13 15:56	56-23-5	
Chlorobenzene	ND ug/kg		130	1		08/19/13 15:56	108-90-7	
Chloroethane	ND ug/kg		130	1		08/19/13 15:56	75-00-3	
Chloroform	ND ug/kg		130	1		08/19/13 15:56	67-66-3	
Chloromethane	ND ug/kg		130	1		08/19/13 15:56	74-87-3	
2-Chlorotoluene	ND ug/kg		130	1		08/19/13 15:56	95-49-8	
4-Chlorotoluene	ND ug/kg		130	1		08/19/13 15:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/kg		259	1		08/19/13 15:56	96-12-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL BIOSOLIDS

Pace Project No.: 60150608

Sample: SHOAL BIOSOLIDS Lab ID: 60150608001 Collected: 08/07/13 07:00 Received: 08/07/13 18:30 Matrix: Solid
YEARLY'S

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Dibromochloromethane	ND	ug/kg	130	1		08/19/13 15:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	130	1		08/19/13 15:56	106-93-4	
Dibromomethane	ND	ug/kg	130	1		08/19/13 15:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	130	1		08/19/13 15:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	130	1		08/19/13 15:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	130	1		08/19/13 15:56	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	130	1		08/19/13 15:56	75-71-8	
1,1-Dichloroethane	ND	ug/kg	130	1		08/19/13 15:56	75-34-3	
1,2-Dichloroethane	ND	ug/kg	130	1		08/19/13 15:56	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	130	1		08/19/13 15:56	540-59-0	
1,1-Dichloroethene	ND	ug/kg	130	1		08/19/13 15:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	130	1		08/19/13 15:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	130	1		08/19/13 15:56	156-60-5	
1,2-Dichloropropane	ND	ug/kg	130	1		08/19/13 15:56	78-87-5	
1,3-Dichloropropane	ND	ug/kg	130	1		08/19/13 15:56	142-28-9	
2,2-Dichloropropane	ND	ug/kg	130	1		08/19/13 15:56	594-20-7	
1,1-Dichloropropene	ND	ug/kg	130	1		08/19/13 15:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	130	1		08/19/13 15:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	130	1		08/19/13 15:56	10061-02-6	
Ethylbenzene	ND	ug/kg	130	1		08/19/13 15:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	130	1		08/19/13 15:56	87-68-3	
2-Hexanone	ND	ug/kg	519	1		08/19/13 15:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	130	1		08/19/13 15:56	98-82-8	
p-Isopropyltoluene	ND	ug/kg	130	1		08/19/13 15:56	99-87-6	
Methylene chloride	ND	ug/kg	130	1		08/19/13 15:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	259	1		08/19/13 15:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	130	1		08/19/13 15:56	1634-04-4	
Naphthalene	ND	ug/kg	259	1		08/19/13 15:56	91-20-3	
n-Propylbenzene	ND	ug/kg	130	1		08/19/13 15:56	103-65-1	
Styrene	ND	ug/kg	130	1		08/19/13 15:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	130	1		08/19/13 15:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	130	1		08/19/13 15:56	79-34-5	
Tetrachloroethene	ND	ug/kg	130	1		08/19/13 15:56	127-18-4	
Toluene	ND	ug/kg	130	1		08/19/13 15:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	130	1		08/19/13 15:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	130	1		08/19/13 15:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	130	1		08/19/13 15:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	130	1		08/19/13 15:56	79-00-5	
Trichloroethene	ND	ug/kg	130	1		08/19/13 15:56	79-01-6	
Trichlorofluoromethane	ND	ug/kg	130	1		08/19/13 15:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	130	1		08/19/13 15:56	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	130	1		08/19/13 15:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	130	1		08/19/13 15:56	108-67-8	
Vinyl chloride	ND	ug/kg	130	1		08/19/13 15:56	75-01-4	
Xylene (Total)	ND	ug/kg	130	1		08/19/13 15:56	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL BIOSOLIDS

Pace Project No.: 60150608

Sample: SHOAL BIOSOLIDS Lab ID: 60150608001 Collected: 08/07/13 07:00 Received: 08/07/13 18:30 Matrix: Solid
YEARLY'S

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Surrogates								
Toluene-d8 (S)	97 %		80-120	1		08/19/13 15:56	2037-26-5	
4-Bromofluorobenzene (S)	91 %		80-120	1		08/19/13 15:56	460-00-4	
1,2-Dichloroethane-d4 (S)	90 %		76-132	1		08/19/13 15:56	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	96.2 %		0.50	1		08/13/13 00:00		
Phenolics, Total Recoverable	Analytical Method: EPA 420.1 Modified							
Phenolics, Total Recoverable	44.8 mg/kg		42.4	1		08/15/13 14:19		
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND mg/kg		4.3	1		08/12/13 10:59	57-12-5	

Sample: TRIP BLANK Lab ID: 60150608002 Collected: 08/07/13 07:00 Received: 08/07/13 18:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Acetone	ND ug/L		10.0	1		08/20/13 18:04	67-64-1	H1
Benzene	ND ug/L		1.0	1		08/20/13 18:04	71-43-2	H1
Bromobenzene	ND ug/L		1.0	1		08/20/13 18:04	108-86-1	H1
Bromochloromethane	ND ug/L		1.0	1		08/20/13 18:04	74-97-5	H1
Bromodichloromethane	ND ug/L		1.0	1		08/20/13 18:04	75-27-4	H1
Bromoform	ND ug/L		1.0	1		08/20/13 18:04	75-25-2	H1
Bromomethane	ND ug/L		5.0	1		08/20/13 18:04	74-83-9	H1
2-Butanone (MEK)	ND ug/L		10.0	1		08/20/13 18:04	78-93-3	H1
n-Butylbenzene	ND ug/L		1.0	1		08/20/13 18:04	104-51-8	H1
sec-Butylbenzene	ND ug/L		1.0	1		08/20/13 18:04	135-98-8	H1
tert-Butylbenzene	ND ug/L		1.0	1		08/20/13 18:04	98-06-6	H1
Carbon disulfide	ND ug/L		5.0	1		08/20/13 18:04	75-15-0	H1
Carbon tetrachloride	ND ug/L		1.0	1		08/20/13 18:04	56-23-5	H1
Chlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	108-90-7	H1
Chloroethane	ND ug/L		1.0	1		08/20/13 18:04	75-00-3	H1
Chloroform	ND ug/L		1.0	1		08/20/13 18:04	67-66-3	H1
Chloromethane	ND ug/L		1.0	1		08/20/13 18:04	74-87-3	H1
2-Chlorotoluene	ND ug/L		1.0	1		08/20/13 18:04	95-49-8	H1
4-Chlorotoluene	ND ug/L		1.0	1		08/20/13 18:04	106-43-4	H1
1,2-Dibromo-3-chloropropane	ND ug/L		2.5	1		08/20/13 18:04	96-12-8	H1
Dibromochloromethane	ND ug/L		1.0	1		08/20/13 18:04	124-48-1	H1
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		08/20/13 18:04	106-93-4	H1
Dibromomethane	ND ug/L		1.0	1		08/20/13 18:04	74-95-3	H1
1,2-Dichlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	95-50-1	H1
1,3-Dichlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	541-73-1	H1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL BIOSOLIDS

Pace Project No.: 60150608

Sample: TRIP BLANK		Lab ID: 60150608002	Collected: 08/07/13 07:00	Received: 08/07/13 18:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
1,4-Dichlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	106-46-7	H1
Dichlorodifluoromethane	ND ug/L		1.0	1		08/20/13 18:04	75-71-8	H1
1,1-Dichloroethane	ND ug/L		1.0	1		08/20/13 18:04	75-34-3	H1
1,2-Dichloroethane	ND ug/L		1.0	1		08/20/13 18:04	107-06-2	H1
1,2-Dichloroethene (Total)	ND ug/L		1.0	1		08/20/13 18:04	540-59-0	H1
1,1-Dichloroethene	ND ug/L		1.0	1		08/20/13 18:04	75-35-4	H1
cis-1,2-Dichloroethene	ND ug/L		1.0	1		08/20/13 18:04	156-59-2	H1
trans-1,2-Dichloroethene	ND ug/L		1.0	1		08/20/13 18:04	156-60-5	H1
1,2-Dichloropropane	ND ug/L		1.0	1		08/20/13 18:04	78-87-5	H1
1,3-Dichloropropane	ND ug/L		1.0	1		08/20/13 18:04	142-28-9	H1
2,2-Dichloropropane	ND ug/L		1.0	1		08/20/13 18:04	594-20-7	H1
1,1-Dichloropropene	ND ug/L		1.0	1		08/20/13 18:04	563-58-6	H1
cis-1,3-Dichloropropene	ND ug/L		1.0	1		08/20/13 18:04	10061-01-5	H1
trans-1,3-Dichloropropene	ND ug/L		1.0	1		08/20/13 18:04	10061-02-6	H1
Ethylbenzene	ND ug/L		1.0	1		08/20/13 18:04	100-41-4	H1
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		08/20/13 18:04	87-68-3	H1
2-Hexanone	ND ug/L		10.0	1		08/20/13 18:04	591-78-6	H1
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		08/20/13 18:04	98-82-8	H1
p-Isopropyltoluene	ND ug/L		1.0	1		08/20/13 18:04	99-87-6	H1
Methylene chloride	ND ug/L		1.0	1		08/20/13 18:04	75-09-2	H1
4-Methyl-2-pentanone (MIBK)	ND ug/L		10.0	1		08/20/13 18:04	108-10-1	H1
Methyl-tert-butyl ether	ND ug/L		1.0	1		08/20/13 18:04	1634-04-4	H1
Naphthalene	ND ug/L		10.0	1		08/20/13 18:04	91-20-3	H1
n-Propylbenzene	ND ug/L		1.0	1		08/20/13 18:04	103-65-1	H1
Styrene	ND ug/L		1.0	1		08/20/13 18:04	100-42-5	H1
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		08/20/13 18:04	630-20-6	H1
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		08/20/13 18:04	79-34-5	H1
Tetrachloroethene	ND ug/L		1.0	1		08/20/13 18:04	127-18-4	H1
Toluene	ND ug/L		1.0	1		08/20/13 18:04	108-88-3	H1
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	87-61-6	H1
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		08/20/13 18:04	120-82-1	H1
1,1,1-Trichloroethane	ND ug/L		1.0	1		08/20/13 18:04	71-55-6	H1
1,1,2-Trichloroethane	ND ug/L		1.0	1		08/20/13 18:04	79-00-5	H1
Trichloroethene	ND ug/L		1.0	1		08/20/13 18:04	79-01-6	H1
Trichlorofluoromethane	ND ug/L		1.0	1		08/20/13 18:04	75-69-4	H1
1,2,3-Trichloropropane	ND ug/L		2.5	1		08/20/13 18:04	96-18-4	H1
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		08/20/13 18:04	95-63-6	H1
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		08/20/13 18:04	108-67-8	H1
Vinyl chloride	ND ug/L		1.0	1		08/20/13 18:04	75-01-4	H1
Xylene (Total)	ND ug/L		3.0	1		08/20/13 18:04	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	100 %		80-120	1		08/20/13 18:04	460-00-4	
1,2-Dichloroethane-d4 (S)	100 %		80-120	1		08/20/13 18:04	17060-07-0	
Toluene-d8 (S)	107 %		80-120	1		08/20/13 18:04	2037-26-5	
Preservation pH	7.0		0.10	1		08/20/13 18:04		H1

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Water Protection Program

ANALYTICAL RESULTS

Project: SHOAL EFFLUENT YEARLY 8/8/12

Pace Project No.: 60126860

Sample: SHOAL-EFFLUENT (YEARLY'S) C2 Lab ID: 60126860001 Collected: 08/08/12 07:30 Received: 08/09/12 04:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic	1.2	ug/L	1.0	0.14	1	08/13/12 16:45	08/16/12 12:37	7440-38-2	
Cadmium	ND	ug/L	0.50	0.097	1	08/13/12 16:45	08/16/12 12:37	7440-43-9	
Copper	5.4	ug/L	1.0	0.45	1	08/13/12 16:45	08/16/12 12:37	7440-50-8	
Lead	0.77J	ug/L	1.0	0.051	1	08/13/12 16:45	08/16/12 12:37	7439-92-1	
Molybdenum	3.4	ug/L	1.0	0.16	1	08/13/12 16:45	08/16/12 12:37	7439-98-7	
Nickel	3.1	ug/L	1.0	0.35	1	08/13/12 16:45	08/16/12 12:37	7440-02-0	
Silver	ND	ug/L	0.50	0.059	1	08/13/12 16:45	08/16/12 12:37	7440-22-4	
Zinc	38.0	ug/L	10.0	1.6	1	08/13/12 16:45	08/16/12 12:37	7440-66-6	B
245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1									
Mercury	ND	ug/L	0.20	0.053	1	08/14/12 16:45	08/15/12 15:39	7439-97-6	
625 MSSV Analytical Method: EPA 625 Preparation Method: EPA 625									
Acenaphthene	ND	ug/L	5.0	0.29	1	08/13/12 00:00	08/14/12 20:26	83-32-9	
Acenaphthylene	ND	ug/L	5.0	0.43	1	08/13/12 00:00	08/14/12 20:26	208-96-8	
Anthracene	ND	ug/L	5.0	0.38	1	08/13/12 00:00	08/14/12 20:26	120-12-7	
Benidine	ND	ug/L	50.0	0.38	1	08/13/12 00:00	08/14/12 20:26	92-87-5	M1
Benzo(a)anthracene	ND	ug/L	5.0	0.44	1	08/13/12 00:00	08/14/12 20:26	56-55-3	
Benzo(a)pyrene	ND	ug/L	5.0	0.46	1	08/13/12 00:00	08/14/12 20:26	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	5.0	0.54	1	08/13/12 00:00	08/14/12 20:26	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	5.0	0.41	1	08/13/12 00:00	08/14/12 20:26	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	5.0	0.37	1	08/13/12 00:00	08/14/12 20:26	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	5.0	0.53	1	08/13/12 00:00	08/14/12 20:26	101-55-3	
Butylbenzylphthalate	ND	ug/L	5.0	0.54	1	08/13/12 00:00	08/14/12 20:26	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.55	1	08/13/12 00:00	08/14/12 20:26	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	5.0	0.45	1	08/13/12 00:00	08/14/12 20:26	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	6.0	0.45	1	08/13/12 00:00	08/14/12 20:26	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	6.0	0.37	1	08/13/12 00:00	08/14/12 20:26	39638-32-9	
2-Chloronaphthalene	ND	ug/L	5.0	0.32	1	08/13/12 00:00	08/14/12 20:26	91-58-7	
2-Chlorophenol	ND	ug/L	5.0	0.36	1	08/13/12 00:00	08/14/12 20:26	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	5.0	0.35	1	08/13/12 00:00	08/14/12 20:26	7005-72-3	
Chrysene	ND	ug/L	5.0	0.43	1	08/13/12 00:00	08/14/12 20:26	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	5.0	0.32	1	08/13/12 00:00	08/14/12 20:26	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	0.64	1	08/13/12 00:00	08/14/12 20:26	91-94-1	
2,4-Dichlorophenol	ND	ug/L	5.0	0.29	1	08/13/12 00:00	08/14/12 20:26	120-83-2	
Diethylphthalate	ND	ug/L	5.0	0.36	1	08/13/12 00:00	08/14/12 20:26	84-66-2	
2,4-Dimethylphenol	ND	ug/L	5.0	0.26	1	08/13/12 00:00	08/14/12 20:26	105-67-9	
Dimethylphthalate	ND	ug/L	5.0	0.37	1	08/13/12 00:00	08/14/12 20:26	131-11-3	
Di-n-butylphthalate	1.6J	ug/L	5.0	0.33	1	08/13/12 00:00	08/14/12 20:26	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	25.0	2.0	1	08/13/12 00:00	08/14/12 20:26	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	0.42	1	08/13/12 00:00	08/14/12 20:26	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	6.0	0.50	1	08/13/12 00:00	08/14/12 20:26	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	5.0	0.36	1	08/13/12 00:00	08/14/12 20:26	606-20-2	
Di-n-octylphthalate	ND	ug/L	5.0	0.27	1	08/13/12 00:00	08/14/12 20:26	117-84-0	
bis(2-Ethylhexyl)phthalate	1.1J	ug/L	5.0	0.64	1	08/13/12 00:00	08/14/12 20:26	117-81-7	

