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 RSMo, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0098418
Owner:	City of New Madrid
Address:	560 Mott Street, New Madrid, MO 63869
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	St. Jude Industrial Park
Facility Address:	23 St. Jude Road, Marston, MO 62866
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.

August 1, 2022
Effective Date

July 31, 2027
Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (CONTINUED)

Permitted Feature INT – Alluvial Well Intakes – SIC #4941
Four alluvial wells where the facility intakes water for the drinking water treatment process. Intake samples will be a combined sample from all wells that are currently discharging to the water treatment plant. The facility runs at least two wells at once for sufficient flow.

Permitted Feature INF - Influent Monitoring for Domestic Waste – SIC #4952

Legal Description:	NW ¼, NW ¼, Sec. 30, T22N, R14E, New Madrid County
UTM Coordinates:	X= 8067518, Y= 4046858dd

Outfall/Permitted Feature #002 – Industrial Park – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified "D" Operator.
Four-cell storage lagoon / partial wastewater irrigation, partial discharge / sludge is retained in lagoon.
This is a domestic-only outfall and permitted feature. The facility is permitted to either irrigate or discharge the domestic wastewater.
Design population equivalent is 8,750.
Design flow is 875,000 gallons per day.
Actual flow is 44,000 gallons per day.
Design sludge production is 160 dry tons per year.

Legal Description:	NW ¼, NW ¼, Sec. 31, T22N, R14E, New Madrid County
UTM Coordinates:	X=805601, Y=4045888
Receiving Stream:	Tributary to Portage Open Bay
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

Design Basis:	**Average Annual**
Design dry weather flows:	875,000 gpd
Design with 1-in-10 year flows:	940,264 gpd

Storage Basin:
Freeboard for basin: two (2) feet
Storage volume (minimum to maximum water levels): 69,385,078 gallons

Storage Capacity (in Days):
Design for Dry weather flows: 80 days
Design with 1-in 10 year flows: 74 days

Outfall #003 – Water Treatment Plant Discharge – SIC #4941
Water treatment plant filter's backwash water. Treatment train begins with water pumped from four (4) alluvial wells north of the facility. Aluminum salts are added to assist in coagulation and flocculation. Additionally, these salts help remove environmental iron from the finished drinking water. The MIOX system generates chlorine for disinfection. Pebble lime is added to facilitate water softening, then the water is sent through four (4) sand filters. Filter backwash travels to four (4) settling ponds south of the facility. Once per year or as needed, the water is pumped out of the settling basin(s), and lime sludge is removed by excavators and taken to Permitted Feature #005 for use in land reclamation via dump truck. Water is pumped into the other settling ponds during this process and residual lime is able to settle out prior to discharge.

Design flow is 86,400 gallons per day.
Actual flow is 30,000 gallons per day.

Legal Description:	NE ¼, NE ¼, SE ¼, Sec. 30, T22N, R14E, New Madrid County
UTM Coordinates:	X=806811, Y=4046954
Receiving Stream:	100K Extent-Remaining Stream (C)
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

FACILITY DESCRIPTION (CONTINUED)

Permitted Feature #005 – Water Treatment Plant Reclamation Area – SIC #4941
Water treatment plant reclamation area. This was previously a sludge storage area.
Design flow is 610,000 gallons per day.
Actual flow will be dependent upon rainfall.

Legal Description:	NW ¼, SE ¼, NE ¼, Sec. 30, T22N, R14E, New Madrid County
UTM Coordinates:	X=806574, Y=4047245
Receiving Stream:	Tributary to Portage Open Bay
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

Permitted Feature #006 – Center Pivot Land Application Field, ~ 38 acres

Legal Description:	SE ¼, NW ¼, Sec. 31, T22N, R14E, New Madrid County
UTM Coordinates:	X=805969, Y=4045536
Receiving Stream:	Tributary to Portage Open Bay
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

Permitted Feature #007 – Center Pivot Land Application Field, ~ 135 acres available for land application

Legal Description:	NE ¼, SW ¼, Sec. 31, T22N, R14E, New Madrid County
UTM Coordinates:	X=805788, Y=4044947
Receiving Stream:	Tributary to Portage Open Bay
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

Permitted Feature #008 – Center Pivot Land Application Field, ~ 180 acres available for land application

Legal Description:	Landgrant 00172, New Madrid County
UTM Coordinates:	X=806672, Y=4045024
Receiving Stream:	Tributary to Portage Open Bay
First Classified Stream and ID:	100K Extent-Remaining Stream (C) (3960)
USGS Basin & Sub-watershed No.:	Little River Ditches Basin; (08020204-0608)

Wastewater Irrigation Design Parameters:
Irrigation areas: 353 acres total available
Application rates: 0.2 inch/hour; 1.0 inch/day; 3.0 inches/week; 24 inches/year
Field slopes: less than 2 percent
Equipment type: 3 Center Pivot Irrigators
Vegetation: Row Crops
Application rate is based on: Hydraulic loading rate

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PERMITTED FEATURE INT *well intake*	**TABLE A-1** **FINAL MONITORING REQUIREMENTS**					
INFLUENT MONITORING	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*		*	once/month	24 Hr total
CONVENTIONAL						
Total Settleable Solids (Well Solids)	mL/L	*		*	once/month	grab
Total Suspended Solids (Well Solids)	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

* Monitoring and reporting requirement only

PERMITTED FEATURE INF *domestic influent monitoring*	**TABLE A-2** **FINAL MONITORING REQUIREMENTS**					
INFLUENT MONITORING	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: IM						
PHYSICAL						
Biological Oxygen Demand$_5$	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
LIMIT SET: IQ						
NUTRIENTS						
Ammonia as N	mg/L	*		*	once/quarter◊	grab
Nitrate + Nitrite	mg/L	*		*	once/quarter◊	grab
Total Kjeldahl Nitrogen	mg/L	*		*	once/quarter◊	grab
Total Phosphorus	mg/L	*		*	once/quarter◊	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

* Monitoring and reporting requirement only

◊ Quarterly sampling

MINIMUM QUARTERLY SAMPLING REQUIREMENTS			
QUARTER	**MONTHS**	**ALL PARAMETERS**	**REPORT IS DUE**
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October November, December	Sample at least once during any month of the quarter	January 28th

PF #002 *main land application PF for domestic waste*	**TABLE B-1** **FINAL IRRIGATION SYSTEM MONITORING REQUIREMENTS**

The facility is authorized to discharge from outfall(s) as specified. The final effluent limitations shall become effective on **Effective Date** and remain in effect until expiration of the permit

EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MINIMUM MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: OM						
Storage Basin Operational Monitoring						
Storage Basin Freeboard Ω	feet	*			once/month	measured
Precipitation ʌ	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022.						
LIMIT SET: LW						
Irrigation Operational Monitoring						
Irrigation Period	hours	*		*	daily	total
Volume Irrigated	gallons	*		*	daily	total
Irrigation Area	acres	*		*	daily	total
Irrigation Rate	inches	*		*	daily	total
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022.						