Date: 08/21/2012 03:35 PM

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ANALYTICAL RESULTS

Project: SHOAL EFFLUENT YEARLY 8/8/12

Pace Project No.: 60126860

Sample: SHOAL-EFFLUENT (YEARLY'S) C2 Lab ID: 60126860001 Collected: 08/08/12 07:30 Received: 08/09/12 04:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV Analytical Method: EPA 625 Preparation Method: EPA 625									
Fluoranthene	ND	ug/L	5.0	0.40	1	08/13/12 00:00	08/14/12 20:26	206-44-0	
Fluorene	ND	ug/L	5.0	0.38	1	08/13/12 00:00	08/14/12 20:26	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	0.48	1	08/13/12 00:00	08/14/12 20:26	87-68-3	
Hexachlorobenzene	ND	ug/L	5.0	0.55	1	08/13/12 00:00	08/14/12 20:26	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	5.0	4.0	1	08/13/12 00:00	08/14/12 20:26	77-47-4	
Hexachloroethane	ND	ug/L	5.0	0.44	1	08/13/12 00:00	08/14/12 20:26	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	5.0	0.36	1	08/13/12 00:00	08/14/12 20:26	193-39-5	
Isophorone	ND	ug/L	5.0	0.28	1	08/13/12 00:00	08/14/12 20:26	78-59-1	
Naphthalene	ND	ug/L	5.0	0.40	1	08/13/12 00:00	08/14/12 20:26	91-20-3	
Nitrobenzene	ND	ug/L	5.0	0.29	1	08/13/12 00:00	08/14/12 20:26	98-95-3	
2-Nitrophenol	ND	ug/L	5.0	0.30	1	08/13/12 00:00	08/14/12 20:26	88-75-5	
4-Nitrophenol	ND	ug/L	5.0	0.45	1	08/13/12 00:00	08/14/12 20:26	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	5.0	0.55	1	08/13/12 00:00	08/14/12 20:26	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	5.0	0.36	1	08/13/12 00:00	08/14/12 20:26	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	5.0	0.42	1	08/13/12 00:00	08/14/12 20:26	86-30-6	
Pentachlorophenol	ND	ug/L	5.0	0.46	1	08/13/12 00:00	08/14/12 20:26	87-86-5	
Phenanthrene	ND	ug/L	5.0	0.46	1	08/13/12 00:00	08/14/12 20:26	85-01-8	
Phenol	ND	ug/L	5.0	0.30	1	08/13/12 00:00	08/14/12 20:26	108-95-2	
Pyrene	ND	ug/L	5.0	0.44	1	08/13/12 00:00	08/14/12 20:26	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	0.41	1	08/13/12 00:00	08/14/12 20:26	120-82-1	
2,4,6-Trichlorophenol	ND	ug/L	5.0	2.0	1	08/13/12 00:00	08/14/12 20:26	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	59 %		32-120		1	08/13/12 00:00	08/14/12 20:26	4165-60-0	
2-Fluorobiphenyl (S)	67 %		36-120		1	08/13/12 00:00	08/14/12 20:26	321-60-8	
Terphenyl-d14 (S)	83 %		44-120		1	08/13/12 00:00	08/14/12 20:26	1718-51-0	
Phenol-d6 (S)	20 %		12-120		1	08/13/12 00:00	08/14/12 20:26	13127-88-3	
2-Fluorophenol (S)	30 %		18-120		1	08/13/12 00:00	08/14/12 20:26	367-12-4	
2,4,6-Tribromophenol (S)	80 %		39-119		1	08/13/12 00:00	08/14/12 20:26	118-79-6	
624 Volatile Organics LowLevel Analytical Method: EPA 624 Low									
1,2-Dichloroethane	ND	ug/L	1.0	0.090	1		08/14/12 01:03	107-06-2	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.090	1		08/14/12 01:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.19	1		08/14/12 01:03	79-00-5	
Surrogates									
4-Bromofluorobenzene (S)	95 %		80-120		1		08/14/12 01:03	460-00-4	
Dibromofluoromethane (S)	100 %		80-120		1		08/14/12 01:03	1868-53-7	
Toluene-d8 (S)	102 %		80-120		1		08/14/12 01:03	2037-26-5	
1,2-Dichloroethane-d4 (S)	102 %		80-120		1		08/14/12 01:03	17060-07-0	
Preservation pH	1.0		1.0	1.0	1		08/14/12 01:03		
350.1 Ammonia Analytical Method: EPA 350.1									
Nitrogen, Ammonia	0.13	mg/L	0.10	0.016	1		08/20/12 11:12	7664-41-7	
Phenolics, Total Recoverable Analytical Method: EPA 420.1									
Phenolics, Total Recoverable	ND	mg/L	0.050	0.011	1		08/14/12 15:32		

ANALYTICAL RESULTS

Project: SHOAL EFFLUENT YEARLY 8/8/12
Pace Project No.: 60126860

Sample: SHOAL-EFFLUENT (YEARLY'S) C2 **Lab ID: 60126860001** Collected: 08/08/12 07:30 Received: 08/09/12 04:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500CNE Cyanide, Total Analytical Method: SM 4500-CN-E									
Cyanide	0.0056	mg/L	0.0050	0.0021	1		08/15/12 13:25	57-12-5	B

Sample: ACUTE WET TEST **Lab ID: 60126860002** Collected: 08/08/12 07:30 Received: 08/08/12 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Acute Toxicity Analytical Method: EPA 821/R-02/012									
Toxicity, Acute	Complete		1.0	1.0	1		08/10/12 14:10		

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Water Protection Program

ANALYTICAL RESULTS

Project: Shoal Effluent Yearly

Pace Project No.: 60201970

Sample: YEARLY SHOAL EFFLUENT-C2 Lab ID: 60201970001 Collected: 09/02/15 08:00 Received: 09/02/15 19:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics LowLevel Analytical Method: EPA 624 Low									
1,1-Dichloroethene	ND	ug/L	1.0	0.087	1		09/11/15 19:06	75-35-4	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.12	1		09/11/15 19:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.15	1		09/11/15 19:06	79-00-5	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-120		1		09/11/15 19:06	460-00-4	
Toluene-d8 (S)	100	%	80-120		1		09/11/15 19:06	2037-26-5	
1,2-Dichloroethane-d4 (S)	95	%	80-120		1		09/11/15 19:06	17060-07-0	
Preservation pH	1.0		1.0	1.0	1		09/11/15 19:06		

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QUALITY CONTROL DATA

Project: Shoal Effluent Yearly

Pace Project No.: 60201970

QC Batch: MSV/71656

Analysis Method: EPA 624 Low

QC Batch Method: EPA 624 Low

Analysis Description: 624 MSV Low Level

Associated Lab Samples: 60201970001

METHOD BLANK: 1631572

Matrix: Water

Associated Lab Samples: 60201970001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	09/11/15 15:32	
1,1,2-Trichloroethane	ug/L	ND	1.0	09/11/15 15:32	
1,1-Dichloroethene	ug/L	ND	1.0	09/11/15 15:32	
1,2-Dichloroethane-d4 (S)	%	96	80-120	09/11/15 15:32	
4-Bromofluorobenzene (S)	%	98	80-120	09/11/15 15:32	
Toluene-d8 (S)	%	101	80-120	09/11/15 15:32	

LABORATORY CONTROL SAMPLE: 1631573

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.0	90	67-129	
1,1,2-Trichloroethane	ug/L	20	17.5	87	67-124	
1,1-Dichloroethene	ug/L	20	16.0	80	67-128	
1,2-Dichloroethane-d4 (S)	%			99	80-120	
4-Bromofluorobenzene (S)	%			99	80-120	
Toluene-d8 (S)	%			101	80-120	

MATRIX SPIKE SAMPLE: 1631574

Parameter	Units	60201970001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	19.9	99	52-155	
1,1,2-Trichloroethane	ug/L	ND	20	17.9	90	52-143	
1,1-Dichloroethene	ug/L	ND	20	19.0	95	38-153	
1,2-Dichloroethane-d4 (S)	%				98	80-120	
4-Bromofluorobenzene (S)	%				96	80-120	
Toluene-d8 (S)	%				103	80-120	
Preservation pH		1.0		1.0			

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001
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PART E – TOXICITY TESTING DATA
17. TOXICITY TESTING DATA

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

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

- A. POTWs with a design flow rate greater than or equal to 1 million gallons per day
- B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403)
- C. POTWs required by the permitting authority to submit data for these parameters
 - At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
 - If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

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

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

	Most Recent	2 ND Most Recent	3 RD Most Recent
A. Test Information			
Test Method Number	2000/2002	2000/2002	2000/2002
Final Report Number	60200398	60175707	60125407
Outfall Number	001	001	001
Dates Sample Collected	8-12-2015	8-13-2014	8-08-2012
Date Test Started	8-12-2015	8-13-2014	8-08-2012
Duration	48 hours	48 hours	48 hours
B. Toxicity Test Methods Followed			
Manual Title	see attachment	see attachment	see attachment
Edition Number and Year of Publication	2002	2002	2002
Page Number(s)	entire document	entire document	entire document
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite	X	X	X
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After Disinfection	<input type="checkbox"/> X	<input type="checkbox"/> X	<input type="checkbox"/> X
After Dechlorination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:	C-2 Effluent	C-2 Effluent	C-2 Effluent
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acute Toxicity	<input type="checkbox"/> X	<input type="checkbox"/> X	<input type="checkbox"/> X
G. Provide the type of test performed			
Static	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Static-renewal	<input type="checkbox"/> X	<input type="checkbox"/> X	<input type="checkbox"/> X
Flow-through	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	<input type="checkbox"/> X	<input type="checkbox"/> X	<input type="checkbox"/> X
Receiving Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FACILITY NAME Shoal Creek	PERMIT NO. MO- 0104906	OUTFALL NO. 001	
PART E – TOXICITY TESTING DATA			
17. TOXICITY TESTING DATA (continued)			
	Most Recent	Second Most Recent	Third Most Recent
I. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh Water	X	X	X
Salt Water			
J. Percentage of effluent used for all concentrations in the test series			
	100%	100%	100%
K. Parameters measured during the test (State whether parameter meets test method specifications)			
pH	7.73	7.58	7.27
Salinity	NA	NA	NA
Temperature	25c	25c	25c
Ammonia	7.7	ND < .10	.13
Dissolved Oxygen	6.40	6.90	6.70
L. Test Results			
Acute:			
Percent Survival in 100% Effluent			
LC ₅₀	100%	100%	100%
95% C.I.	yes	yes	yes
Control Percent Survival	100%	100%	100%
Other (Describe)			
Chronic:			
NOEC	NA	NA	NA
IC ₂₅	NA	NA	NA
Control Percent Survival	NA	NA	NA
Other (Describe)			
M. Quality Control/ Quality Assurance			
Is reference toxicant data available?	yes	yes	yes
Was reference toxicant test within acceptable bounds?	yes	yes	yes
What date was reference toxicant test run (MM/DD/YYYY)?	08/12/2015	08/14/2014	08/08/2012
Other (Describe)			
Is the treatment works involved in a toxicity reduction evaluation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.



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)

RECEIVED

JUL 18 2016

Water Protection Program

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME		DATE AND TIME COLLECTED	
PERMIT NUMBER		EFFLUENT _____ UPSTREAM _____	
COLLECTOR'S NAME		PERMIT OUTFALL NUMBER	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION			
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC)		EFFLUENT SAMPLE TYPE (CHECK ONE)	
SAMPLE NUMBER		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER _____	
EFFLUENT _____ UPSTREAM _____		UPSTREAM SAMPLE TYPE (CHECK ONE)	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER _____	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L			

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY		TEST TYPE	
PACE ANALYTICAL SERVICES		Acute	
FINAL REPORT NUMBER		TEST DURATION	
60200398		48 HOURS	
DATE OF LAST REFERENCE TOXICANT TESTING		TEST METHOD	
7/22/15		EPA 2000 AND 2002	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY		TEST START DATE AND TIME	TEST END DATE AND TIME
8/12/15 15:15		8/12/15 15:30	8/14/15 14:45
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TEST ORGANISM #1 AND AGE	TEST ORGANISM #2 AND AGE
EFFLUENT _____ UPSTREAM _____		DUBIA <24 HOURS	FATHEAD 2 DAYS
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		90 PERCENT OR GREATER SURVIVAL IN SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	DILUTION WATER USED TO ACHIEVE AEC
EFFLUENT _____ UPSTREAM _____			
FILTER MESH SIEVE SIZE 2		EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC
		0	0
SAMPLE AERATED DURING TESTING?		UPSTREAM ORGANISM #1 PERCENT MORTALITY	UPSTREAM ORGANISM #2 PERCENT MORTALITY
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TEST RESULT AT AEC FOR ORGANISM #1	TEST RESULT AT AEC FOR ORGANISM #2
EFFLUENT _____ UPSTREAM _____		<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25	SM 2550B	8/12/15
pH Standard Units	7.73	SM 4500-H+ B	8/12/15
Conductance µMohs	705	82EPA 120.1	8/12/15
Dissolved Oxygen mg/L	6.40	SM 4500-O G	8/12/15
Total Residual Chlorine mg/L	<.1	SM 4500-CL G	8/12/15
Unionized Ammonia mg/L			
* Total Alkalinity mg/L	230	SM 2320 B	8/12/15
* Total Hardness mg/L	200	SM2340 C	8/12/15

* 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.



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:		DATE AND TIME COLLECTED	
PERMIT NUMBER		EFFLUENT _____ UPSTREAM _____	
COLLECTOR'S NAME		PERMIT OUTFALL NUMBER	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION			
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC)		EFFLUENT SAMPLE TYPE (CHECK ONE)	
SAMPLE NUMBER		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
EFFLUENT _____ UPSTREAM _____		UPSTREAM SAMPLE TYPE (CHECK ONE)	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
CHLORINE _____ mg/L		AMMONIA _____ mg/L	

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY	TEST TYPE	
PACE ANALYTICAL SERVICES	Acute	
FINAL REPORT NUMBER	TEST DURATION	
60175707	48 HOURS	
DATE OF LAST REFERENCE TOXICANT TESTING	TEST METHOD	
8/13/14	EPA 2000 AND 2002	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY	TEST START DATE AND TIME	TEST END DATE AND TIME
8/13/14 14:30	8/13/14 15:15	8/15/14 00
SAMPLE DECONTAMINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TEST ORGANISM #1 AND AGE	TEST ORGANISM #2 AND AGE
EFFLUENT _____ UPSTREAM _____	DUBIA <24 HOURS	FATHEAD 8 DAYS
SAMPLE FILTERED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	90 PERCENT OR GREATER SURVIVAL IN	DILUTION WATER USED TO ACHIEVE AEC
EFFLUENT _____ UPSTREAM _____	SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
FILTER MESH SIEVE SIZE?	EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC
	0	0
SAMPLE AERATED DURING TESTING?	UPSTREAM ORGANISM #1 PERCENT MORTALITY	UPSTREAM ORGANISM #2 PERCENT MORTALITY
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TEST RESULT AT AEC FOR ORGANISM #1	TEST RESULT AT AEC FOR ORGANISM #2
EFFLUENT _____ UPSTREAM _____	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25	SM 2550B	8/13/14
pH Standard Units	7.48	SM 4500-H+ B	8/13/14
Conductance µMhos	731	EPA 120.1	8/13/14
Dissolved Oxygen mg/L	6.90	SM 4500-O G	8/13/14
Total Residual Chlorine mg/L	<.1	SM 4500-CL G	8/13/14
Unionized Ammonia mg/L			
* Total Alkalinity mg/L	136	SM 2320 B	8/13/14
* Total Hardness mg/L	134	SM2340 B	8/13/14

* 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



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		DATE AND TIME COLLECTED	
PERMIT NUMBER		EFFLUENT _____ UPSTREAM _____	
COLLECTOR'S NAME		PERMIT OUTFALL NUMBER	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION			
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC)		EFFLUENT SAMPLE TYPE (CHECK ONE)	
SAMPLE NUMBER		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER _____	
EFFLUENT _____ UPSTREAM _____		UPSTREAM SAMPLE TYPE (CHECK ONE)	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR		<input type="checkbox"/> 24 HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER _____	
CHLORINE _____ mg/L		PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR	
		AMMONIA _____ mg/L	

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY		TEST TYPE	
PACE ANALYTICAL SERVICES		Acute	
FINAL REPORT NUMBER		TEST DURATION	
60125407		48 HOURS	
DATE OF LAST REFERENCE TOXICANT TESTING		TEST METHOD	
8/1/12		EPA 2000 AND 2002	
DATE AND TIME SAMPLE RECEIVED AT LABORATORY		TEST START DATE AND TIME	TEST END DATE AND TIME
8/8/12 14:20		8/8/12 15:00	8/10/12 14:10
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TEST ORGANISM #1 AND AGE	TEST ORGANISM #2 AND AGE
EFFLUENT _____ UPSTREAM _____		DUBIA <24 HOURS	FATHEAD 2 DAYS
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		90 PERCENT OR GREATER SURVIVAL IN	DILUTION WATER USED TO ACHIEVE AEC
EFFLUENT _____ UPSTREAM _____		SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
FILTER MESH SIZE: 2		EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC
		0	0
SAMPLE ATTACKED DURING TESTING?		UPSTREAM ORGANISM #1 PERCENT MORTALITY	UPSTREAM ORGANISM #2 PERCENT MORTALITY
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TEST RESULT AT AEC FOR ORGANISM #1	TEST RESULT AT AEC FOR ORGANISM #2
EFFLUENT _____ UPSTREAM _____		<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25	SM 2550B	8/8/12
pH Standard Units	7.27	SM 4500-H+ B	8/8/12
Conductance µMhos	684	EPA 120.1	8/8/12
Dissolved Oxygen mg/L	6.70	SM 4500-O G	8/8/12
Total Residual Chlorine mg/L	<1	SM 4500-CL G	8/8/12
Unionized Ammonia mg/L			
* Total Alkalinity mg/L	114	SM 2320 B	8/8/12
* Total Hardness mg/L	208	SM2340 B	8/8/12

* Recommended by EPA guidance, not a required analysis

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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME

Shoal Creek

PERMIT NO.

MO- 0104906

OUTFALL NO.

001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

18. GENERAL INFORMATION**18.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes☐ No**18.2** Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:Number of non-categorical SIUs 1Number of CIUs 0**19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION**

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

NAME

Rembrandt Foods

MAILING ADDRESS

409 N Wood St

CITY

Neosho

STATE

MO

ZIP CODE

64850

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

Principal Product(s): egg pasteurization

Raw Material(s): egg

19.3 Flow Rate

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

33,500 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.

33,500 gpd☐ Continuous☒ Intermittent**19.4** Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits

☐ Yes☒ No

b. Categorical Pretreatment Standards

☐ Yes☒ No

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

19.5 Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?☐ Yes☒ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALLFACILITY NAME
Shoal CreekPERMIT NO.
MO- 01104906OUTFALL NO.
001**PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES****20. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE**

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

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

20.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

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

21.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?
☐ Yes ☒ No

Provide a list of sites and the requested information for each current and future site.

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

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

21.4 Waste Treatment

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

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

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

If intermittent, describe the discharge schedule:

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALLFACILITY NAME
Shoal CreekPERMIT NO.
MO- 0104906OUTFALL NO.
001**PART G – COMBINED SEWER SYSTEMS**

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

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

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

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

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

22.3 Percent of collection system that is combined sewer 0%**22.4** Population served by combined sewer collection system**22.5** Name of any satellite community with combined sewer collection system**23. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT****23.1** Description of Outfall

- a. Outfall Number
- b. Location
- c. Distance from Shore (if applicable) _____ ft
- d. Depth Below Surface (if applicable) _____ ft
- e. Which of the following were monitored during the last year for this CSO?
 - ☐ Rainfall
 - ☐ CSO Pollutant Concentrations
 - ☐ CSO
 - ☐ CSO Flow Volume
 - ☐ Receiving Water Quality
- f. How many storm events were monitored last year?

23.2 CSO Events

- a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate
- b. Give the Average Duration Per CSO Event
Hours ☐ Actual ☐ Approximate
- c. Give the Average Volume Per CSO Event
Million Gallons ☐ Actual ☐ Approximate
- d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

23.3 Description of Receiving Waters

- a. Name of Receiving Water
- b. Name of Watershed/River/Stream System
- c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
- d. Name of State Management/River Basin
- e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

23.4 CSO Operations

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

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



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY HOAL CREEK WWTP						CITY NEOSHO					COUNTY/REGION SPRINGFIELD				
OR THE MONTH OF April-14		OUTFALL NUMBER #001				PERMIT NUMBER MO# 0104906					TYPE TREATMENT FACILITY OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-Coli Col/100	OTHER	RAIN	WEATHER	TIME
1	1.0	7.65			14	7.38			14	5.82					
2	1.4	7.60	248.0	283.0	16.4	7.37	12.2	9.0	16.2	5.90	150.0				
3	1.0	7.64			19.0	7.40			18.0	5.52					
4	1.0	7.84			13.7	7.52			14.4	5.86					
5	0.8	7.61			13.4	7.35			13.6	5.09					
6	0.5	7.7			14.1	7.19			15.6	4.52					
7	1.1	7.69			17.0	7.35			15.0	4.60					
8	1.0	7.66			14.3	7.42			14.6	4.77					
9	1.1	7.58	446.0	167.0	19.3	7.33	14.6	20.0	16.4	5.00	75.0				
10	1.0	7.63			17.5	7.33			17.0	4.70					
11	1.5	7.62			15.4	7.42			15.6	4.64					
12	0.9	7.59			19.6	7.36			18.6	3.86					
13	0.7	7.60			18.5	7.42			18.3	4.20					
14	1.0	8.10			13.1	7.35			15.0	4.46					
15	1.0	7.65			17.1	7.37			16.4	4.75					
16	2.7	7.78	191.0	78.0	16.3	7.40	10.1	16.0	16.0	4.50	80.0				
17	1.0	7.78			16.1	7.38			16.2	3.92					
18	1.0	7.83			16.8	7.37			15.8	5.90					
19	0.7	7.60			14.1	7.21			14.7	7.38					
20	2.0	7.66			16.7	7.19			16.5	5.70					
21	1.0	8.55			17.7	7.32			18.7	4.05					
22	1.4	8.44			18.1	7.36			18.0	4.15					
23	1.4	7.85	1320.0	407.0	18.8	7.35	13.8	7.0	17.7	3.15	100.0				
24	1.0	8.16			18.2	7.32			20.0	3.98					
25	1.0	7.70			18.8	7.36			19.0	4.78					
26	1.7	7.58			17.4	7.35			18.2	5.61					
27	0.6	7.55			18.8	7.24			19.6	4.78					
28	1.5	7.60			19.6	7.29			19.2	4.33					
29	1.5	7.63			15.0	7.40			16.0	5.75					
30	1.3	7.60	582.0	1050.0	16.2	7.40	38.6	21.0	16.6	5.00	8.0				
31															
3. of Samp.	30.0	30.0	5.0	5.0	30.0	30.0	5.0	5.0	30.0	30.0	5.0				
4. of Samp.	34.7		2787.0	1985.0	501.0	220.5	89.3	73.0	500.9	146.7	413.0				
Monthly Avg.	1.2		557.4	397.0			17.9	14.6			82.6				
Daily Max.	2.7	8.6	1320.0	1050.0	19.6	7.5	38.6	21.0	20.0	7.4	150.0				
Daily Min.		7.6			13.1	7.2			13.6	3.2	8.0				
Avg 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: SHOAL
Pace Project No.: 60200938

Sample: SHOAL INFLUENT A1 Lab ID: 60200938001 Collected: 08/19/15 07:30 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	120	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	28.9	mg/L	2.0	2.0	1	08/20/15 11:42	08/25/15 11:12		1e

Sample: SHOAL EFFLUENT C2 Lab ID: 60200938002 Collected: 08/19/15 08:00 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	128	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	53.1	mg/L	2.0	2.0	1	08/20/15 11:45	08/25/15 11:16		
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	3.1	mg/L	0.20	0.093	2		08/25/15 10:16	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

OF FACILITY						CITY					COUNTY/REGION				
Creek WWTP						NEOSHO					SPRINGFIELD				
1st MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
st-08 015						MO# 0104908					OXI-DATION DITCH				
OUTFALL NUMBER						EFFLUENT									
#001															
	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	1.6	7.38			22.5	7.60			24.5	3.44	in/Lab		0.00		
2	1.0	7.79			23.4	7.59			25.0	3.60	in		0.00		
3	1.2	7.94			24.2	7.60			24.5	3.42	house		0.00		
4	1.7	7.79			24.4	7.58			24.7	3.56			0.00		
5	3.1	7.28	260.0	104.0	22.5	7.60	2.7	5.0	24.3	3.27	25.0		0.43		
6	1.9	7.79			22.4	7.34			24.3	4.58			0.26		
7	1.0	7.39			23.3	7.29			23.2	3.92			0.00		
8	1.3	8.17			23.4	7.75			25.3	4.77			0.00		
9	1.1	7.43			23.1	7.65			25.2	4.49			0.00		
10	1.6	7.34			27.0	7.48			26.6	4.28			0.16		
11	1.4	7.51			26.1	7.67			26.7	3.90			0.10		
12	2.6	7.41	520.0	294.0	26.5	7.63	4.2	9.0	26.0	4.75	80.0		0.00		
13	1.6	7.58			27.2	7.52			26.8	3.84			0.00		
14	1.5	7.16			26.6	7.61			26.7	6.50			0.00		
15	1.3	7.43			23.2	7.58			23.7	5.48			0.00		
16	1.2	7.23			23.5	7.66			23.7	3.72			0.00		
17	1.5	7.60			23.2	7.51			24.5	3.05			0.00		
18	1.6	7.61			23.5	7.58			24.6	4.82			0.55		
19	3.1	7.01	28.9	120.0	22.1	7.40	53.1	128.0	23.2	3.61	68.0		3.70		
20	2.9	7.20			21.5	7.11			22.6	5.06			0.10		
21	2.7	7.39			21.6	7.56			22.4	3.86			0.00		
22	2.4	7.68			21.8	7.59			22.5	4.72			0.18		
23	4.3	7.19			21.8	7.47			22.6	2.60			1.18		
24	3.4	7.28			23.3	7.47			23.3	3.36			0.00		
25	2.2	7.34	307.0	365.0	22.3	7.44	2.0	5.0	23.0	2.53	10.0		0.00		
26	1.5	7.19			20.1	7.55			21.3	3.55			0.00		
27	1.4	7.24			21.1	7.51			22.3	5.44			0.00		
28	1.3	7.31			21.1	7.53			22.2	6.45			0.00		
29	1.7	7.25			21.2	7.55			22.4	6.50			0.00		
30	1.8	7.30			21.1	7.55			22.3	6.20			0.00		
31	1.7	7.44			22.3	7.56			22.7	5.68			0.00		
Samp.															
Samp.	58.6	230.7	1115.9	883.0	717.3	233.5	62.0	147.0		135.0					
/ Avg.	3.3		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Max.	4.3	8.2	520.0	365.0	27.2	7.8	53.1	128.0	26.8	6.5	80.0				
Min.	1.0	7.0			20.1	7.1			21.3	2.5	10.0				
Avg.															

SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY						COUNTY/REGION					
SHOAL CREEK WWTP						NEOSHO						SPRINGFIELD					
FOR THE MONTH OF						PERMIT NUMBER						TYPE TREATMENT FACILITY					
December-13						MO# 0104906						OXI-DATION DITCH					
INFLUENT						EFFLUENT											
JAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-Coli Col/100	SNOW	RAIN	WEATHER	TIME		
1	1.2	6.97			14.3	7.09			13.1	2.69							
2	1.1	7.03			19.4	7.22			16.8	3.55							
3	1.5	7.38			18.0	7.27			16.4	3.20							
4	1.6	7.37	142.0	146.0	12.3	7.18	4.4	5.0	14.5	3.50							
5	2.5	7.50			13.1	7.32			13.0	3.56							
6	1.0	8.05			12.7	7.35			11.7	4.68		0.45	5.0				
7	1.4	7.67			13.3	7.36			11.6	4.78		0.10	1.0				
8	1.4	7.70			14.2	7.31			12.1	4.67							
9	1.1	7.81			11.3	7.40			13.6	3.88							
10	2.2	7.74			11.6	7.17			10.0	6.25		1.90	3.0				
11	1.0	7.52			12.5	7.15			10.4	5.90							
12	1.0	7.60			13.3	7.27			11.7	5.30							
13	1.6	7.47	198	227	11.8	7.18	12.3	8.0	10.8	7.85		0.02					
14	2.6	7.23			11.6	7.03			9.4	5.07		0.63					
15	2.4	7.38			12.9	7.22			10.4	5.38							
16	2.1	7.34			13.3	7.23			11.8	6.25							
17	2.1	7.29			13.1	7.14			11.6	4.44							
18	1.5	7.37	139.0	131.0	13.7	7.31	3.6	5.0	12.9	6.06							
19	2.2	7.41			12.1	7.19			14.1	5.80							
20	1.6	7.34			13.0	7.24			14.0	4.89							
21	2.3	7.29			10.3	7.19			10.7	7.09		1.04					
22	2.3	7.30			13.1	7.22			13.6	7.04		0.24					
23	2.5	7.40			10.2	7.30			7.8	8.24							
24	2.1	7.34	128.0	169.0	10.6	7.41	7.0	21.0	9.4	7.64							
25	1.1	7.51			12.6	7.10			10.2	6.11							
26	1.3	7.47			13.9	7.36			11.4	4.32							
27	1.0	7.39			14.4	7.41			12.9	4.86							
28	1.6	7.41			13.4	7.29			11.4	5.89							
29	2.0	7.34			11.2	7.36			10.8	4.26							
30	1.5	7.60			10.6	7.32			10.2	5.40							
31	2.2	7.56			14.4	7.40			12.5	5.44							
No. of Samp.	31.0	31.0	4.0	4.0	31.0	31.0	4.0	4.0	31.0	31.0	0.0	4.38	9.0				
Tot of Samp.	53.0		607.0	673.0	402.2	225.0	27.3	39.0	370.8	164.0	0.0						
Monthly Avg.	1.7		151.8	168.3			6.8	9.8			#DIV/0!						
Daily Max.	2.6	8.1	198.0	227.0	19.4	7.4	12.3	21.0	16.8	8.2	0.0						
Daily Min.		7.0			10.2	7.0			7.8	2.7	0.0						
Max 7/Avg.																	