* Monitoring requirement only.

Ω Storage Basin Freeboard shall be reported as storage basin water level in feet below the overflow level.

ʌ All samples shall be collected within the first 60 minutes of a discharge resulting from a precipitation event greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable precipitation event. If a discharge resulting from a precipitation event as defined above does not occur within the reporting period, report as no discharge. Precipitation event means rainfall or runoff from snow melt or other forms of precipitation. The total amount of precipitation should be noted from the event from which the samples were collected.

OUTFALL #002 *domestic only outfall*	**TABLE B-2** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The facility is authorized to discharge from outfall(s) as specified. The final effluent limitations shall become effective on **August 1, 2022** remain in effect until expiration of the permit. Discharges shall be controlled, limited, and monitored by the facility as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MINIMUM MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*	-	*	once/month	24 hr. estimate
CONVENTIONAL						
Biochemical Oxygen Demand$_5$	mg/L	-	65	45	once/month	grab
pH †	SU	6.5-9.0	-	6.5-9.0	once/month	grab
Total Suspended Solids	mg/L	-	110	70	once/month	grab
Ammonia as N (April - September)	mg/L	12.1	-	1.2	once/month	grab
Ammonia as N (October - March)	mg/L	10.1	-	2.0	once/month	grab
E. coli ǂ	#/100 mL	-	1,030	206	once/week	grab
Biological Oxygen Demand$_5$ Percent Removal ř	%	-	-	65 minimum	once/month	calculated
Total Suspended Solids Percent Removal ř	%	-	-	65 minimum	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
LIMIT SET: Q						
NUTRIENTS		DAILY MAX	MONTHLY AVG			
Nitrate + Nitrite	mg/L	*	*		once/quarter ◊	grab
Total Kjeldahl Nitrogen	mg/L	*	*		once/quarter ◊	grab
Phosphorus, Total (TP)	mg/L	*	*		once/quarter ◊	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

* Monitoring and reporting requirement only

† pH: the facility will report the minimum and maximum values; pH is not to be averaged.

ǂ *E. coli*: final limitations and monitoring requirements 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.

ř Influent sampling for BOD_5 and TSS is not required during periods of land application when the facility does not discharge effluent and when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: [(Average Influent –Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a grab sample.

◊ Quarterly sampling

MINIMUM QUARTERLY SAMPLING REQUIREMENTS			
QUARTER	**MONTHS**	**ALL PARAMETERS**	**REPORT IS DUE**
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October November, December	Sample at least once during any month of the quarter	January 28th

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

OUTFALL #003 *water treatment plant backwash*	**TABLE B-3** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The facility is authorized to discharge from outfall(s) as specified. The final effluent limitations shall become effective on **August 1, 2022** and remain in effect until expiration of the permit. Discharges shall be controlled, limited and monitored by the facility as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MINIMUM MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M					
PHYSICAL					
Flow	MGD	*	*	once/month	24 Hr Est.
CONVENTIONAL					
Chemical Oxygen Demand	mg/L	*	*	once/month	grab
Total Settleable Solids	mL/L	*	*	once/month	grab
Net Total Settleable Solids ↓	mL/L	*	*	once/month	grab
Total Suspended Solids	mg/L	*	*	once/month	grab
Net Total Suspended Solids ↓	mg/L	*	*	once/month	grab
pH †	SU	6.5-9.0	6.5-9.0	once/month	grab
Total Residual Chlorine	µg/L	< 130 (18)	< 130 (9)	once/month	grab
METALS					
Aluminum, Total Recoverable	µg/L	750	242	once/month	grab
Iron, Total Recoverable	µg/L	1408	889	once/month	grab
OTHER					
Sulfate	mg/L	*	*	once/month	grab
Chloride	mg/L	422	164	once/month	grab
Sulfate + Chloride	mg/L	*	*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.					
LIMIT SET: A					
OTHER					
Color λ	0/1 (PASS/FAIL)	*	*	once/cleanout	grab
Acute Whole Effluent Toxicity Testing	TU	*	-	once/cleanout	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2023. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.					

* Monitoring and reporting requirement only

† pH: the facility will report the minimum and maximum values; pH is not to be averaged.

‡ Chlorine, Total Residual. This permit contains a Total Residual Chlorine (TRC) limit (or monitoring). The effluent limit is below the minimum quantification level of the most sensitive EPA approved CLTRC methods. The Department has determined the current acceptable minimum level (ML) for total residual chlorine is 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The facility will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured and detection values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and non-detect values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. The facility shall report less than "<" the value obtained on the meter for non-detections. The less than symbol shall not be used for detections. The facility shall not log the ML as the quantified value unless the quantified value is the ML. Do not chemically dechlorinated unless it is necessary to meet permit limits.

↓ The net solids shall be calculated by subtracting outfall #003 (river solids) from the solids generated. Follow these formulas.
Net Settleable Solids = Settleable Solids (Generated; Outfall #003) - Settleable Solids (Well Water Solids)
Net Total Suspended Solids = Total Suspended Solids (Generated; Outfall #003) - Total Suspended Solids (Well Water Solids)

λ Turbidity and/or color may cause a visible plume. This will be a visual assessment—if the discharge is visibly distinct from the receiving water, whether from turbidity, color, or a combination of both, the permittee will report 1 for FAIL. Reporting a 0 for PASS is only appropriate when the discharge is visually indistinguishable from the receiving waters. No mixing zone is allowed for general criteria. This parameter must be sampled for during the first discharge corresponding to filter backwash water pumped from settling basins, which this facility has reported occurs roughly annually. The facility must sample for these parameters each cleanout event and report events annually. Submit sample results for events after the first event as an eDMR attachment.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

PF #005 *stormwater from land reclamation area*	**TABLE B-4 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The facility is authorized to discharge from outfall(s) as specified. The final effluent limitations shall become effective on **August 1, 2022** and remain in effect until expiration of the permit. Discharges shall be controlled, limited and monitored by the facility as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL LIMITATIONS		BENCH-MARKS	MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE		MINIMUM MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*	*	-	once/month	24 Hr Est.
CONVENTIONAL						
Chemical Oxygen Demand	mg/L	**	-	100	once/month	grab
Total Suspended Solids	mg/L	**	-	100	once/month	grab
Settleable Solids	mL/L	**	-	1.0	once/month	grab
pH †	SU	6.5-9.0	6.5-9.0	-	once/month	grab
METALS						
Aluminum, Total Recoverable	µg/L	**	-	750	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE SEPTEMBER 28, 2022.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring and reporting requirement only

** Monitoring and reporting requirement with benchmark. See Special Conditions for additional requirements.

† pH: the facility will report the minimum and maximum values; pH is not to be averaged.