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: Shoal 12/24/13
Pace Project No.: 60160316

Sample: SHOAL INFLUENT-(A1)		Lab ID: 60160316001	Collected: 12/24/13 07:15	Received: 12/24/13 14:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	169	mg/L	5.0	1		12/30/13 09:53		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	128	mg/L	2.0	1	12/25/13 12:32	12/30/13 13:20		

Sample: SHOAL EFFLUENT-(C2)		Lab ID: 60160316002	Collected: 12/24/13 07:30	Received: 12/24/13 14:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	21.0	mg/L	5.0	1		12/30/13 09:53		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	7.0	mg/L	2.0	1	12/25/13 12:38	12/30/13 13:22		
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.10	1		01/08/14 10:57	7664-41-7	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: SHOAL 2/13/14
Pace Project No.: 60162938

Sample: SHOAL INFLUENT-[A1]		Lab ID: 60162938001	Collected: 02/13/14 07:15	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	360	mg/L	5.0	1		02/19/14 11:08		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	212	mg/L	2.0	1	02/14/14 15:27	02/19/14 16:18		

Sample: SHOAL EFFLUENT [C2]		Lab ID: 60162938002	Collected: 02/13/14 07:30	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	21.0	mg/L	5.0	1		02/19/14 11:09		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	63.6	mg/L	2.0	1	02/14/14 15:29	02/19/14 16:21		
350.1 Ammonia		Analytical Method: EPA 350.1						
Nitrogen, Ammonia	0.12	mg/L	0.10	1		02/18/14 13:20	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
SHOAL CREEK WWTP						NEOSHO					SPRINGFIELD				
FOR THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
FEBURARY-2014						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	SNOW	RAIN	WEATHER	TIME
1	1.30	7.35			11.4	7.28			11.0	7.78			0.11		
2	1.36	7.35			11.4	7.20			10.7	4.44					
3	1.52	7.38			11.5	7.06			10.6	5.79					
4	1.20	7.66			9.7	7.29			9.5	6.60			0.01		
5	1.0	7.70			7.3	7.42			10.6	8.52		2.0	0.2		
6	1.0	7.71			8.3	7.40			7.9	8.81					
7	1.40	8.21	196.0	410.0	9.0	7.46	13.4	13.0	7.6	8.74					
8	1.50	7.64			10.4	7.23			9.2	7.14					
9	1.40	7.58			9.6	7.39			9.0	6.47					
10	1.40	7.70			9.8	7.07			8.6	6.87			0.01		
11	2.20	7.77			10.2	7.21			8.9	5.03					
12	1.0	8.93			11.0	7.15			9.0	5.82					
13	1.40	7.04	212	360	14.2	7.26	63.6	21.0	11.2	4.92					
14	1.90	7.62			10.0	7.22			10.9	5.26					
15	1.20	7.12			9.1	7.27			8.9	4.95					
16	1.20	7.33			10.8	7.28			9.5	3.59					
17	1.30	7.41			13.1	7.30			12.1	3.79					
18	1.00	7.54			18.8	7.40			14.0	4.05					
19	1.40	9.21	39.2	594.0	14.7	7.33	2.0	16.0	14.0	5.75					
20	1.50	8.34			14.1	7.40			12.0	6.94			0.09		
21	1.10	7.76			13.3	7.32			11.0	3.07					
22	1.10	7.71			11.7	7.02			11.7	5.38					
23	1.20	7.95			11.1	7.18			11.3	5.06					
24	1.80	7.67			13.1	7.35			12.7	4.00					
25	1.90	8.04			12.6	7.52			10.8	6.09					
26	1.00	8.21	137.0	396.0	10.2	7.50	12.3	20.0	9.7	7.37					
27	2.00	7.67			14.0	7.46			11.0	5.25					
28	2.70	7.95			10.6	7.37			11.3	7.20					
29															
30															
31															
to. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0				
ot of Samp.	40.0		584.2	1760.0	321.0	204.3	91.3	70.0	294.7	164.7	0.0				
onthly Avg.	1.4		146.1	440.0			22.8	17.5			#DIV/0!				
aily Max.	2.7	9.2	212.0	594.0	18.8	7.5	63.6	21.0	14.0	8.8	0.0				
aily Min.		7.0			7.3	7.0			7.6	3.1	0.0				
ax 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

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ANALYTICAL RESULTS

Project: SHOAL 2/13/14
Pace Project No.: 60162938

Sample: SHOAL INFLUENT-[A1]		Lab ID: 60162938001	Collected: 02/13/14 07:15	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	360 mg/L		5.0	1		02/19/14 11:08		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	212 mg/L		2.0	1	02/14/14 15:27	02/19/14 16:18		

Sample: SHOAL EFFLUENT [C2]		Lab ID: 60162938002	Collected: 02/13/14 07:30	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	21.0 mg/L		5.0	1		02/19/14 11:09		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	63.6 mg/L		2.0	1	02/14/14 15:29	02/19/14 16:21		
350.1 Ammonia		Analytical Method: EPA 350.1						
Nitrogen, Ammonia	0.12 mg/L		0.10	1		02/18/14 13:20	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY HOAL CREEK WWTP						CITY NEOSHO					COUNTY/REGION SPRINGFIELD				
OR THE MONTH OF April-14		OUTFALL NUMBER #001		PERMIT NUMBER MO# 0104906					TYPE TREATMENT FACILITY OXI-DATION DITCH						
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-Coli Col/100	OTHER	RAIN	WEATHER	TIME
1	1.0	7.65			14	7.38			14	5.82					
2	1.4	7.60	248.0	283.0	16.4	7.37	12.2	9.0	16.2	5.90	150.0				
3	1.0	7.64			19.0	7.40			18.0	5.52					
4	1.0	7.84			13.7	7.52			14.4	5.86					
5	0.8	7.61			13.4	7.35			13.6	5.09					
6	0.5	7.7			14.1	7.19			15.6	4.52					
7	1.1	7.69			17.0	7.35			15.0	4.60					
8	1.0	7.66			14.3	7.42			14.6	4.77					
9	1.1	7.58	446.0	167.0	19.3	7.33	14.6	20.0	16.4	5.00	75.0				
10	1.0	7.63			17.5	7.33			17.0	4.70					
11	1.5	7.62			15.4	7.42			15.6	4.64					
12	0.9	7.59			19.6	7.36			18.6	3.86					
13	0.7	7.60			18.5	7.42			18.3	4.20					
14	1.0	8.10			13.1	7.35			15.0	4.46					
15	1.0	7.65			17.1	7.37			16.4	4.75					
16	2.7	7.78	191.0	78.0	16.3	7.40	10.1	16.0	16.0	4.50	80.0				
17	1.0	7.78			16.1	7.38			16.2	3.92					
18	1.0	7.83			16.8	7.37			15.8	5.90					
19	0.7	7.60			14.1	7.21			14.7	7.38					
20	2.0	7.66			16.7	7.19			16.5	5.70					
21	1.0	8.55			17.7	7.32			18.7	4.05					
22	1.4	8.44			18.1	7.36			18.0	4.15					
23	1.4	7.85	1320.0	407.0	18.8	7.35	13.8	7.0	17.7	3.15	100.0				
24	1.0	8.16			18.2	7.32			20.0	3.98					
25	1.0	7.70			18.8	7.36			19.0	4.78					
26	1.7	7.58			17.4	7.35			18.2	5.61					
27	0.6	7.55			18.8	7.24			19.6	4.78					
28	1.5	7.60			19.6	7.29			19.2	4.33					
29	1.5	7.63			15.0	7.40			16.0	5.75					
30	1.3	7.60	582.0	1050.0	16.2	7.40	38.6	21.0	16.6	5.00	8.0				
31															
Sum of Samp.	30.0	30.0	5.0	5.0	30.0	30.0	5.0	5.0	30.0	30.0	5.0				
Avg of Samp.	34.7		2787.0	1985.0	501.0	220.5	89.3	73.0	500.9	146.7	413.0				
Monthly Avg.	1.2		557.4	397.0			17.9	14.6			82.6				
Daily Max.	2.7	8.6	1320.0	1050.0	19.6	7.5	38.6	21.0	20.0	7.4	150.0				
Daily Min.		7.6			13.1	7.2			13.6	3.2	8.0				
Max 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD			
FOR THE MONTH OF April-13		OUTFALL NUMBER #001				PERMIT NUMBER MO# 0104906						TYPE TREATMENT FACILITY OXI-DATION DITCH			
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-COL Col/100	OTHER	RAIN	WEATHER	TIME
1	0.9	7.75			14.6	7.41			14.9	5.54					
2	1.10	7.94			13.0	7.30			12.2	5.50			0.22		
3	2.40	7.67	211.0	91.0	14.0	7.40	3.8	5.0	12.7	5.15	165.0		0.27		
4	1.30	7.84			15.5	7.33			14.0	4.90					
5	1.40	7.65			18.9	7.31			15.6	4.72					
6	1.37	7.61			14.8	7.41			14.5	5.72					
7	1.47	7.73			16.7	7.33			15.3	4.09					
8	1.10	7.67			21.9	7.45			19.2	4.61					
9	1.40	7.35			18.7	7.66			19.8	4.46					
10	1.40	7.50			15.0	6.90			15.4	4.20			0.55		
11	3.60	7.45	91.9	85.0	14.0	7.43	5.4	12.0	12.7	6.91	115.0		1.55		
12	1.80	7.53			15.0	7.59			14.0	5.80					
13	1.76	7.57			12.5	7.27			15.5	5.43					
14	1.80	7.58			15.8	7.35			16.7	5.08					
15	1.60	7.51			19.8	7.07			17.6	4.68					
16	1.50	7.63			17.5	7.26			16.7	5.00					
17	1.60	7.61			20.4	7.31			18.6	5.58					
18	4.60	8.42	146.0	270.0	14.1	7.37	4.0	11.0	15.0	6.33	93.0		1.90		
19	3.70	8.12			16.6	7.38			14.4	6.15					
20	3.40	7.52			16.1	7.32			15.3	6.10					
21	2.30	7.63			16.7	7.38			16.1	6.13					
22	2.00	7.49			18.3	7.31			17.0	6.79					
23	2.30	7.54			13.4	7.70			13.9	5.55			0.36		
24	1.76	8.60			16.0	7.34			14.5	5.96			0.09		
25	1.70	7.56	229.0	150.0	18.0	7.26	5.2	5.0	16.6	6.67	30.0				
26	1.70	7.61			15.6	7.22			16.0	6.35			0.12		
27	2.40	7.50			14.3	7.33			13.8	5.78			0.90		
28	2.20	7.58			16.2	7.28			15.0	5.29			0.15		
29	2.70	7.61			19.6	7.33			18.0	3.47					
30	2.30	7.68			18.9	7.21			18.4	3.18					
31															
o. of Samp.	30.0	30.0	4.0	4.0	30.0	30.0	4.0	4.0	30.0	30.0	4.0				
l of Samp.	60.6		677.9	596.0	491.9	220.2	18.4	33.0	469.4	161.1	403.0				
onthly Avg.	2.0		169.5	149.0			4.6	8.3			100.8				
aily Max.	4.6	8.6	229.0	270.0	21.9	7.7	5.4	12.0	19.8	6.9	165.0				
aily Min.		7.4			12.5	6.9			12.2	3.2	30.0				
ax 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

780-1308 (8-03)



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
Inlet Creek WWTP						NEOSHO					SPRINGFIELD				
DATE OF MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
June-16						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	5.1	6.80			17.5	7.13			18.2	4.88					
2	4.0	6.97			18.3	7.27			19.0	5.00					
3	4.3	6.97	87.4	49.0	19.1	7.29	4.9	12.0	20.3	4.97	36400				
4	3.5	6.84			20.3	7.33			20.7	4.92					
5	3.0	7.07			19.1	7.43			19.6	4.88					
6	2.0	7.04			19.0	7.39			19.5	4.91					
7	2.2	7.10			18.9	7.29			19.7	4.52					
8	1.7	7.15			20.7	6.98			20.3	4.46					
9	2.4	7.07			20.8	7.28			21.4	4.27					
10	2.3	6.70	147.0	77.3	21.9	7.23	40.7	19.0	22.6	3.13	19863.0				
11	1.8	7.02			20.6	7.20			22.1	2.89					
12	1.8	7.00			21.1	7.09			22.2	2.80					
13	2.3	6.97			22.1	7.14			22.7	2.79					
14	2.4	7.13			21.70	7.11			22.3	2.22					
15	2.5	7.28			21.4	7.19			23.2	3.00					
16	2.0	7.19			20.9	7.37			22.7	2.97					
17	1.7	7.02	226.0	86.7	20.0	7.43	47.2	56.0	22.4	3.09	235900				
18	2.4	7.49			21.3	7.18			22.3	3.08					
19	2.2	7.12			19.9	7.27			22.1	4.96					
20	2.0	7.22			19.9	7.42			22.0	4.45					
21	1.9*	7.32			20.9	7.51			22.9	4.12					
22	2.0	7.19			25.5	7.60			23.6	3.67					
23	2.3	7.88	178.0	237.0	25.2	7.51	37.4	27.0	24.0	3.91	111900.0				
24	1.8	7.01			24.7	7.59			23.1	3.11					
25	1.7	7.06			23.2	7.36			23.8	3.88					
26	1.5	7.74			21.3	7.28			22.1	3.51					
27	1.0	7.05			20.1	7.21			22.5	3.55					
28	1.6	7.08			21.6	7.44			22.5	2.73					
29	1.5	7.28			23.0	7.40			24.0	2.92					
30	1.0	7.32			23.4	7.34			23.8	3.21					
31															
No. of Samp.															
Tot of Samp.	66.3	214.1	638.4	450.0	633.4	219.3	130.2	114.0		112.8					
Monthly Avg.	#DIV/0!		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Daily Max.	5.1	7.9	226.0	237.0	25.5	7.6	47.2	56.0	24.0	5.0	235900.0				
Daily Min.	1.0	6.7			17.5	7.0			18.2	2.2	19863.0				
Max 7/Avg.															

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: SHOAL
Pace Project No.: 60196583

Sample: SHOAL EFFLUENT		Lab ID: 60196583001		Collected: 06/17/15 08:10		Received: 06/17/15 14:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: SM 9223B Colilert Preparation Method: SM 9223B Colilert									
MBIO 9223B E.Coli									
Escherichia coli (E.coli)	235900	MPN/100 mL	1.0	1.0	1	06/17/15 14:54	06/18/15 15:00		

Sample: SHOAL INFLUENT (A1)		Lab ID: 60196583002		Collected: 06/17/15 08:00		Received: 06/17/15 19:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: SM 2540D									
2540D Total Suspended Solids									
Total Suspended Solids	86.7	mg/L	5.0	5.0	1		06/19/15 09:03		
Analytical Method: SM 5210B Preparation Method: SM 5210B									
5210B BOD, 5 day									
BOD, 5 day	226	mg/L	2.0	2.0	1	06/18/15 12:16	06/23/15 12:31		1e

Sample: SHOAL EFFLUENT (C2)		Lab ID: 60196583003		Collected: 06/17/15 08:00		Received: 06/17/15 19:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: SM 2540D									
2540D Total Suspended Solids									
Total Suspended Solids	56.0	mg/L	5.0	5.0	1		06/19/15 09:03		
Analytical Method: SM 5210B Preparation Method: SM 5210B									
5210B BOD, 5 day									
BOD, 5 day	47.2	mg/L	2.0	2.0	1	06/18/15 12:22	06/23/15 12:35		
Analytical Method: EPA 350.1									
350.1 Ammonia									
Nitrogen, Ammonia	18.2	mg/L	0.50	0.14	5		06/24/15 08:33	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL
Pace Project No.: 60200938

Sample: SHOAL INFLUENT A1 Lab ID: 60200938001 Collected: 08/19/15 07:30 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	120	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	28.9	mg/L	2.0	2.0	1	08/20/15 11:42	08/25/15 11:12		1e

Sample: SHOAL EFFLUENT C2 Lab ID: 60200938002 Collected: 08/19/15 08:00 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	128	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	53.1	mg/L	2.0	2.0	1	08/20/15 11:45	08/25/15 11:16		
350.1 Ammonia Analytical Method: EPA 350.1									
Nitrogen, Ammonia	3.1	mg/L	0.20	0.093	2		08/25/15 10:16	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
11 Creek WWTP						NEOSHO					SPRINGFIELD				
THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
1st-08 015						MO# 0104906					OXI-DATION DITCH				
ENT						EFFLUENT									
	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	1.6	7.38			22.5	7.60			24.5	3.44	in/Lab		0.00		
2	1.0	7.79			23.4	7.59			25.0	3.60	in		0.00		
3	1.2	7.94			24.2	7.60			24.5	3.42	house		0.00		
4	1.7	7.79			24.4	7.58			24.7	3.56			0.00		
5	3.1	7.28	260.0	104.0	22.5	7.60	2.7	5.0	24.3	3.27	25.0		0.43		
6	1.9	7.79			22.4	7.34			24.3	4.58			0.26		
7	1.0	7.39			23.3	7.29			23.2	3.92			0.00		
8	1.3	8.17			23.4	7.75			25.3	4.77			0.00		
9	1.1	7.43			23.1	7.65			25.2	4.49			0.00		
10	1.6	7.34			27.0	7.48			26.6	4.28			0.16		
11	1.4	7.51			26.1	7.67			26.7	3.90			0.10		
12	2.6	7.41	520.0	294.0	26.5	7.63	4.2	9.0	26.0	4.75	80.0		0.00		
13	1.6	7.58			27.2	7.52			26.8	3.84			0.00		
14	1.5	7.16			26.6	7.61			26.7	6.50			0.00		
15	1.3	7.43			23.2	7.58			23.7	5.48			0.00		
16	1.2	7.23			23.5	7.66			23.7	3.72			0.00		
17	1.5	7.60			23.2	7.51			24.5	3.05			0.00		
18	1.6	7.61			23.5	7.58			24.6	4.82			0.55		
19	3.1	7.01	28.9	120.0	22.1	7.40	53.1	128.0	23.2	3.61	68.0		3.70		
20	2.9	7.20			21.5	7.11			22.6	5.06			0.10		
21	2.7	7.39			21.6	7.56			22.4	3.86			0.00		
22	2.4	7.68			21.8	7.59			22.5	4.72			0.18		
23	4.3	7.19			21.8	7.47			22.6	2.60			1.18		
24	3.4	7.28			23.3	7.47			23.3	3.36			0.00		
25	2.2	7.34	307.0	365.0	22.3	7.44	2.0	5.0	23.0	2.53	10.0		0.00		
26	1.5	7.19			20.1	7.55			21.3	3.55			0.00		
27	1.4	7.24			21.1	7.51			22.3	5.44			0.00		
28	1.3	7.31			21.1	7.53			22.2	6.45			0.00		
29	1.7	7.25			21.2	7.55			22.4	6.50			0.00		
30	1.8	7.30			21.1	7.55			22.3	6.20			0.00		
31	1.7	7.44			22.3	7.56			22.7	5.68			0.00		
Samp.															
Samp.	58.6	230.7	1115.9	883.0	717.3	233.5	62.0	147.0		135.0					
y Avg.	3.3		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Max.	4.3	8.2	520.0	365.0	27.2	7.8	53.1	128.0	26.8	6.5	80.0				
Min.	1.0	7.0			20.1	7.1			21.3	2.5	10.0				
Avg.															

SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: SHOAL 2/14/13
Pace Project No.: 60138809

Sample: SHOAL INF-(A1)		Lab ID: 60138809001	Collected: 02/14/13 07:10	Received: 02/14/13 18:24	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	168	mg/L	5.0	5.0	1		02/19/13 09:17		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	157	mg/L	2.0	2.0	1	02/15/13 15:38	02/20/13 14:10		

Sample: SHOAL EFFLUENT (C2)		Lab ID: 60138809002	Collected: 02/14/13 07:30	Received: 02/14/13 18:24	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	9.0	mg/L	5.0	5.0	1		02/19/13 09:17		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	12.5	mg/L	2.0	2.0	1	02/15/13 15:56	02/20/13 14:20		
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.034	1		02/19/13 14:09	7664-41-7	



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD							
FOR THE MONTH OF February-13						OUTFALL NUMBER #001						PERMIT NUMBER MO# 0104906				TYPE TREATMENT FACILITY OXI-DATION DITCH			
INFLUENT						EFFLUENT													
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	RAIN	WEATHER	TIME					
1	2.6	7.67			11.4	7.34			11.6	3.20		5.3	.03						
2	1.4	7.57			11.3	7.38			11.5	5.70									
3	1.6	7.66			10.5	7.60			11.4	4.17									
4	1.8	7.56			16.0	7.39			13.0	2.75			.06						
5	1.7	7.90			15.5	7.40			13.3	5.33									
6	1.8	7.1	266.0	174.0	15.0	7.47	4.0	5.0	15.0	2.60									
7	1.8	7.69			14.6	7.10			14.0	2.80									
8	1.8	7.68			15.7	6.98			13.3	2.55			.32						
9	1.0	7.21			12.2	7.44			14.1	5.53									
10	1.4	7.45			15.3	7.11			14.5	3.63			.40						
11	2.1	7.37			14.6	7.14			13.0	2.85									
12	1.7	7.76			13.0	7.22			11.5	4.33									
13	1.2	7.50			14.2	7.00			11.8	3.38		1.0	.31						
14	1.9	8.55	157.0	168.0	15.4	7.16	12.5	9.0	12.7	4.08									
15	1.9	7.63			12.7	7.27			11.0	3.30									
16	1.0	7.58			11.5	7.21			13.0	3.56			.02						
17	1.4	7.53			11.8	7.17			11.0	4.17									
18	1.7	8.20			13.3	7.30			13.0	3.52									
19	1.3	7.91			12.2	7.67			13.6	3.43			.01						
20	1.4	7.94	348.0	160.0	7.0	7.69	4.4	5.0	9.9	2.50									
21	2.0	7.88			11.3	7.60			10.0	2.38			.30						
22	1.9	7.95			11.4	7.65			11.0	2.78			.63						
23	1.8	7.88			10.2	7.75			10.5	3.72									
24	1.8	7.92			10.0	7.59			9.7	7.96									
25	2.2	8.47			10.0	7.66			10.0	5.25									
26	2.2	8.07			10.5	7.39			9.5	2.83		4.0	.81						
27	3.0	7.88			10.1	7.46			9.3	2.35			.01						
28	2.5	8.11	181.0	124.0	10.8	7.48	8.6	5.0	10.2	4.07									
29																			
30																			
31																			
No. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0								
Tot of Samp.	49.9		952.0	626.0	347.5	206.6	29.5	24.0	332.4	104.7	0.0								
Monthly Avg.	1.8		238.0	156.5			7.4	6.0			#DIV/0!								
Daily Max.	3.0	8.6	348.0	174.0	16.0	7.8	12.5	9.0	15.0	8.0	0.0								
Daily Min.		7.1			7.0	7.0			9.3	2.4	0.0								
Max 7/Avg.																			

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY						COUNTY/REGION					
SHOAL CREEK WWTP						NEOSHO						SPRINGFIELD					
FOR THE MONTH OF						PERMIT NUMBER						TYPE TREATMENT FACILITY					
FEBRUARY-2014						MO# 0104908						OXI-DATION DITCH					
INFLUENT						EFFLUENT											
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	SNOW	RAIN	WEATHER	TIME		
1	1.30	7.35			11.4	7.28			11.0	7.78			0.11				
2	1.36	7.35			11.4	7.20			10.7	4.44							
3	1.52	7.38			11.5	7.06			10.6	5.79							
4	1.20	7.66			9.7	7.29			9.5	6.60			0.01				
5	1.0	7.70			7.3	7.42			10.6	8.52		2.0	0.2				
6	1.0	7.71			8.3	7.40			7.9	8.81							
7	1.40	8.21	196.0	410.0	9.0	7.46	13.4	13.0	7.6	8.74							
8	1.50	7.64			10.4	7.23			9.2	7.14							
9	1.40	7.58			9.6	7.39			9.0	6.47							
10	1.40	7.70			9.8	7.07			8.6	6.87			0.01				
11	2.20	7.77			10.2	7.21			8.9	5.03							
12	1.0	8.93			11.0	7.15			9.0	5.82							
13	1.40	7.04	212	360	14.2	7.26	63.6	21.0	11.2	4.92							
14	1.90	7.62			10.0	7.22			10.9	5.26							
15	1.20	7.12			9.1	7.27			8.9	4.95							
16	1.20	7.33			10.8	7.28			9.5	3.59							
17	1.30	7.41			13.1	7.30			12.1	3.79							
18	1.00	7.54			18.8	7.40			14.0	4.05							
19	1.40	9.21	39.2	594.0	14.7	7.33	2.0	16.0	14.0	5.75							
20	1.50	8.34			14.1	7.40			12.0	6.94			0.09				
21	1.10	7.76			13.3	7.32			11.0	3.07							
22	1.10	7.71			11.7	7.02			11.7	5.38							
23	1.20	7.95			11.1	7.18			11.3	5.06							
24	1.80	7.67			13.1	7.35			12.7	4.00							
25	1.90	8.04			12.6	7.52			10.8	6.09							
26	1.00	8.21	137.0	396.0	10.2	7.50	12.3	20.0	9.7	7.37							
27	2.00	7.67			14.0	7.46			11.0	5.25							
28	2.70	7.95			10.6	7.37			11.3	7.20							
29																	
30																	
31																	
to. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0						
ot of Samp.	40.0		584.2	1760.0	321.0	204.3	91.3	70.0	294.7	164.7	0.0						
ortnly Avg.	1.4		146.1	440.0			22.8	17.5			#DIV/0!						
aily Max.	2.7	9.2	212.0	594.0	18.8	7.5	63.6	21.0	14.0	8.8	0.0						
aily Min.		7.0			7.3	7.0			7.6	3.1	0.0						
ax 7/Avg.																	

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

0 780-1306 (5-03)

ANALYTICAL RESULTS

Project: SHOAL 2/13/14
Pace Project No.: 60162938

Sample: SHOAL INFLUENT-[A1]		Lab ID: 60162938001	Collected: 02/13/14 07:15	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	360	mg/L	5.0	1		02/19/14 11:08		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	212	mg/L	2.0	1	02/14/14 15:27	02/19/14 16:18		

Sample: SHOAL EFFLUENT [C2]		Lab ID: 60162938002	Collected: 02/13/14 07:30	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	21.0	mg/L	5.0	1		02/19/14 11:09		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	63.6	mg/L	2.0	1	02/14/14 15:29	02/19/14 16:21		
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	0.12	mg/L	0.10	1		02/18/14 13:20	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SHOAL
Pace Project No.: 60200938

Sample: SHOAL INFLUENT A1 Lab ID: 60200938001 Collected: 08/19/15 07:30 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	120	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	28.9	mg/L	2.0	2.0	1	08/20/15 11:42	08/25/15 11:12		1e

Sample: SHOAL EFFLUENT C2 Lab ID: 60200938002 Collected: 08/19/15 08:00 Received: 08/19/15 18:25 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	128	mg/L	5.0	5.0	1		08/24/15 12:01		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	53.1	mg/L	2.0	2.0	1	08/20/15 11:45	08/25/15 11:16		
350.1 Ammonia Analytical Method: EPA 350.1									
Nitrogen, Ammonia	3.1	mg/L	0.20	0.093	2		08/25/15 10:16	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
il Creek WWTP						NEOSHO					SPRINGFIELD				
THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
1st-08 015						MO# 0104906					OXI-DATION DITCH				
ENT						EFFLUENT									
	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	1.6	7.38			22.5	7.60			24.5	3.44	in/Lab		0.00		
2	1.0	7.79			23.4	7.59			25.0	3.60	in		0.00		
3	1.2	7.94			24.2	7.60			24.5	3.42	house		0.00		
4	1.7	7.79			24.4	7.58			24.7	3.56			0.00		
5	3.1	7.28	260.0	104.0	22.5	7.60	2.7	5.0	24.3	3.27	25.0		0.43		
6	1.9	7.79			22.4	7.34			24.3	4.58			0.26		
7	1.0	7.39			23.3	7.29			23.2	3.92			0.00		
8	1.3	8.17			23.4	7.75			25.3	4.77			0.00		
9	1.1	7.43			23.1	7.65			25.2	4.49			0.00		
10	1.6	7.34			27.0	7.48			26.6	4.28			0.16		
11	1.4	7.51			26.1	7.67			26.7	3.90			0.10		
12	2.6	7.41	520.0	294.0	26.5	7.63	4.2	9.0	26.0	4.75	80.0		0.00		
13	1.6	7.58			27.2	7.52			26.8	3.84			0.00		
14	1.5	7.16			26.6	7.61			26.7	6.50			0.00		
15	1.3	7.43			23.2	7.58			23.7	5.48			0.00		
16	1.2	7.23			23.5	7.66			23.7	3.72			0.00		
17	1.5	7.60			23.2	7.51			24.5	3.05			0.00		
18	1.6	7.61			23.5	7.58			24.6	4.82			0.55		
19	3.1	7.01	28.9	120.0	22.1	7.40	53.1	128.0	23.2	3.61	68.0		3.70		
20	2.9	7.20			21.5	7.11			22.6	5.06			0.10		
21	2.7	7.39			21.6	7.56			22.4	3.86			0.00		
22	2.4	7.68			21.8	7.59			22.5	4.72			0.18		
23	4.3	7.19			21.8	7.47			22.6	2.60			1.18		
24	3.4	7.28			23.3	7.47			23.3	3.36			0.00		
25	2.2	7.34	307.0	365.0	22.3	7.44	2.0	5.0	23.0	2.53	10.0		0.00		
26	1.5	7.19			20.1	7.55			21.3	3.55			0.00		
27	1.4	7.24			21.1	7.51			22.3	5.44			0.00		
28	1.3	7.31			21.1	7.53			22.2	6.45			0.00		
29	1.7	7.25			21.2	7.55			22.4	6.50			0.00		
30	1.8	7.30			21.1	7.55			22.3	6.20			0.00		
31	1.7	7.44			22.3	7.56			22.7	5.68			0.00		
Samp.															
Samp.	58.6	230.7	1115.9	883.0	717.3	233.5	62.0	147.0		135.0					
y Avg.	3.3		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Max.	4.3	8.2	520.0	365.0	27.2	7.8	53.1	128.0	26.8	6.5	80.0				
Min.	1.0	7.0			20.1	7.1			21.3	2.5	10.0				
Avg.															

SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: SHOAL 2/14/13
Pace Project No.: 60138809

Sample: SHOAL INF-(A1)		Lab ID: 60138809001		Collected: 02/14/13 07:10		Received: 02/14/13 18:24		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D							
Total Suspended Solids	168	mg/L	5.0	5.0	1		02/19/13 09:17		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	157	mg/L	2.0	2.0	1	02/15/13 15:38	02/20/13 14:10		

Sample: SHOAL EFFLUENT (C2)		Lab ID: 60138809002		Collected: 02/14/13 07:30		Received: 02/14/13 18:24		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D							
Total Suspended Solids	9.0	mg/L	5.0	5.0	1		02/19/13 09:17		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	12.5	mg/L	2.0	2.0	1	02/15/13 15:56	02/20/13 14:20		
350.1 Ammonia		Analytical Method: EPA 350.1							
Nitrogen, Ammonia	ND	mg/L	0.10	0.034	1		02/19/13 14:09	7664-41-7	

Date: 02/27/2013 10:54 AM

REPORT OF LABORATORY ANALYSIS

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD			
FOR THE MONTH OF February-13						PERMIT NUMBER MO# 0104908						TYPE TREATMENT FACILITY OXI-DATION DITCH			
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	SNOW	RAIN	WEATHER	TIME
1	2.6	7.67			11.4	7.34			11.6	3.20		3.3	.03		
2	1.4	7.57			11.3	7.38			11.5	5.70					
3	1.6	7.66			10.5	7.60			11.4	4.17					
4	1.8	7.56			16.0	7.39			13.0	2.75					
5	1.7	7.90			15.5	7.40			13.3	5.33				.06	
6	1.8	7.1	266.0	174.0	15.0	7.47	4.0	5.0	15.0	2.60					
7	1.8	7.69			14.6	7.10			14.0	2.80					
8	1.8	7.68			15.7	6.98			13.3	2.55				.32	
9	1.0	7.21			12.2	7.44			14.1	5.53					
10	1.4	7.45			15.3	7.11			14.5	3.63				.40	
11	2.1	7.37			14.6	7.14			13.0	2.85					
12	1.7	7.76			13.0	7.22			11.5	4.33					
13	1.2	7.50			14.2	7.00			11.8	3.38		1.0	.31		
14	1.9	8.55	157.0	168.0	15.4	7.16	12.5	9.0	12.7	4.08					
15	1.9	7.63			12.7	7.27			11.0	3.30					
16	1.0	7.58			11.5	7.21			13.0	3.56				.02	
17	1.4	7.53			11.8	7.17			11.0	4.17					
18	1.7	8.20			13.3	7.30			13.0	3.52					
19	1.3	7.91			12.2	7.67			13.6	3.43				.01	
20	1.4	7.94	348.0	160.0	7.0	7.69	4.4	5.0	9.9	2.50					
21	2.0	7.88			11.3	7.60			10.0	2.38				.30	
22	1.9	7.95			11.4	7.65			11.0	2.78				.63	
23	1.8	7.88			10.2	7.75			10.5	3.72					
24	1.8	7.92			10.0	7.59			9.7	7.96					
25	2.2	8.47			10.0	7.66			10.0	5.25					
26	2.2	8.07			10.5	7.39			9.5	2.83		4.0	.81		
27	3.0	7.88			10.1	7.46			9.3	2.35			.01		
28	2.5	8.11	181.0	124.0	10.8	7.48	8.6	5.0	10.2	4.07					
29															
30															
31															
No. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0				
Tot of Samp.	49.9		952.0	626.0	347.5	206.6	29.5	24.0	332.4	104.7	0.0				
Monthly Avg.	1.8		238.0	156.5			7.4	6.0			#DIV/0!				
Daily Max.	3.0	8.6	348.0	174.0	16.0	7.8	12.5	9.0	15.0	8.0	0.0				
Daily Min.		7.1			7.0	7.0			9.3	2.4	0.0				
Max 7/Avg.															