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I and Part III standard conditions dated August 1, 2014 and August 1, 2019, respectively, and hereby incorporated as though fully set forth herein. While this facility is a POTW, Standard Conditions Part II does not apply, as this facility is not authorized to accept additional significant industrial users into their treatment process or substantially change volume or character of pollutants.

D. SPECIAL CONDITIONS

1. Spills, Overflows, and Other Unauthorized Discharges.
   (a) Any spill, overflow, or other discharge(s) not specifically authorized are unauthorized discharges.
   (b) Should an unauthorized discharge cause or permit any contaminants to discharge or enter waters of the state, the unauthorized discharge must be reported to the regional office as soon as practicable but no more than 24 hours after the discovery of the discharge. If the spill or overflow needs to be reported after normal business hours or on the weekend, the facility must call the Department's 24 hour spill line at 573-634-2436.

2. 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 facility 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).

D. SPECIAL CONDITIONS (CONTINUED)

(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 required to stabilize the sample during shipping.
(c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
(d) The laboratory shall not chemically dechlorinate the sample.
(e) The Allowable Effluent Concentration (AEC) is 9%; the dilution series is: 2.25%, 4.5%, 9%, 18%, and 36%.
(f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
(g) 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% (LC_{50}) is the effluent concentration causing death in 50% of the test organisms at a specific time.

3. Intermittent Discharges (Outfall #002)
   (a) The term "intermittent discharge" used herein shall mean a discharge event to allow water to flow from the facility through the permitted outfall into the receiving stream that is initiated by the operator by means of opening a single or multiple valves, gates, or other operational control and then stopped by the operator by closing the same valves, gates, or other operational control.
   (b) Intermittent discharges shall be limited to 875,000 gallons per day. Discharges above 875,000 gallons per are allowed to occur when storage capacity is exceeded during periods of heavy precipitation.
   (c) Sampling for the effluent limitations in Table A during a intermittent discharge shall be conducted weekly, with at least two sampling events during the discharge. One sampling event shall be conducted near the beginning of the intermittent discharge and another sampling event conducted near the end of the intermittent discharge.
   (d) To avoid adversely affecting the hydrology of the receiving stream, means to dissipate the energy of the intermittent discharge flow shall be provided. Energy dissipation may be provided by rip-rap, diffuser, or other Department approved method.
   (e) Effluent limitations and Water Quality Standards shall not be violated at any time during an intermittent discharge.

4. Any discharge not meeting permitted limits may be pumped and hauled to an accepting wastewater treatment facility, or otherwise properly disposed.

5. Electronic Discharge Monitoring Report (eDMR) Submission System. The NPDES Electronic Reporting Rule, 40 CFR Part 127, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit), shall be submitted via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data for the NPDES program. The eDMR system is currently the only Department-approved reporting method for this permit unless specified elsewhere in this permit, or a waiver is granted by the Department. The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due. All reports uploaded into the system shall be reasonably named so they are easily identifiable, such as "WET Test Chronic Outfall 002 Jan 2023", or "Outfall004-DailyData-Mar2025".

6. Stormwater Pollution Prevention Plan (SWPPP).
   The facility's SIC code or description is not found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2). However, this facility has been required to maintain a SWPPP in previous permits, and water treatment plant permits are sufficiently complex and have sufficient stakeholder interest for the permit writer to require the facility to maintain detailed information regarding BMPs at the site. As such, this facility shall implement a Stormwater Pollution Prevention Plan (SWPPP) which must be prepared and implemented upon permit effective date. The SWPPP must be kept on-site and sent to the Department during this facility's application for permit renewal. The SWPPP must be reviewed and updated annually or if site conditions affecting stormwater change. The facility shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002 March 2021) https://www.epa.gov/sites/production/files/2021-03/documents/swppp_guide_industrial_2021_030121.pdf The purpose of the SWPPP and the Best Management Practices (BMPs) listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was ineffective at providing the necessary protections for which it was designed. Corrective action describes the steps the facility took to eliminate the deficiency.
   The SWPPP must include:
   (a) A listing of specific contaminants and their control measures (BMPs) and a narrative explaining how BMPs are implemented to control and minimize the amount of contaminants potentially entering stormwater.
   (b) A map with all outfalls and structural BMPs marked.
   (c) If within the boundaries of a regulated Municipal Separate Storm Sewer System (MS4s), list the name of the regulated MS4.

D. SPECIAL CONDITIONS (CONTINUED)

(d) A schedule for at least once per month site inspections and brief written reports. The inspection report must include precipitation information for the entire period since last inspection, as well as observations and evaluations of BMP effectiveness. A BMP is considered to be disrupted if it is rendered ineffective as a result of damage or improper maintenance. Categorization of a deficiency is reliant on the length of time required to correct each disrupted BMP. Corrective action after discovering a disrupted BMP must be taken as soon as possible. Throughout coverage under this permit, the facility must perform ongoing SWPPP review and revision to incorporate any site condition changes.
   (1) Operational deficiencies are disrupted BMPs which the facility is able to and must correct within 7 calendar days.
   (2) Minor structural deficiencies are disrupted BMPs which the facility is able to and must correct within 14 calendar days.
   (3) Major structural deficiencies (deficiencies projected to take longer than 14 days to correct) are disrupted BMPs which must be reported as an uploaded attachment through the eDMR system with the DMRs. The initial report shall consist of the deficiency noted, the proposed remedies, the interim or temporary remedies (including proposed timing of the placement of the interim measures), and an estimate of the timeframe needed to wholly complete the repairs or construction. If required by the Department, the facility shall work with the regional office to determine the best course of action. The facility should consider temporary structures to control stormwater runoff. The facility shall correct the major structural deficiency as soon as reasonably achievable.
   (4) All actions taken to correct the deficiencies shall be included with the written report, including photographs, and kept with the SWPPP. Additionally, corrective action of major structural deficiencies shall be reported as an uploaded attachment through the eDMR system with the DMRs.
   (5) BMP failure causing discharge through an unregistered outfall is considered an illicit discharge and must be reported in accordance with Standard Conditions Part I.
   (6) Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to Department personnel upon request. Electronic versions of the documents and photographs are acceptable.