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

MO 780-1306 (8-03)



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP				CITY NEOSHO				COUNTY/REGION SPRINGFIELD			
FOR THE MONTH OF FEBURARY-2014				OUTFALL NUMBER #001				PERMIT NUMBER MO# 0104908			
								TYPE TREATMENT FACILITY OXI-DATION DITCH			

DAY	INFLUENT					EFFLUENT									
	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	SNOW	RAIN	WEATHER	TIME
1	1.30	7.35			11.4	7.28			11.0	7.78			0.11		
2	1.36	7.35			11.4	7.20			10.7	4.44					
3	1.52	7.38			11.5	7.06			10.6	5.79					
4	1.20	7.66			9.7	7.29			9.5	6.60			0.01		
5	1.0	7.70			7.3	7.42			10.6	8.52		2.0	0.2		
6	1.0	7.71			8.3	7.40			7.9	8.81					
7	1.40	8.21	196.0	410.0	9.0	7.46	13.4	13.0	7.6	8.74					
8	1.50	7.64			10.4	7.23			9.2	7.14					
9	1.40	7.58			9.6	7.39			9.0	6.47					
10	1.40	7.70			9.8	7.07			8.6	6.87			0.01		
11	2.20	7.77			10.2	7.21			8.9	5.03					
12	1.0	8.93			11.0	7.15			9.0	5.82					
13	1.40	7.04	212	360	14.2	7.26	63.6	21.0	11.2	4.92					
14	1.90	7.62			10.0	7.22			10.9	5.26					
15	1.20	7.12			9.1	7.27			8.9	4.95					
16	1.20	7.33			10.8	7.28			9.5	3.59					
17	1.30	7.41			13.1	7.30			12.1	3.79					
18	1.00	7.54			18.8	7.40			14.0	4.05					
19	1.40	9.21	39.2	594.0	14.7	7.33	2.0	16.0	14.0	5.75					
20	1.50	8.34			14.1	7.40			12.0	6.94			0.09		
21	1.10	7.76			13.3	7.32			11.0	3.07					
22	1.10	7.71			11.7	7.02			11.7	5.38					
23	1.20	7.95			11.1	7.18			11.3	5.06					
24	1.80	7.67			13.1	7.35			12.7	4.00					
25	1.90	8.04			12.6	7.52			10.8	6.09					
26	1.00	8.21	137.0	396.0	10.2	7.50	12.3	20.0	9.7	7.37					
27	2.00	7.67			14.0	7.46			11.0	5.25					
28	2.70	7.95			10.6	7.37			11.3	7.20					
29															
30															
31															
Mo. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0				
Tot of Samp.	40.0		584.2	1760.0	321.0	204.3	91.3	70.0	294.7	164.7	0.0				
Monthly Avg.	1.4		146.1	440.0			22.8	17.5			#DIV/0!				
Daily Max.	2.7	9.2	212.0	594.0	18.8	7.5	63.6	21.0	14.0	8.8	0.0				
Daily Min.		7.0			7.3	7.0			7.6	3.1	0.0				
Max 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: SHOAL 2/13/14

Pace Project No.: 60162938

Sample: SHOAL INFLUENT-[A1]		Lab ID: 60162938001	Collected: 02/13/14 07:15	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	360	mg/L	5.0	1		02/19/14 11:08		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	212	mg/L	2.0	1	02/14/14 15:27	02/19/14 16:18		

Sample: SHOAL EFFLUENT [C2]		Lab ID: 60162938002	Collected: 02/13/14 07:30	Received: 02/13/14 18:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	21.0	mg/L	5.0	1		02/19/14 11:09		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	63.6	mg/L	2.0	1	02/14/14 15:29	02/19/14 16:21		
350.1 Ammonia		Analytical Method: EPA 350.1						
Nitrogen, Ammonia	0.12	mg/L	0.10	1		02/18/14 13:20	7664-41-7	

REPORT OF LABORATORY ANALYSIS

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Date: 02/24/2014 10:07 AM

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP					CITY NEOSHO					COUNTY/REGION SPRINGFIELD				
FOR THE MONTH OF November 98 14			OUTFALL NUMBER #001		PERMIT NUMBER MO# 0104906					TYPE TREATMENT FACILITY OXI-DATION DITCH				

INFLUENT															
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-COLI Col/100	SNOW	RAIN	WEATHER	TIME
1	1.2	7.61			17.9	7.40			16.5	5.55					
2	1.0	7.64			18.6	7.61			17.1	6.42					
3	1.1	7.51			18.3	7.51			17.6	6.07					
4	3.6	7.12			17.3	7.35			16.0	3.65			1.25		
5	2.1	7.36	133.0	60.0	18.6	7.50	3.1	5.0	16.5	3.67			1.25		
6	1.8	7.29			18.0	7.40			17.0	3.16					
7	1.8	7.34			20.0	7.48			18.0	3.78					
8	1.2	7.30			19.0	7.45			17.0	3.52					
9	1.6	7.38			16.2	7.13			15.7	4.20					
10	1.3	7.51			18.9	7.42			17.8	5.17					
11	1.8	7.38			17.2	7.48			15.1	3.54					
12	1.4	7.78			16.0	7.56			13.0	2.42					
13	2.2	7.24	418.0	573.0	14.2	7.54	5.5	10.0	11.0	5.00					
14	1.4	7.28			14.8	7.50			11.4	5.12					
15	1.3	7.27			14.3	7.37			12.3	5.69					
16	1.1	7.65			15.1	7.47			13.5	3.96					
17	1.3	7.33			13.6	7.28			8.6	4.15		1.0	0.07		
18	2.1	7.42			14.8	7.40			12.0	8.25					
19	1.5	9.44	1070.0	336.0	16.5	7.72	18.7	8.0	14.6	5.00					
20	1.4	9.33			16.0	7.48			13.7	4.00					
21	1.5	7.52			16.3	7.50			15.4	6.32					
22	1.0	7.56			16.4	7.57			15.2	7.33					
23	1.7	7.42			17.0	7.53			16.3	5.57					
24	1.9	7.92			16.0	7.48			16.4	4.00			0.55		
25	2.0	7.88	459.0	372.0	16.3	7.34	7.1	5.0	15.8	4.61					
26	1.4	9.22			16.0	7.50			14.8	5.00					
27	1.7	9.34			13.4	7.42			13.9	6.73					
28	1.3	9.62			14.2	7.39			14.5	6.19					
29	1.5	7.58			15.2	6.82			14.5	5.00					
30	1.6	7.27			15.3	6.67			17.7	5.03					
31															
Vol. of Samp.	30.0	30.0	4.0	4.0	30.0	30.0	4.0	4.0	30.0	30.0	0.0				
Wt. of Samp.	47.8	233.5	2080.0	1341.0	491.4	222.3	34.4	28.0	448.9	148.1	0.0				
Monthly Avg.	1.6		520.0	335.3			8.6	7.0	15.0	4.9	#DIV/0!				
Daily Max.	3.6	9.6	1070.0	573.0	20.0	7.7	18.7	10.0	18.0	8.3	0.0				
Daily Min.		7.1			13.4	6.7			8.6	2.4	0.0				
Max 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY Shoal Creek WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD			
FOR THE MONTH OF August-14						PERMIT NUMBER MO# 0104906						TYPE TREATMENT FACILITY OXI-DATION DITCH			
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	1.0	7.98			22.3	7.90			23.0	2.50					
2	1.2	7.93			21.4	7.86			22.9	1.65					
3	1.3	7.55			22.3	7.81			23.4	1.50					
4	1.0	7.82			23.7	7.70			25.5	2.36					
5	1.1	7.55			27.6	7.95			27.0	2.20					
6	1.0	7.95	244.0	310.0	26.3	7.86	2.0	5.0	27.0	7.96	5.0				
7	2.3	7.60			24.5	7.94			25.0	6.08			1.35		
8	1.4	9.38			24.5	8.74			25.0	3.03			0.25		
9	2.2	7.49			23.6	7.74			23.0	2.66					
10	1.5	7.53			23.0	7.80			23.9	2.44			0.25		
11	1.3	7.42			26.2	7.68			25.8	4.63					
12	1.1	7.46			24.5	7.83			25.0	3.05					
13	2.0	7.54	360.0	256.0	24.3	7.70	2.0	5.0	25.2	2.78	8.0				
14	1.0	7.63			26.0	7.73			24.7	1.45					
15	1.2	8.56			22.5	7.70			22.5	2.80					
16	0.4	7.85			23.5	8.01			24.4	1.66					
17	1.6	7.50			24.0	7.85			24.3	2.10					
18	1.6	7.46			27.2	7.65			27.4	2.60					
19	1.1	7.43			27.6	7.75			27.0	2.50					
20	1.6	7.44	326.0	180.0	27.1	7.73	7.0	8.0	26.7	4.65	32.0				
21	3.0	8.87			28.0	7.87			27.5	4.30					
22	1.0	7.60			26.5	7.48			26.5	5.10					
23	2.2	7.54			27.1	7.84			28.1	4.94					
24	1.2	7.39			29.1	7.78			28.3	2.53					
25	1.2	7.57			28.8	7.70			28.0	1.84					
26	2.3	7.55			27.4	7.65			28.0	2.80					
27	1.7	7.57	361.0	164.0	27.2	7.82	2	5	28.0	5.80	12.0				
28	1.8	7.56			28.6	7.85			27.6	4.00					
29	2.6	7.51			27.4	7.74			24.5	4.05					
30	0.4	7.53			23.4	7.87			25.2	2.32					
31	1.0	7.64			23.9	7.76			25.1	5.83					
d. of Samp.															
st of Samp.	45.3	239.4	1291.0	910.0	789.5	242.3	13.0	23.0	795.5	104.1					
onthly Avg.	1.8	7.0	#DIV/0!	#DIV/0!	16.5	7.0	#DIV/0!	#DIV/0!	16.4	3.9					
aily Max.	3.0	9.4	361.0	310.0	29.1	8.7	7.0	8.0	28.3	8.0	32.0				
aily Min.	0.4	7.4			21.4	7.5			22.5	1.5	5.0				
ax 7/Avg.															
NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM															



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY Shoal Creek WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD			
FOR THE MONTH OF April-15			OUTFALL NUMBER #001			PERMIT NUMBER MO# 0104906						TYPE TREATMENT FACILITY OXI-DATION DITCH			
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	E-Coil Col/100	OTHER	RAIN	WEATHER	TIME
1	2.1	9.00	325.0	445.0	17.7	7.58	8.4	15.0	16.5	5.54					
2	2.7	7.48			17.1	7.34			17.6	4.38		.93			
3	2.4	7.46			14.6	7.42			17.0	4.44		.18			
4	2.0	7.96			12.1	7.54			14.2	5.05					
5	3.0	7.38			12.9	7.50			14.6	3.95					
6	2.3	7.54			14.4	7.36			15.1	4.81		.11			
7	2.2	7.48			20.7	7.26			19.0	3.60					
8	2.2	7.31	201.0	220.0	21.0	7.19	10.1	13.0	20.4	3.32	33100.0				
9	2.0	7.18			20.1	7.24			21.2	3.28					
10	1.8	7.47			20.3	7.25			20.5	3.25					
11	1.7	7.16			15.6	7.37			16.2	3.76					
12	1.6	7.35			16.2	7.41			16.4	2.93					
13	1.9	7.40			16.3	7.45			17.6	3.34		.12			
14	2.0	7.33			17.3	7.48			18.5	3.64		.04			
15	2.1	7.46	94.5	128.0	16.8	7.36	7.6	5.0	19.5	4.45	1187.0	.19			
16	1.6	7.40			21.5	7.47			23.5	4.88					
17	1.6	8.50			15.5	7.68			18.4	6.18					
18	3.6	7.47			15.8	7.48			18.2	3.96		1.49			
19	2.7	7.67			15.2	7.35			17.30	3.85		.78			
20	2.7	7.55			15.1	7.43			16.40	5.18		.25			
21	2.3	7.48	50.7	71.0	21.0	7.57	4.0	5.0	17.80	5.05	24196.0				
22	2.3	7.52			20.2	7.36			18.40	4.62		.09			
23	2.0	7.48			19.8	7.32			18.40	4.86					
24	1.9	7.66			18.0	7.60			17.80	4.28					
25	1.8	7.60			18.5	7.50			18.00	4.50					
26	1.6	6.77			16.3	7.30			16.50	2.50					
27	2.0	7.30			17.3	7.55			18.6	2.56					
28	2.7	7.45			18.8	7.49			20.9	5.05					
29	1.7	7.40	291.0	532.0	20.0	7.55	11.5	20.0	20.4	5.50	5794.0				
30	1.8	7.34			21.0	7.40			21.8	5.26					
31												4.18			
No. of Samp.															
Tot of Samp.	64.3	225.6	962.2	1396.0	527.1	222.8	41.6	58.0		128.0					
Monthly Avg.	#DIV/0!		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Daily Max.	3.6	9.0	325.0	532.0	21.5	7.7	11.5	20.0	23.5	6.2	33100.0				
Daily Min.	1.6	6.8			12.1	7.2			14.2	2.5	1187.0				
Max 7/Avg.															
• NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM															



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
Shoal Creek WWTP						NEOSHO					SPRINGFIELD				
FOR THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
February-15						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. mg/L	Fecal Col/100	snow inches	RAIN	WEATHER	TIME
1	1.4	7.68			11.3	7.10			11.6	3.65			0.37		
2	1.5	7.68			11.8	7.38			11.4	2.55					
3	1.5	7.65			14.6	7.40			11.4	2.75					
4	1.3	7.44	2.0	394.0	12.8	7.36	9.0	10.0	10.2	4.05					
5	1.3	7.35			14.3	7.38			15.7	3.60					
6	1.7	7.48			13.6	7.26			10.8	4.24					
7	1.1	7.37			14.1	7.26			14.3	3.76					
8	1.0	7.44			13.9	7.30			13.4	3.88					
9	1.5	7.63			13.7	7.19			14.2	3.10					
10	1.4	7.58			14.3	7.32			15.0	2.46					
11	1.4	9.40	261.0	176.0	13.1	7.50	12.2	8.0	12.8	3.48					
12	1.3	8.11			12.7	7.11			15.2	3.00					
13	1.2	7.86			13.4	7.26			12.9	4.16					
14	1.1	7.47			11.6	7.29			10.6	4.66					
15	1.0	7.60			11.5	7.43			10.5	4.64					
16	1.1	9.81			10.6	7.63			9.3	4.40					
17	1.3	7.56			11.0	7.43			10.0	3.80		5.0	0.91		
18	1.4	7.55	233.0	326.0	9.8	7.37	6.5	5.0	9.5	3.76					
19	1.3	7.70			10.3	7.41			8.8	3.92					
20	1.4	7.67			13.0	7.38			11.0	3.44					
21	2.4	7.42			9.4	7.44			12.0	3.52			0.50		
22	2.4	7.40			12.3	7.43			11.5	3.40					
23	1.9	7.42			9.5	7.30			9.1	4.28					
24	2.0	8.22			10.0	7.41			11.0	3.25					
25	1.6	7.63	302.0	450.0	11.1	7.20	4.1	5.0	10.7	2.87					
26	1.7	7.98			10.8	7.45			9.9	2.75					
27	1.7	7.42			10.2	7.43			9.0	3.06					
28	1.7	8.24			8.9	6.76			9.7	3.46					
29															
30															
31															
No. of Samp.															
Tot of Samp.	41.6	217.8	798.0	1346.0	333.6	205.2	31.8	28.0	321.5	99.9					
Monthly Avg.	#DIV/0!		#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!					
Daily Max.	2.4	9.8	302.0	450.0	14.6	7.6	12.2	10.0	15.7	4.7	0.0				
Daily Min.	1.0	7.4			8.9	6.8			8.8	2.5	0.0				
Max 7/Avg.															

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP						CITY NEOSHO					COUNTY/REGION SPRINGFIELD				
FOR THE MONTH OF June-13						OUTFALL NUMBER #001					PERMIT NUMBER MO# 0104906				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME
1	3.60	7.35			18.7	7.61			19.7	4.63			0.52		
2	2.20	7.50			18.0	7.67			19.1	4.96					
3	2.70	7.52			21.2	7.58			20.5	4.98					
4	2.00	7.51			20.2	7.68			20.2	5.22					
5	2.80	7.53			18.6	7.63			19.9	5.58			1.03		
6	2.90	7.5	228.0	175.0	18.9	7.60	8.9	5.0	19.6	4.28	1.0		0.31		
7	2.30	7.48			18.5	7.55			19.2	4.04					
8	1.80	7.57			18.1	7.56			19.1	3.65					
9	1.60	7.70			18.9	7.52			19.8	3.16					
10	1.70	7.44			24.5	7.47			23.5	5.44					
11	2.20	7.37			26.0	7.40			24.2	5.03					
12	2.00	6.90			24.2	6.91			24.7	2.48					
13	2.20	6.87	239	210	27.0	6.92	3.1	5.0	25.0	3.45	7.0				
14	2.00	7.01			26.5	7.00			25.6	5.65					
15	1.40	7.18			23.3	7.08			23.0	5.14					
16	2.00	7.00			22.0	7.01			23.4	2.43			1.42		
17	2.10	7.02			21.0	7.02			22.3	2.38			0.24		
18	1.60	7.02			24.0	7.00			24.0	2.28			0.07		
19	1.50	7.00	180.0	102.0	25.8	7.00	2.5	5.0	24.0	2.65	10.0				
20	1.50	7.43			21.0	7.39			22.5	3.41					
21	1.40	7.71			24.4	7.33			25.0	2.69					
22	1.20	7.37			20.8	7.27			23.5	2.22					
23	1.20	7.36			21.1	7.26			23.4	2.27					
24	1.40	7.40			27.5	7.36			26.2	2.56					
25	1.30	7.37			27.7	7.36			26.2	3.56					
26	1.30	7.34	202.0	31.0	26.0	7.30	2.4	5.0	26.4	3.85	15.0				
27	1.70	7.65			26.4	7.45			27.6	3.54					
28	1.40	7.43			26.0	7.32			25.7	3.82					
29	1.20	7.56			22.2	7.42			23.3	3.24					
30	1.20	7.57			21.2	7.43			22.1	5.23					
31															
1 of Samp.	30.0	30.0	4.0	4.0	30.0	30.0	4.0	4.0	30.0	30.0	4.0				
1 of Samp.	55.4		849.0	518.0	679.7	220.1	16.9	20.0	688.7	113.8	33.0				
Monthly Avg.	1.8		212.3	129.5			4.2	5.0			8.3				
Daily Max.	3.6	7.7	239.0	210.0	27.7	7.7	8.9	5.0	27.6	5.7	15.0				
Daily Min.		6.9			18.0	6.9			19.1	2.2	1.0				
1x 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

780-1308 (8-05)



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
SHOAL CREEK WWTP						NEOSHO					SPRINGFIELD				
FOR THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
September-13						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-Coli Col/100	OTHER	RAIN	WEATHER	TIME
1	1.7	7.34			23.4	7.16			25.4	4.97			0.10		
2	1.7	7.33			22.6	7.28			22.8	5.16					
3	1.2	7.20			24.7	7.27			25.0	4.40					
4	1.7	7.20	77.7	116.0	26.2	7.50	2.0	7.0	25.0	4.70	15.0				
5	1.4	7.28			26.7	7.36			22.9	4.86					
6	1.5	7.44			22.8	7.40			23.1	4.44					
7	1.1	7.33			22.7	7.59			23.7	3.59					
8	1.2	7.34			23.2	7.32			24.5	3.33					
9	2.0	7.36			23.1	7.31			24.3	3.55					
10	2.0	7.41			24.8	7.36			25.1	3.66					
11	1.6	7.27	140.0	125.0	25.6	7.23	3.0	8.0	26.6	3.00	60.0				
12	1.2	7.20			25.5	7.13			26.8	2.00					
13	1.2	7.24			25.4	7.27			25.3	3.05					
14	1.0	7.48			23.5	7.10			23.1	3.62					
15	1.1	7.33			23.6	7.26			23.0	3.60					
16	1.2	7.14			24.0	7.15			24.0	3.72			0.27		
17	1.2	7.75			24.0	7.60			24.3	3.02			0.07		
18	1.5	7.65	189.0	265.0	25.3	7.62	3.1	7.0	25.5	5.08	23.0				
19	1.2	7.46			25.8	7.54			26.0	5.02					
20	1.5	7.59			22.6	7.76			23.5	3.00			1.42		
21	1.4	7.70			20.7	7.73			21.6	3.05					
22	1.3	7.73			21.1	7.78			21.3	3.37					
23	1.3	7.63	870.0	393.0	22.8	7.64	2.0	5.0	22.0	4.26	12.0				
24	2.1	7.48			23.8	7.52			23.0	4.08					
25	1.5	7.42			24.0	7.56			24.0	4.18					
26	2.1	7.83			23.9	7.81			23.7	3.15					
27	1.2	8.44			24.5	7.77			24.0	2.70					
28	1.1	7.54			22.5	7.60			22.2	3.12					
29	1.4	7.46			22.9	7.75			22.9	2.96			0.76		
30	1.2	7.57			23.5	7.70			22.9	4.87					
31															
1 of Samp.	30.0	30.0	4.0	4.0	30.0	30.0	4.0	4.0	30.0	30.0	4.0				
4 of Samp.	42.8		1276.7	899.0	715.2	224.1	10.1	27.0	717.5	113.5	110.0		2.62		
Monthly Avg.	1.4		319.2	224.8			2.5	6.8			27.5				
Daily Max.	2.1	8.4	870.0	393.0	26.7	7.8	3.1	8.0	26.8	5.2	60.0				
Daily Min.		7.1			20.7	7.1			21.3	2.0	12.0				
1x 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY						COUNTY/REGION					
SHOAL CREEK WWTP						NEOSHO						SPRINGFIELD					
FOR THE MONTH OF						PERMIT NUMBER						TYPE TREATMENT FACILITY					
July-14						MO# 0104906						OXI-DATION DITCH					
INFLUENT						EFFLUENT											
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-COL Col/100	OTHER	RAIN	WEATHER	TIME		
1	1.0	7.64			25.5	7.59			26.4	4.20							
2	1.5	7.50	521.0	353.0	24.0	7.77	2.0	5.0	23.3	5.80	24.0						
3	1.0	7.60			23.4	7.73			25.0	2.20							
4	1.1	7.70			21.4	7.66			23.0	2.51							
5	1.0	7.68			21.5	7.59			24.0	1.85							
6	0.8	7.61			21.7	7.53			23.8	2.02							
7	1.2	7.63			25.4	7.50			25.5	1.94							
8	1.0	7.55			23.0	7.60			25.4	2.47							
9	1.0	7.57	184.0	303.0	26.0	7.66	2.0	6.0	25.5	2.62	20.0						
10	1.4	7.56			24.2	7.76			25.0	1.65							
11	0.8	7.61			25.5	7.65			26.2	3.26							
12	1.3	7.54			27.0	7.68			26.8	1.90							
13	1.1	7.48			27.2	7.57			26.8	3.92							
14	1.0	7.29			22.5	7.44			24.2	4.14							
15	1.0	7.90			23.4	7.50			25.0	3.30							
16	0.7	7.60	666.0	640.0	23.7	7.80	2.0	6.0	24.0	3.05	8.0						
17	1.2	7.88			23.5	7.78			24.0	1.50							
18	1.0	7.60			23.0	7.85			24.0	3.52							
19	0.9	7.71			22.1	7.85			22.8	5.17							
20	1.7	7.86			21.9	7.79			22.9	3.71							
21	0.5	7.88			25.8	7.81			25.0	2.13							
22	2.2	8.08			27.4	7.78			27.0	1.80							
23	1.7	7.52	247.0	528.0	26.8	7.83	4.1	5.0	25.8	2.10	14.0						
24	1.0	7.64			25.0	7.88			25.6	1.32							
25	1.0	9.03			24.1	7.98			25.0	5.50							
26	1.2	7.73			23.3	7.91			24.1	1.21							
27	1.0	7.93			24.3	7.82			24.7	1.22							
28	1.0	7.48			24.4	7.83			23.7	6.07							
29	1.0	7.50			24.0	7.79			25.0	2.42							
30	1.0	7.47	524.0	1250.0	21.6	7.85	12.0	12.0	22.5	1.27	8.0						
31	3.6	7.50			23.5	7.83			24.4	1.18							
No. of Samp.	30.0	31.0	5.0	5.0	31.0	31.0	5.0	5.0	31.0	31.0	5.0						
Tot of Samp.	35.9		2142.0	3074.0	746.1	239.6	22.1	34.0	766.4	87.0	74.0						
Monthly Avg.	1.2		428.4	614.8			4.4	6.8			14.8						
Daily Max.	3.6	9.0	666.0	1250.0	27.4	8.0	12.0	12.0	27.0	6.1	24.0						
Daily Min.		7.3			21.4	7.4			22.5	1.2	8.0						
Max 7/Avg.																	

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
SHOAL CREEK WWTP						NEOSHO					SPRINGFIELD				
FOR THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
September-13						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-Coli Col/100	OTHER	RAIN	WEATHER	TIME
1	1.7	7.34			23.4	7.16			25.4	4.97			0.10		
2	1.7	7.33			22.6	7.28			22.8	5.16					
3	1.2	7.20			24.7	7.27			25.0	4.40					
4	1.7	7.20	77.7	116.0	26.2	7.50	2.0	7.0	25.0	4.70	15.0				
5	1.4	7.28			26.7	7.36			22.9	4.86					
6	1.5	7.44			22.8	7.40			23.1	4.44					
7	1.1	7.33			22.7	7.59			23.7	3.59					
8	1.2	7.34			23.2	7.32			24.5	3.33					
9	2.0	7.36			23.1	7.31			24.3	3.55					
10	2.0	7.41			24.8	7.36			25.1	3.66					
11	1.6	7.27	140.0	125.0	25.6	7.23	3.0	8.0	26.6	3.00	60.0				
12	1.2	7.20			25.5	7.13			26.8	2.00					
13	1.2	7.24			25.4	7.27			25.3	3.05					
14	1.0	7.48			23.5	7.10			23.1	3.62					
15	1.1	7.33			23.6	7.26			23.0	3.60					
16	1.2	7.14			24.0	7.15			24.0	3.72			0.27		
17	1.2	7.75			24.0	7.60			24.3	3.02			0.07		
18	1.5	7.65	189.0	265.0	25.3	7.62	3.1	7.0	25.5	5.08	23.0				
19	1.2	7.46			25.8	7.54			26.0	5.02					
20	1.5	7.59			22.6	7.76			23.5	3.00			1.42		
21	1.4	7.70			20.7	7.73			21.6	3.05					
22	1.3	7.73			21.1	7.78			21.3	3.37					
23	1.3	7.63	870.0	393.0	22.8	7.64	2.0	5.0	22.0	4.26	12.0				
24	2.1	7.48			23.8	7.52			23.0	4.08					
25	1.5	7.42			24.0	7.56			24.0	4.18					
26	2.1	7.83			23.9	7.81			23.7	3.15					
27	1.2	8.44			24.5	7.77			24.0	2.70					
28	1.1	7.54			22.5	7.60			22.2	3.12					
29	1.4	7.46			22.9	7.75			22.9	2.96			0.76		
30	1.2	7.57			23.5	7.70			22.9	4.87					
31															
10. of Samp.	30.0	30.0	4.0	4.0	30.0	30.0	4.0	4.0	30.0	30.0	4.0				
ot of Samp.	42.8		1276.7	899.0	715.2	224.1	10.1	27.0	717.5	113.5	110.0		2.62		
ionthly Avg.	1.4		319.2	224.8			2.5	6.8			27.5				
aily Max.	2.1	8.4	870.0	393.0	26.7	7.8	3.1	8.0	26.8	5.2	60.0				
aily Min.		7.1			20.7	7.1			21.3	2.0	12.0				
lax 7/Avg.															

NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM
MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY SHOAL CREEK WWTP						CITY NEOSHO						COUNTY/REGION SPRINGFIELD					
FOR THE MONTH OF July-15						OUTFALL NUMBER #001						PERMIT NUMBER MO# 0104906					
INFLUENT						In-house E-COLI											
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	E-COLI Col/100	OTHER	RAIN	WEATHER	TIME		
1	3.0	7.25	334.0	188.0	27.3	7.58	58.6	51.0	24.3	2.57	125.0		Ø				
2	1.5	7.32			27.0	7.73			25.2	3.00			.10				
3	1.5	7.50			26.9	7.42			25.4	3.03			Ø				
4	1.3	7.22			22.6	7.52			22.7	3.05			Ø				
5	1.5	7.20			21.9	7.54			23.6	3.02			Ø				
6	1.4	7.37			24.6	7.61			24.8	3.12			.72				
7	1.8	7.28			21.6	7.60			22.9	3.10			.33				
8	0.6	7.32	293.0	213.0	21.4	7.23	28.0	41.0	22.3	2.89	32.0		1.70				
9	2.9	7.28			21.0	7.47			22.2	4.32			.71				
10	5.3	7.22			21.5	7.26			22.4	4.14			2.66				
11	6.9	7.10			20.7	7.11			22.4	4.60			Ø				
12	4.5	7.17			20.8	7.22			23.8	4.10			Ø				
13	3.1	7.32			28.7	7.51			25.0	4.10			Ø				
14	2.8	7.28			24.5	7.61			25.0	3.30			Ø				
15	3.3	7.34	115.0	157.0	25.1	7.55	2.0	5.0	25.5	3.22	104.0		Ø				
16	1.8	7.35			30.7	7.62			26.1	3.14			Ø				
17	2.0	7.32			28.5	7.75			25.6	7.07			Ø				
18	1.6	7.35			30.1	7.70			26.5	6.90			Ø				
19	1.7	7.30			30.5	7.65			25.9	6.50			Ø				
20	1.8	7.30			26.7	7.73			26.4	3.57			Ø				
21	2.0	7.25			24.8	7.57			25.4	5.22			.23				
22	1.6	7.32	301.0	417.0	27.0	7.47	3.5	8.0	25.4	4.50	112.0		.57				
23	1.7	7.33			26.4	7.56			26.0	4.90			Ø				
24	1.6	7.25			28.5	7.55			27.4	3.72			Ø				
25	1.3	7.28			27.7	7.45			26.6	2.63			Ø				
26	1.5	7.22			24.2	7.51			24.9	3.94			Ø				
27	1.5	7.40			26.0	7.60			27.6	4.03			Ø				
28	1.6	7.75	331.0	820.0	26.8	7.57	3.4	5.0	27.7	5.56	20.0		Ø				
29	2.9	7.67			27.4	7.42			28.0	5.88			Ø				
30	2.5	7.32			25.6	7.57			25.4	3.61			Ø				
31	2.3	7.45			24.4	7.55			25.4	3.50			Ø				
No. of Samp.	31.0	31.0	5.0	5.0	31.0	31.0	5.0	5.0	31.0	31.0	5.0						
Tot of Samp.	70.8		1374.0	1795.0	790.9	233.2	95.5	110.0	777.8	126.2	393.0						
Monthly Avg.	2.3		274.8	359.0			19.1	22.0			78.6						
Daily Max.	6.9	7.8	334.0	820.0	30.7	7.8	58.6	51.0	28.0	7.1	125.0						
Daily Min.		7.1			20.7	7.1			22.2	2.6	20.0						
Max 7/Avg.																	