(e) A provision for designating a responsible individual for environmental matters and a provision for providing training to all personnel involved in housekeeping, material handling (including but not limited to loading and unloading), storage, and staging of all operational, maintenance, storage, and cleaning areas. Proof of training shall be submitted upon request by the Department.

7. Site-wide minimum Best Management Practices (BMPs). At a minimum, the facility shall adhere to the following:
   (a) Provide good housekeeping practices on the site to keep trash from entry into waters of the state. Dumpsters should remain closed when not in use.
   (b) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, warehouse activities, and other areas, to prevent the contamination of stormwater from these substances.
   (c) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
   (d) Store all paint, solvents, petroleum products, petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so these materials are not exposed to stormwater or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of stormwater with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater. Spill records should be retained on-site.
   (e) Ensure adequate provisions are provided to prevent surface water intrusion into the storage basin and to divert stormwater runoff around the storage basin.
   (f) Provide sediment and erosion control sufficient to prevent or minimize sediment loss off of the property, and to protect embankments from erosion.
   (g) Wash water for vehicles, building(s), or pavement must be handled in a no-discharge manner (infiltration, hauled off-site, etc.). Describe the no-discharge method used and include all pertinent information (quantity/frequency, soap use, effluent destination, BMPs, etc.) in the application for renewal. If wash water is not produced, note this instead.
   (h) Fire protection test water must be handled in a no-discharge manner (infiltration, hauled off-site, etc.). Describe the no-discharge method used and include all pertinent information (quantity/frequency, source water, effluent destination, BMPs, etc.) in the application for renewal. If fire protection test water is not produced, note this instead.
   (i) After snow or ice, if the facility applies sand/salt to the pavement of parking lots, sidewalks, or stairs, the facility shall sweep the lots to remove sand/salt as soon as possible after snow or ice melt, collect excess solids, and minimize and control the discharge of solids into stormwater inlets. Salt and sand shall be stored in a manner minimizing mobilization in stormwater (for example: under roof, in covered container, in secondary containment, under tarp, etc.).
   (j) The facility must do a visual test for color during the first discharge after sludge settling ponds are cleaned. Visual test shall be a pass/fail based on if lime residuals are sufficiently present in the effluent to cause excursions of narrative criteria for

D. SPECIAL CONDITIONS (CONTINUED)

color.

8. Stormwater Benchmarks. This permit stipulates numeric pollutant benchmarks applicable to the facility's stormwater discharges.
   (a) Benchmarks do not constitute direct numeric effluent limitations; therefore, a benchmark exceedance alone is not a permit violation. Stormwater monitoring, numeric benchmark compliance, and visual inspections shall be used to determine the overall effectiveness of the BMPs identified in the SWPPP.
   (b) If a sample exceeds a benchmark concentration, the facility must review the SWPPP and BMPs to determine what improvements or additional controls are needed to reduce pollutant concentrations in future stormwater discharges.
   (c) Every time a numeric benchmark exceedance occurs, a Corrective Action Report (CAR) must be completed. A CAR is a document recording the efforts undertaken by the facility to improve BMPs to meet benchmarks in future samples. CARs must be retained with the SWPPP and be available to the Department upon request. This permit may require CARs be submitted to the Department upon permit renewal; see Renewal Requirements section below.
   (d) Failure to take corrective action to address numeric benchmark exceedance, and failure to make measureable progress towards achieving the numeric benchmark(s), is a permit violation.
   (e) Stormwater benchmarks and required minimum BMPs as described in this permit are enforceable permit conditions. Any requested change(s) to numeric benchmark values or deviation from minimum BMP requirements must be established through the permitting process. Assessment, evaluation, and implementation of specific BMPs to meet numeric benchmarks or minimum BMP requirements, must be addressed through the SWPPPs and CARs.

9. Proper and continued operation and maintenance pursuant to 40 CFR 122.41(e). At all times the facility shall properly operate, maintain, and control all systems of treatment and control (and related appurtenances) which are installed or used by the facility 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 facility only when the operation is necessary to achieve compliance with the conditions of the permit.

10. The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and wastewater irrigation systems, including key operating procedures, an aerial or topographic site map with the permitted features, irrigation fields, and irrigation buffer zones marked, and a brief summary of the operation of the facility. The O&M manual shall be made available to the operator and shall be reviewed and updated when there is a change in equipment or irrigation sites and at least every five years.

11. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with 644.051.16 RSMo for permit shield, and the CWA §402(k) for toxic substances. This permit may be reopened and modified, or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under CWA §§301(b)(2)(C) and (D), §304(b)(2), and §307(a)(2), if the effluent standard or limitation so issued or approved contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or controls any pollutant not already limited in the permit. This permit may be modified, revoked and reissued, or terminated for cause, including determination new pollutants found in the discharge not identified in the application for the new or revised permit. The filing of a request by the facility for a permit modification, termination, notice of planned changes, or anticipated non-compliance does not stay any permit condition.

12. All outfalls and permitted features must be clearly marked in the field.

13. Report no discharge when a discharge does not occur during the report period. It is a violation of this permit to report no-discharge when a discharge has occurred.

14. Reporting of Non-Detects.
   (a) Compliance analysis conducted by the facility or any contracted laboratory shall be conducted in such a way the precision and accuracy of the analyzed result can be enumerated. See sufficiently sensitive test method requirements in Standard Conditions Part I, §A, No. 4 regarding proper testing and detection limits used for sample analysis. For the purposes of this permit, the definitions in 40 CFR 136 apply; method detection limit (MDL) and laboratory-established reporting limit (RL) are used interchangeably in this permit. The reporting limits established by the laboratory must be below the lowest effluent limits established for the specified parameter (including any parameter's future limit after an SOC) in the permit unless the permit provides for an ML.
   (b) The facility shall not report a sample result as "non-detect" without also reporting the MDL. Reporting "non-detect" without also including the MDL will be considered failure to report, which is a violation of this permit.

D. SPECIAL CONDITIONS (CONTINUED)

(c) For the daily maximum, the facility shall report the highest value; if the highest value was a non-detect, use the less than "<" symbol and the laboratory's highest method detection limit (MDL) or the highest reporting limit (RL); whichever is higher (e.g. <6).
(d) When calculating monthly averages, zero shall be used in place of any value(s) not detected. Where all data used in the average are below the MDL or RL, the highest MDL or RL shall be reported as "<#" for the average as indicated in item (c).

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

16. This permit does not cover land disturbance activities.

17. This permit does not apply to fertilizer products receiving a current exemption under the Missouri Clean Water Law and regulations in 10 CSR 20-6.015(3)(B)8, and are land applied in accordance with the exemption.

18. This permit does not allow stream channel or wetland alterations unless approved by Clean Water Act §404 permitting authorities.

19. This permit does not authorize in-stream treatment, the placement of fill materials in flood plains, placement of solid materials into any waterway, the obstruction of stream flow, or changing the channel of a defined drainage course.

20. All records required by this permit may be maintained electronically per 432.255 RSMo. These records should be maintained in a searchable format.

21. Changes in Discharges of Toxic Pollutant.
In addition to the reporting requirements under 40 CFR 122.41, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director per 40 CFR 122.42(a)(1) and (2) as soon as recognizing:
(a) An activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
(1) One hundred micrograms per liter (100 µg/L);
(2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile;
(3) Five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol;
(4) One milligram per liter (1 mg/L) for antimony;
(5) Five (5) times the maximum concentration value reported for the pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
(6) The notification level established by the Department in accordance with 40 CFR 122.44(f).
(b) Any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
(1) Five hundred micrograms per liter (500 µg/L);
(2) One milligram per liter (1 mg/L) for antimony;
(3) Ten (10) times the maximum concentration value reported for the pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).
(4) The level established by the Director in accordance with 40 CFR 122.44(f).
(c) Authorization of new or expanded pollutant discharges may be required under a permit modification or renewal, and may require an antidegradation review.

22. This permit does not authorize the facility to accept, treat, or discharge wastewater from other sources. If the facility would like to accept, treat, or discharge wastewater from another activity or facility, the permit must be modified to include external wastewater pollutant sources in the permit.

23. Any discharges (or qualified activities such as land application) not expressly authorized in this permit, and not clearly disclosed in the permit application, cannot become authorized or shielded from liability under CWA section 402(k) or Section 644.051.16, RSMo, by disclosure to EPA, state, or local authorities after issuance of this permit via any means, including any other permit applications, funding applications, the SWPPP, discharge monitoring reporting, or during an inspection. Submit a permit modification application, as well as an antidegradation determination if appropriate, to request authorization of new or expanded discharges.

D. SPECIAL CONDITIONS (CONTINUED)

24. Renewal Application Requirements.
    (a) This facility shall submit an appropriate and complete application to the Department no less than 180 days prior to the expiration date listed on page 1 of the permit.
    (b) Application materials shall include complete Form A, and Form C. If the form names have changed, the facility should ensure they are submitting the correct forms as required by regulation.
    (c) This facility must submit Form B for the domestic wastewater outfall.
    (d) This facility must submit Form I for land application of wastewater.
    (e) The facility must sample the stormwater outfalls and provide analysis for every parameter contained in the permit at any outfall for at the site in accordance with 10 CSR 20-6.200(2)(C)1.E(I) and (II)
    (f) The facility shall submit the SWPPP and all supporting documentation with the next renewal.
    (g) The facility may use the electronic submission system to submit the application to the Program, if available.
    (h) This facility must submit all soil testing with the application for permit renewal.

E. WASTEWATER LAND APPLICATION CONDITIONS

1. Wastewater irrigation records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The summarized annual report is in addition to the reporting requirements listed in Table A. The summarized annual report shall include the following:
    (a) Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
    (b) The number of days the storage basin(s) has discharged during the year, the discharge flow, and the reasons discharge occurred; and
    (c) A summary of the irrigation operations for the year including: the number of days of irrigation, the total gallons irrigated, the total acres used, the irrigation rate in inches for the year, and the annual precipitation received at the facility.

2. Surficial land application of wastewater and/or sludge materials listed in the Facility Description of this permit is authorized and shall be conducted according to the following conditions. These land application conditions do not apply to fertilizer products receiving a current exemption under the Missouri Clean Water Law and regulations in 10 CSR 20-6.015(3)(B)8, and are land applied in accordance with the exemption. The minimum application requirements enumerated here, when followed, exempt stormwater runoff sampling requirements pursuant to 10 CSR 20-6.200(2)(B)3.B.

3. Storage Basin Minimum Best Management Practices (BMPs)
    (a) To maintain structural integrity, basins shall be inspected at least monthly, the berms of the storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage, any leaks or issues shall be noted and repaired as soon as possible.
    (b) The facility shall ensure adequate berms are provided to prevent surface water intrusion and run-in into the storage basin(s), will also divert stormwater runoff from around the storage basin(s), and will protect embankments from erosion.
    (c) The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked.
    (d) Each storage basin shall be operated and maintained to achieve and maintain no discharge status; including maximum water elevations up to the operating level of the 1-in-10 year or 25-year, 24-hour storm events.
    (e) The minimum storage capacity for the basin shall be 75days per 10 CSR 20-8.200(6)(C)1.A. for New Madrid County facilities.
    (f) Storage basins shall be lowered to the minimum operating level prior to November 30 each year.
    (g) At least one sign shall appear on the fence on each side of each basin. Minimum wording shall be "WASTEWATER – KEEP OUT", in letters at least 2 inches high.
    (h) It is a violation of this permit to place material in the emergency spillway or otherwise cause it to cease to function properly, as this may result in a catastrophic failure of the storage basin.

4. Wastewater Land Application Field(s) Minimum Requirements
    (a) No land application shall occur when the soil or ground is frosted, frozen, snow covered, or saturated. Daily observation of fields is required. Application activities shall cease if these conditions occur.
    (b) There shall be no application during a precipitation event or if a precipitation event likely to create runoff is forecasted to occur within 24 hours of a planned application.
    (c) Public Access Restrictions; this permit does not authorize application of wastewater to public use areas.
    (d) If land application sites listed in this permit are also included as land application sites in another permit, the wastewater and sludge applications from all sources shall be included in the application rates in the facility description. Records all sources must be kept for all permits.
    (e) Grazing and Harvesting Deferment.
        (1) May 1 to October 31, the minimum grazing or forage harvest deferment shall be fourteen (14) days from application;

E. WASTEWATER LAND APPLICATION CONDITIONS (CONTINUED)

(2) November 1 to April 30, the minimum grazing or forage harvest deferment shall be thirty (30) days from application;
(3) If deferment period spans two timeframes, the minimum grazing or forage harvest deferment shall be thirty (30) days from most recent application.
(4) Lactating dairy animal grazing is generally not recommended for application areas unless there has been a much longer deferment period.