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY					COUNTY/REGION				
SHOAL CREEK WWTP						NEOSHO					SPRINGFIELD				
FOR THE MONTH OF						PERMIT NUMBER					TYPE TREATMENT FACILITY				
JANUARY-014						MO# 0104906					OXI-DATION DITCH				
INFLUENT						EFFLUENT									
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.C. Mg/l	E-COLI Col/100	inches snow	RAIN	WEATHER	TIME
1	1.4	7.47			15.5	7.33			14.5	5.38					
2	1.0	8.10			8.8	7.38			9.4	6.70		1.0	0.1		
3	1.1	7.60	302.0	244.0	11.3	7.39	5.8	8.0	11.6	3.10	n/a				
4	1.4	7.36			10.8	7.45			9.8	6.42					
5	1.4	6.90			8.0	7.33			6.8	6.62		4.5	0.47		
6	1.3	7.65			9.3	7.52			9.3	6.42		1.5			
7	2.5	7.90			10.9	7.58			8.4	7.58					
8	1.0	7.92			9.2	7.44			8.3	6.05					
9	1.0	7.98			11.5	7.31			11.0	6.10					
10	1.0	7.42	134.0	90.0	13.5	7.35	15.2	18.0	15.5	4.38	n/a				
11	2.2	7.62			11.3	7.32			10.0	6.53			0.23		
12	2.2	7.65			11.8	7.31			11.2	5.44					
13	1.0	7.63			14.0	7.42			12.0	4.88					
14	1.4	7.64			13.6	7.44			11.8	8.18					
15	2.7	7.81	192.0	226.0	13.4	7.50	4.4	5.0	12.1	5.90	n/a				
16	1.2	7.79			13.3	7.44			11.7	6.65					
17	1.0	7.48			12.8	7.39			10.9	6.23					
18	1.2	7.62			10.1	7.31			9.8	6.92					
19	1.2	7.71			9.4	7.48			9.2	6.71					
20	1.0	7.64			10.3	7.39			10.9	5.94					
21	2.3	7.30			8.7	7.62			9.1	7.56					
22	1.8	7.84	272.0	176.0	12.2	7.47	9.7	6.0	10.9	8.21	n/a				
23	1.1	7.73			10.6	7.55			9.0	5.80					
24	1.3	7.66			11.3	7.46			9.5	8.95					
25	1.0	7.58			14.7	7.27			13.5	5.40					
26	1.4	7.61			14.6	7.34			13.2	5.89					
27	1.7	8.52			9.3	7.33			6.2	5.64					
28	1.7	7.54			9.3	7.57			9.5	5.66					
29	1.2	7.60	180.0	512.0	12.1	7.40	9.0	16.0	9.7	5.50	n/a				
30	2.6	7.68			12.9	7.46			11.5	5.22					
31	1.0	7.52			11.8	7.39			10.9	4.88					
No. of Samp.	31.0	31.0	5.0	5.0	31.0	31.0	5.0	5.0	31.0	31.0	0.0				
Tot of Samp.	45.3		1080.0	1248.0	356.3	229.9	44.1	53.0	327.2	190.9	0.0				
Monthly Avg.	1.5		216.0	249.6			8.8	10.6			#DIV/0!				
Daily Max.	2.7	8.5	302.0	512.0	15.5	7.6	15.2	18.0	15.5	9.0	0.0				
Daily Min.		6.9			8.0	7.3			6.2	3.1	0.0				
Max 7/Avg.															

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER POLLUTION CONTROL PROGRAM

MONTHLY MONITORING RECORD FOR WASTEWATER TREATMENT FACILITIES

NAME OF FACILITY						CITY						COUNTY/REGION					
SHOAL CREEK WWTP						NEOSHO						SPRINGFIELD					
FOR THE MONTH OF						PERMIT NUMBER						TYPE TREATMENT FACILITY					
February-13						MO# 0104906						OXI-DATION DITCH					
INFLUENT						EFFLUENT											
DAY	FLOW: MGD EFF.	PH UNITS	BOD mg/L	SUSP. SOLIDS	TEMP °C	PH UNITS	BOD mg/L	SUS. SOLIDS	Temp °C	D.O. Mg/l	Fecal Col/100	RAIN	WEATHER	TIME			
1	2.6	7.67			11.4	7.34			11.6	3.20		.3	.03				
2	1.4	7.57			11.3	7.38			11.5	5.70							
3	1.6	7.66			10.5	7.60			11.4	4.17							
4	1.8	7.56			16.0	7.39			13.0	2.75			.06				
5	1.7	7.90			15.5	7.40			13.3	5.33							
6	1.8	7.1	266.0	174.0	15.0	7.47	4.0	5.0	15.0	2.60							
7	1.8	7.69			14.6	7.10			14.0	2.80							
8	1.8	7.68			15.7	6.98			13.3	2.55			.32				
9	1.0	7.21			12.2	7.44			14.1	5.53							
10	1.4	7.45			15.3	7.11			14.5	3.63			.40				
11	2.1	7.37			14.6	7.14			13.0	2.85							
12	1.7	7.76			13.0	7.22			11.5	4.33							
13	1.2	7.50			14.2	7.00			11.8	3.38		1.0	.31				
14	1.9	8.55	157.0	168.0	15.4	7.16	12.5	9.0	12.7	4.08							
15	1.9	7.63			12.7	7.27			11.0	3.30							
16	1.0	7.58			11.5	7.21			13.0	3.56			.02				
17	1.4	7.53			11.8	7.17			11.0	4.17							
18	1.7	8.20			13.3	7.30			13.0	3.52							
19	1.3	7.91			12.2	7.67			13.6	3.43			.01				
20	1.4	7.94	348.0	160.0	7.0	7.69	4.4	5.0	9.9	2.50							
21	2.0	7.88			11.3	7.60			10.0	2.38			.30				
22	1.9	7.95			11.4	7.65			11.0	2.78			.63				
23	1.8	7.88			10.2	7.75			10.5	3.72							
24	1.8	7.92			10.0	7.59			9.7	7.96							
25	2.2	8.47			10.0	7.66			10.0	5.25							
26	2.2	8.07			10.5	7.39			9.5	2.83		4.0	.81				
27	3.0	7.88			10.1	7.46			9.3	2.35			.01				
28	2.5	8.11	181.0	124.0	10.8	7.48	8.6	5.0	10.2	4.07							
29																	
30																	
31																	
No. of Samp.	28.0	28.0	4.0	4.0	28.0	28.0	4.0	4.0	28.0	28.0	0.0						
Tot of Samp.	49.9		952.0	626.0	347.5	206.6	29.5	24.0	332.4	104.7	0.0						
Monthly Avg.	1.8		238.0	156.5			7.4	6.0			#DIV/0!						
Daily Max.	3.0	8.6	348.0	174.0	16.0	7.8	12.5	9.0	15.0	8.0	0.0						
Daily Min.		7.1			7.0	7.0			9.3	2.4	0.0						
Max 7/Avg.																	

* NOTE: SEE INSTRUCTIONS ON REVERSE SIDE OF THIS FORM

ANALYTICAL RESULTS

Project: Shoal
Pace Project No.: 60204461

Sample: SHOAL -EFFLUENT		Lab ID: 60204461001	Collected: 10/07/15 08:45		Received: 10/07/15 14:15		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

MBIO 9223B E.Coli Analytical Method: SM 9223B Colilert Preparation Method: SM 9223B Colilert
Escherichia coli (E.coli) **155** MPN/100 mL 1.0 1.0 1 10/07/15 14:35 10/08/15 14:40

Sample: SHOAL-INFLUENT (A1)		Lab ID: 60204461002	Collected: 10/07/15 08:00		Received: 10/07/15 18:30		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

2540D Total Suspended Solids Analytical Method: SM 2540D
Total Suspended Solids **410** mg/L 5.0 5.0 1 10/12/15 09:41

5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B
BOD, 5 day **291** mg/L 2.0 2.0 1 10/08/15 11:05 10/13/15 15:29

Sample: SHOAL-EFFLUENT (C2)		Lab ID: 60204461003	Collected: 10/07/15 08:45		Received: 10/07/15 18:30		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8
Cadmium ND ug/L 0.50 0.082 1 10/12/15 10:35 10/16/15 17:54 7440-43-9
Chromium **0.86J** ug/L 1.0 0.16 1 10/12/15 10:35 10/16/15 17:54 7440-47-3
Copper **1.3** ug/L 1.0 0.21 1 10/12/15 10:35 10/16/15 17:54 7440-50-8
Iron **91.1** ug/L 50.0 7.7 1 10/12/15 10:35 10/16/15 17:54 7439-89-6
Lead **0.31J** ug/L 1.0 0.23 1 10/12/15 10:35 10/16/15 17:54 7439-92-1
Nickel **1.1** ug/L 1.0 0.39 1 10/12/15 10:35 10/16/15 17:54 7440-02-0
Selenium **0.19J** ug/L 1.0 0.12 1 10/12/15 10:35 10/16/15 17:54 7782-49-2
Zinc **20.7** ug/L 10.0 4.5 1 10/12/15 10:35 10/16/15 17:54 7440-66-6

245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1
Mercury ND ug/L 0.20 0.012 1 10/12/15 15:25 10/13/15 10:23 7439-97-6

HEM, Oil and Grease Analytical Method: EPA 1664A
Oil and Grease ND mg/L 5.0 0.72 1 10/14/15 09:08

2540D Total Suspended Solids Analytical Method: SM 2540D
Total Suspended Solids ND mg/L 5.0 5.0 1 10/12/15 09:42

5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B
BOD, 5 day **12.8** mg/L 2.0 2.0 1 10/08/15 13:00 10/13/15 10:44

Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation
Chromium, Trivalent ND mg/L 0.010 0.010 1 10/20/15 08:40 16065-83-1

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ND FOR oil & Grease All of 2015

ANALYTICAL RESULTS

Project: SHOAL 1/10/14
Pace Project No.: 60161012

Sample: SHOAL INFLUENT-(A1) Lab ID: 60161012001 Collected: 01/10/14 08:20 Received: 01/10/14 18:18 Matrix: Water								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D								
Total Suspended Solids	90.0	mg/L	5.0	1		01/16/14 07:49		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	134	mg/L	2.0	1	01/11/14 11:25	01/16/14 13:43		

Sample: SHOAL EFFLUENT-(C2) Lab ID: 60161012002 Collected: 01/10/14 08:30 Received: 01/10/14 18:18 Matrix: Water								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium	0.30J	ug/L	5.0	1	01/13/14 15:30	01/14/14 14:16	7440-43-9	
Chromium	0.51J	ug/L	5.0	1	01/13/14 15:30	01/14/14 14:16	7440-47-3	
Copper	6.8J	ug/L	10.0	1	01/13/14 15:30	01/14/14 14:16	7440-50-8	
Iron	215	ug/L	50.0	1	01/13/14 15:30	01/14/14 14:16	7439-89-6	
Lead	0.0J	ug/L	5.0	1	01/13/14 15:30	01/14/14 14:16	7439-92-1	
Nickel	1.5J	ug/L	5.0	1	01/13/14 15:30	01/14/14 14:16	7440-02-0	
Zinc	49.6J	ug/L	50.0	1	01/13/14 15:30	01/14/14 14:16	7440-66-6	
200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Selenium	ND	ug/L	1.0	1	01/13/14 15:30	01/14/14 11:33	7782-49-2	
245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury	ND	ug/L	0.20	1	01/14/14 09:00	01/14/14 12:57	7439-97-6	
HEM, Oil and Grease Analytical Method: EPA 1664A								
Oil and Grease	16.5	mg/L	5.0	1		01/24/14 08:17		
2540D Total Suspended Solids Analytical Method: SM 2540D								
Total Suspended Solids	18.0	mg/L	5.0	1		01/16/14 07:49		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	15.2	mg/L	2.0	1	01/11/14 11:25	01/16/14 13:45		
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	1		01/23/14 00:00	16065-83-1	
Chromium, Hexavalent Analytical Method: SM 3500-Cr B								
Chromium, Hexavalent	ND	mg/L	0.010	1		01/11/14 08:28	18540-29-9	
350.1 Ammonia Analytical Method: EPA 350.1								
Nitrogen, Ammonia	0.14	mg/L	0.10	1		01/22/14 13:21	7664-41-7	
Phenolics, Total Recoverable Analytical Method: EPA 420.1								
Phenolics, Total Recoverable	0.21	mg/L	0.050	1		01/16/14 12:21		

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ANALYTICAL RESULTS

Project: SHOAL 1/3/13
Pace Project No.: 60136297

Sample: SHOAL INFLUENT (A1) Lab ID: 60136297001 Collected: 01/03/13 07:15 Received: 01/03/13 18:20 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	146	mg/L	5.0	5.0	1		01/04/13 09:58		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	163	mg/L	2.0	2.0	1	01/04/13 11:25	01/09/13 15:44		
Sample: SHOAL EFFLUENT (C2) Lab ID: 60136297002 Collected: 01/03/13 08:45 Received: 01/03/13 18:20 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium	0.00048J	mg/L	0.0050	0.00039	1	01/04/13 15:40	01/08/13 09:10	7440-43-9	
Chromium	0.00080J	mg/L	0.0050	0.00069	1	01/04/13 15:40	01/08/13 09:10	7440-47-3	
Copper	0.0041J	mg/L	0.010	0.00099	1	01/04/13 15:40	01/07/13 15:31	7440-50-8	
Iron	0.036J	mg/L	0.050	0.017	1	01/04/13 15:40	01/08/13 09:10	7439-89-6	
Lead	0.0032J	mg/L	0.0050	0.0024	1	01/04/13 15:40	01/08/13 09:10	7439-92-1	
Nickel	0.00099J	mg/L	0.0050	0.00080	1	01/04/13 15:40	01/08/13 09:10	7440-02-0	
Selenium	ND	mg/L	0.014	0.0027	1	01/04/13 15:40	01/08/13 09:10	7782-49-2	
Zinc	0.056	mg/L	0.050	0.0073	1	01/04/13 15:40	01/08/13 09:10	7440-66-6	
245.1 Mercury Analytical Method: EPA 245.1 Preparation Method: EPA 245.1									
Mercury	ND	mg/L	0.00020	0.000053	1	01/09/13 13:00	01/10/13 10:16	7439-97-6	
HEM, Oil and Grease Analytical Method: EPA 1664A									
Oil and Grease	0.71J	mg/L	5.0	0.44	1		01/08/13 10:22		B
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	10.0	mg/L	5.0	5.0	1		01/04/13 09:58		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	3.8	mg/L	2.0	2.0	1	01/04/13 16:41	01/09/13 17:05		
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	ND	mg/L	0.050		1		01/14/13 09:36	16065-83-1	
Chromium, Hexavalent Analytical Method: SM 3500-Cr D									
Chromium, Hexavalent	ND	mg/L	0.010	0.0026	1		01/04/13 08:32	18540-29-9	
350.1 Ammonia Analytical Method: EPA 350.1									
Nitrogen, Ammonia	0.046J	mg/L	0.10	0.034	1		01/07/13 11:15	7664-41-7	
Phenolics, Total Recoverable Analytical Method: EPA 420.1									
Phenolics, Total Recoverable	ND	mg/L	0.050	0.011	1		01/10/13 12:30		

Date: 01/14/2013 11:57 AM

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ANALYTICAL RESULTS

Project: SHOAL 10/2/13
Pace Project No.: 60154547

Sample: SHOAL INFLUENT A1		Lab ID: 60154547001	Collected: 10/02/13 08:30	Received: 10/02/13 18:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	103	mg/L	5.0	1		10/09/13 09:37		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	109	mg/L	2.0	1	10/03/13 14:42	10/08/13 08:08		

Sample: SHOAL EFFLUENT C2		Lab ID: 60154547002	Collected: 10/02/13 08:45	Received: 10/02/13 18:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Chromium	2.8J	ug/L	5.0	1	10/04/13 10:40	10/07/13 11:55	7440-47-3	
Copper	5.4J	ug/L	10.0	1	10/04/13 10:40	10/07/13 11:55	7440-50-8	
Iron	24.8J	ug/L	50.0	1	10/04/13 10:40	10/07/13 11:55	7439-89-6	
Lead	ND	ug/L	5.0	1	10/04/13 10:40	10/07/13 11:55	7439-92-1	
Nickel	2.1J	ug/L	5.0	1	10/04/13 10:40	10/07/13 11:55	7440-02-0	
Zinc	20.0J	ug/L	50.0	1	10/04/13 10:40	10/07/13 11:55	7440-66-6	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Selenium	0.24J	ug/L	1.0	1	10/03/13 17:10	10/08/13 19:17	7782-49-2	
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1						
Mercury	ND	ug/L	0.20	1	10/04/13 09:30	10/04/13 14:17	7439-97-6	
HEM, Oil and Grease		Analytical Method: EPA 1664A						
Oil and Grease	ND	mg/L	5.0	1		10/09/13 07:25		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	ND	mg/L	5.0	1		10/09/13 09:37		
5210B BOD, 5 day		Analytical Method: SM 5210B Preparation Method: SM 5210B						
BOD, 5 day	2.1	mg/L	2.0	1	10/03/13 14:43	10/08/13 08:11		
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation						
Chromium, Trivalent	ND	mg/L	0.050	1		10/17/13 16:41	16065-83-1	
Chromium, Hexavalent		Analytical Method: SM 3500-Cr B						
Chromium, Hexavalent	ND	mg/L	0.010	1		10/03/13 08:32	18540-29-9	
350.1 Ammonia		Analytical Method: EPA 350.1						
Nitrogen, Ammonia	ND	mg/L	0.10	1		10/09/13 11:53	7664-41-7	
Phenolics, Total Recoverable		Analytical Method: EPA 420.1						
Phenolics, Total Recoverable	ND	mg/L	0.050	1		10/08/13 20:20		

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