(f) Land application shall occur only during daylight hours unless night time irrigation is necessary and the Water Protection Program has approved a nighttime irrigation plan.
(g) Land application fields shall be checked daily during land application for runoff.
(h) Sites utilizing spray irrigation shall monitor for the drifting of spray across property lines. Spray drift is not permissible.
(i) Setback distances from sensitive features per 10 CSR 20-8.200(6)(B). There shall be no land application within:
(1) The 10 year floodplain;
(2) 50 feet inside of the property line, public road, or drainage ditch;
(3) 100 feet of any classified or unclassified gaining perennial or intermittent stream, any wetland, or any public or privately owned pond or lake;
(4) 150 feet of any dwelling, residence, public building, or public use area (excluding roadways);
(5) 300 feet of any potable water supply well not located on the property, adequate protections shall be implemented and maintained for any potable water supply well located within the application area;
(6) 300 feet from any sinkhole, losing stream, or any other physiographic structure with a conduit to groundwater;

5. Application Rate(s) and Loading
(a) This permit does not authorize application of materials in concentrations known to cause, or having the potential to cause, phytotoxicity in plants per 10 CSR 20-6.015(4)1. If plant stress is observed, the facility may need to reduce application of wastewaters and/or sludge. If phytotoxicity is observed, the facility shall cease land application activities and evaluate the applied substances to determine the cause of phytotoxicity.
(b) The application rate shall not exceed any design hydraulic loading rate listed in the facility description.
(c) Wastewater application on slopes exceeding 10%:
(1) Initial application rate on dry soils may briefly exceed one-half (1/2) the design sustained permeability rate;
(2) The hourly application rate shall not exceed one-half (1/2) the design sustained permeability;
(3) In no case shall exceed one-half (1/2) inch per hour.
(d) Applications shall not exceed any agronomic rates listed in the facility description to ensure plant use of nutrients and prevent contamination of surface and groundwater. The agronomic rate is the amount of wastewater applied to a field to meet the fertilization needs of the plants.
(e) Runoff and ponding is prohibited.
(f) This permit does not authorize land disposal or the application of hazardous waste.
(g) The facility must maintain a record of all fertilizer products applied to fields; even exempted products, to determine total nutrient loading.
(h) The fertilizer recommendation shall be based on all of the following:
(1) The nutrient recommendation (nitrogen or phosphorus) for each crop. Recommendations can be found in University of Missouri Extension Guide EQ202 Crop/Nutrient Considerations for Biosolids or from publications by other land grant universities in adjoining states,
(2) Realistic yield goal for each crop. Yield goals should be based on actual crop yield records from multiple years for each field. Good judgment should be used to counteract unusually high or low yields. If a field's yield history is not available the USDA county wide average or other approved source may be used, and
(3) The most recent soil test.
(i) Application shall be conducted according to one of the following nutrient based management practices. The facility must avoid over-application of both Nitrogen and Phosphorus simultaneously by choosing the more stringent application method of those listed below.
(1) Nitrogen:
i. Plant Available Nitrogen (PAN) based application. This method can be used when soil test phosphorus (P) levels are 120 pounds or less per acre using Bray P-1 test method, or if the field has been assessed by Missouri Phosphorus Index (P-index) with a low or medium rating. The amount of wastewater and/or sludge to be applied shall be adjusted annually based on the PAN calculation using the current wastewater and/or sludge nutrient analysis and the following:
ii. For non-legume crops, the nitrogen fertilizer recommendation shall be adjusted to account for nitrogen credits from a preceding legume crop and residual nitrogen from the previous year's application. Nitrogen removal rates can be found in WQ430.
iii. For legume crops, the nitrogen removal capacity of the legume crops should be based on the estimated nitrogen content of the harvested crop as defined in WQ430 and a realistic yield goal. The estimated nitrogen content of the crop must be adjusted using nitrogen credits for residual nitrogen fertilizer from the previous year's application.

E. WASTEWATER LAND APPLICATION CONDITIONS (CONTINUED)

iv. PAN = [Ammonia Nitrogen x volatilization factor*] + [Organic Nitrogen x 0.2] + [Nitrate Nitrogen]
*Volatilization factor is 0.7 for surface application and 1 for subsurface application.
v. The amount of wastewater and/or sludge applied shall not exceed the nitrogen fertilizer recommendation or the estimated nitrogen removal capacity of the planned crop during the year of the application;

(2) Phosphorus:
i. This method must be used when soil test phosphorus (P) levels are above 120 pounds per acre using Bray P-1 test method, or if the P-index rating is high. The amount of wastewater and/or sludge to be applied shall be adjusted annually based the phosphorus content of the current wastewater and/or sludge nutrient analysis and may be applied according to one of the following methods;
ii. The annual amount of phosphorus applied shall not exceed the planned crop's phosphorus removal estimate from WQ430, or from publications by other land grant universities in adjoining states; or,
iii. Multi-year phosphorus applications. Wastewater and/or sludge applications can exceed the annual planned phosphate removal estimate for the crop when a multi-year phosphorus application is utilized. The multi-year application must comply with the following conditions:
iv. The amount of phosphorus banked shall not exceed four years of the estimated crop removal rate for the planned crop rotation;
v. The actual application rate shall not exceed the multi-year application rate; and
vi. No additional applications shall occur until the applied phosphorus has been removed from the field by crop removal or harvest.
vii. No land application can occur if the P-index rating for a field is "very high".

6. Record Keeping. The following record keeping shall occur, be maintained for at least five years, be made available to the Department upon request, and shall be submitted with the application for renewal.
(a) Daily land application log showing, at a minimum: date(s) of application, field identified, acres used, volume applied, weather condition (sunny, overcast, air temperature, etc), soil moisture condition, days since last precipitation event, and application method;
(b) Monthly visual storage structure inspections (if applicable);
(c) Equipment inspections and calibrations;
(d) Land application field inspections, including runoff, saturation, and ponding;
(e) Record of maintenance and repairs;
(f) Description of any unusual operating conditions encountered, narrative summary of any problems or deficiencies identified, corrective action taken, or improvements planned;
(g) The number of days the storage structure discharged during the year, the discharge flow, reason the discharge occurred, and effluent analysis performed including analytical result laboratory pages and any clean-up actions taken.
(h) To ensure the soil does not exceed the cumulative loading rate, all records shall be maintained from the initial application date and for at least five years after application activities have ceased.
(i) Annual summary for each field used for land application showing: number of days application occurred, crop grown and yield, and total amount of wastewater and/or sludge applied (gallons and/or tons per acre).

F. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL OF
MO-0098418
ST. JUDE INDUSTRIAL PARK WTP

The Federal Water Pollution Control Act (Clean Water Act (CWA) §402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (§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 644 RSMo as amended). MSOPs may also cover underground injection, non-discharging facilities, and land application facilities. Permits are issued for a period of five (5) years unless otherwise specified for less.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)(A)2.] a factsheet shall be prepared to give pertinent information regarding applicable regulations, rationale for the development of limitations and conditions, and the public participation process for the Missouri State Operating Permit (MSOP or permit) listed below. A factsheet is not an enforceable part of a permit.

PART I. FACILITY INFORMATION

Facility Type:	Industrial: Non-categorical; <1 MGD
SIC Code(s):	4941, 4952
NAICS Code(s):	221310, 221320
Expiration Date:	12/31/2020
Last Inspection:	06/08/2021; In compliance

FACILITY DESCRIPTION:
This facility is a drinking water treatment plant with domestic partial irrigation, partial discharge. The domestic system is relatively straightforward: discharge from the employee bathrooms reaches the lagoon where it is then land applied or discharged. The drinking water treatment plant is somewhat more complicated. Treatment train begins with water pumped from four (4) alluvial wells north of the facility. Aluminum salts are added to assist in coagulation and flocculation. Pebble lime is added to facilitate water softening, then the water is sent through a filter. Filter backwash travels to four (4) settling ponds south of the facility. Once per year or as needed, the water is pumped out of the settling basins, and lime sludge is removed by excavators and taken to Permitted Feature #005 for use in land reclamation via dump truck. Water is pumped into the other settling ponds during this process and residual lime is able to settle out prior to discharge.

This facility provides potable water service to approximately 700 commercial employees within the New Madrid Industrial Park. The plant is located along the Mississippi. This water treatment plant (WTP) withdraws water from the Mississippi through alluvial groundwater wells. The treatment facility was built in 1969 and has a treatment capacity of 3.0 million gallons per day (MGD). Since its construction, major process modifications include the replacement of the potassium permanganate coagulant aid with cationic polymer coagulant aid. In addition, the chlorination system was upgraded to a MIOX system, which produces weak bleach using chlorine salts.

The WTP performs coagulation, lime softening, clarification, filtration, disinfection, and taste and odor control. Treatment residuals are generated from the clarification, softening, and filtration processes. Lime is fed automatically in the treatment plant at a set rate to avoid overuse and maintain consistent levels of lime discharged to the settling ponds. Instead of directly discharging treatment residuals, they are sent to four (4) settling ponds to the south of the facility where they settle out of the wastewater prior to discharge. Only supernatant from these settling ponds is discharged, leaving all lime sludge behind. This supernatant is ultimately discharged from Outfall #003.

The filter backwash basins undergo annual or as needed pumping to remove all lime solids from the settling ponds. The facility employs multiple BMPs to ensure that no lime residuals are discharged during settling pond cleanout. Firstly, all decanted water from the settling ponds is not directly discharged, but pumped back into another treatment pond. After all water is decanted, excavators remove the sludge and transport it in dump trucks to Permitted Feature #005, the land reclamation area. Any solids disturbed during this process are allowed to settle out in the basins, and only supernatant is discharged during discharge events. The WTP's discharge consists of this decanted filter backwash water, which contains only minimal solids and aluminum salts from the treatment process given the settling basins and other BMPs in place.

Given the extensive BMPs in place that effectively remove all lime residuals from the discharge, this facility does not have reasonable potential to cause excursions from general criteria listed in 10 CSR 20-7.031(4)(C) which states "Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses."; the discharge from this facility has never been observed to cause a violation of narrative criteria for color and turbidity.

Treatment processes causing this violation for typical drinking water treatment plants are residuals from drinking water treatment process including the lime softening process, coagulation and flocculation, and filter backwash. 40 CFR 122.44(d)(1)(i) states "limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including State Narrative Criteria for water quality." As the pollutants of concern that cause excursions of these narrative criteria are settled out, this only becomes a concern once annually when the facility decants the water. Improper operation and maintenance of the facility may cause excursions of general criteria during this time frame.

40 CFR 122.44(d)(1)(iii) states "When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant."

In the case of turbidity and color there is no water quality standard to derive a water quality based effluent limit. In addition, the EPA has not promulgated any Effluent Limit Guidelines (ELG) for drinking water treatment plants that could be used to develop technology based effluent limits. The color and pH parameters have a direct correlation with solids discharge. As a result, numeric effluent limits or monitoring will be implemented for Whole Effluent Toxicity as well as for pH, and the facility is required to submit an annual pass/fail visual test of color when filter backwash water is decanted. This is in accordance with 122.44(d)(1)(vi)(c) which allows the establishment of effluent limits using indicator parameter(s) for the pollutant of concern.

Whole Effluent Toxicity and pH are being utilized as indicator parameters for water treatment residuals (solids) for which general criteria violations are attributed to. The lime residuals present in the discharge are capable of producing a visible plume if decanted from the settling ponds improperly. This is due to the turbidity and/or color produced by the surface discharge to the receiving waterbody. If monitoring reveals that toxicity is a problem for this facility, numeric limits will be promulgated in future permits. In addition, net total suspended solids and net total settleable solids monitoring requirements have been added to the permit to ensure that this facility will not cause violations of narrative criteria in the future.

Numeric limits and monitoring for pH and WET testing can be tied to two primary concerns associated with lime solids discharge. First, as lime is naturally high in pH, the pH limits in this permit will translate to provide control of the quantity of residuals being discharged. As the high pH and high concentration of residual lime/sediments contribute to aquatic toxicity, numeric limits for Acute WET will translate to limitation of the quantity of residuals being discharged. Whole effluent toxicity can be affected by the solids concentrations in water. Gill function and motility are negatively affected when solids accumulate on gill surfaces or make feeding impossible. Suspended and dissolved solids affect organisms different ways, and different types of solids, such as salts or alternatively organic materials, behave differently when contacting different organisms. Dissolved salts can shift the ionic composition of water and cause organisms to dehydrate due to cell adsorptions of salts. Lime, a calcium precipitate product, may negatively affect organisms by upregulating calcium ion (Ca++) channels, causing unregulated muscle activity, heart beat dysregulation, and ultimately fish death if exposure continues[1].

PERMITTED FEATURES TABLE:

PERMITTED FEATURE	AVERAGE FLOW	DESIGN FLOW	TREATMENT LEVEL	EFFLUENT TYPE
#002	0.044 MGD	0.875 MGD	Equivalent to Secondary	Domestic
#003	0.030 MGD	0.0864 MGD	Settling	Water Treatment Plant Backwash
#005	0.610 MGD	Dependent on Precipitation	BMPs	Stormwater
#006	n/a	n/a	n/a	Domestic
#007	n/a	n/a	n/a	Domestic
#008	n/a	n/a	n/a	Domestic

[1] Bash, Berman, and Bolton. "Effects of Turbidity and Suspended Solids on Salmonids," 2001.
Hodgson, Rhiannon Michaela. "Changes in Gill Physiology and Energy Requirements of Darter Species (*Etheostoma* spp.) due to Effluent in the Grand River," 2020.

FACILITY PERFORMANCE HISTORY & COMMENTS:
The electronic discharge monitoring reports were reviewed for the last five years. The facility had numerous exceedances of BOD_5 percent removal and TSS percent removal, likely as a result of incorrect calculations, as it is unlikely that the facility can only achieve a percent removal of 2.5% in any circumstance. In addition, this facility had numerous exceedances of Ammonia as N in Outfall #002.

CONTINUING AUTHORITY:
There is no charter number for this continuing authority, as the continuing authority is a municipality that is not required to register with the Secretary of State. In addition, there is no higher preference continuing authority available in the area, so no waiver is required per 10 CSR 20-6.010(2).

OTHER ENVIRONMENTAL PERMITS:
This facility has a permit for the drinking water treatment plant. The permit number is MO4180658.

PART II. RECEIVING WATERBODY INFORMATION

RECEIVING WATERBODY TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO SEGMENT	12-DIGIT HUC
#002	100K Extent-Remaining Streams	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0.17 mi	08020204-0608
#003	100K Extent-Remaining Streams	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0.0 mi	
#005	100K Extent-Remaining Streams	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0.19	

Classes are representations of hydrologic flow volume or lake basin size as defined in 10 CSR 20-7.031(1)(F). L1: Lakes with drinking water supply - wastewater discharges are not permitted to occur to L1 watersheds per 10 CSR 20-7.015(3)(C); L2: major reservoirs; L3: all other public and private lakes; P: permanent streams; C: streams which may cease flow in dry periods but maintain pools supporting aquatic life; E: streams which do not maintain surface flow; and W: wetlands. Losing streams are defined in 10 CSR 20-7.031(1)(O) and are designated on the losing stream dataset or determined by the Department to lose 30% or more of flow to the subsurface.

WBID: Waterbody Identification Number: Missouri Use Designation Dataset per 10 CSR 20-7.031(1)(Q) and (S) as 100K Extant-Remaining Streams or newer; data can be found as an ArcGIS shapefile on MSDIS at ftp://msdis.missouri.edu/pub/Inland_Water_Resources/MO_2014_WQS_Stream_Classifications_and_Use_shp.zip; New C streams described on the dataset per 10 CSR 20-7.031(2)(A)3 as 100K Extent Remaining Streams.

HUC: Hydrologic Unit Code https://water.usgs.gov/GIS/huc.html

Designated Uses:
10 CSR 20-7.031(1)(C)1: **ALP** – Aquatic Life Protection (formerly AQL); current uses are defined to ensure the protection and propagation of fish shellfish and wildlife, further subcategorized as: WWH – Warm Water Habitat; CLH – Cool Water Habitat; CDH – Cold Water Habitat; EAH – Ephemeral Aquatic Habitat; MAH – Modified Aquatic Habitat; LAH – Limited Aquatic Habitat. This permit uses ALP effluent limitations in 10 CSR 20-7.031 Table A1-B3 for all habitat designations unless otherwise specified.
10 CSR 20-7.031(1)(C)2: Recreation in and on the water
WBC is Whole Body Contact recreation where the entire body is capable of being submerged;
WBC-A – whole body contact recreation supporting swimming uses and has public access;
WBC-B – whole body contact recreation not included in WBC-A;
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 and drinking of water;
IRR – irrigation for use on crops utilized for human or livestock consumption, includes aquifers per 10 CSR 20-7.031(6)(A);
LWW – Livestock and Wildlife Watering (current narrative use is defined as LWP = Livestock and Wildlife Protection), includes aquifers per 10 CSR 20-7.031(6)(A);
DWS – Drinking Water Supply, includes aquifers per 10 CSR 20-7.031(6)(A);
IND – industrial water supply
10 CSR 20-7.031(1)(C)8 to 11: Wetlands (10 CSR 20-7.031 Tables A1-B3) do 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 20-7.015(7) and 10 CSR 20-7.031(6): **GRW** = Groundwater

Other Applicable Criteria:
10 CSR 20-7.031(4): **GEN** – general criteria; acute toxicity criteria applicable to all waters even those lacking designated uses
10 CSR 20-7.031(5)(N)6: **NNC** – lake numeric nutrient criteria apply
Water Quality Standards Search https://apps5.mo.gov/mocwis_public/waterQualityStandardsSearch.do

WATERS OF THE STATE DESIGNATIONS:
Waters of the state are divided into seven categories per 10 CSR 20-7.015(1)(B)1 through 7. The applicable water of the state category is listed below. Missouri's technology-based effluent regulations are found in [10 CSR 20-7.015] and are implemented in 10 CSR 20-7.015(2) through (8). When implementing technology regulations, considerations are made for the facility type, discharge type, and category of waters of the state. Stormwater discharges and land application sites are not subject to limitations found in 10 CSR 20-7.015. Effluent limitation derivations are discussed in PART IV: EFFLUENTS LIMITS DETERMINATIONS.
✓ All other waters; identified at 10 CSR 20-7.015(B)7 and 10 CSR 20-7.015(8)

EXISTING WATER QUALITY & IMPAIRMENTS:
The receiving waterbody(s) segment(s), upstream, and downstream confluence water quality was reviewed. No relevant water quality data was available. The USGS https://waterdata.usgs.gov/nwis/sw or the Department's quality data database was reviewed. https://apps5.mo.gov/mocwis_public/wqa/waterbodySearch.do and https://apps5.mo.gov/wqa/ The Department's quality data database was reviewed. https://apps5.mo.gov/mocwis_public/wqa/waterbodySearch.do and https://apps5.mo.gov/wqa/ Impaired waterbodies which may be impacted by discharges from this facility were determined. Impairments include waterbodies on the 305(b) or 303(d) list and those waterbodies or watersheds under a TMDL. https://dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/tmdls Section 303(d) of the federal Clean Water Act requires each state identify waters not meeting water quality standards and for which adequate water pollution controls have not been required. https://dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/impaired-waters 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 impaired waters not addressed by normal water pollution control programs. A TMDL is a calculation of the maximum amount of a given pollutant a water body can absorb before its water quality is affected; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the §303(d) list, then a watershed management plan or TMDL for that watershed may be developed. The TMDL shall include the WLA calculation.

✓ The permit writer has noted no upstream or downstream impairments near this facility.

WATERBODY MONITORING REQUIREMENTS:

✓ No waterbody monitoring requirements are recommended at this time.

WATERBODY MIXING CONSIDERATIONS:
For all wastewater outfalls, mixing zone and zone of initial dilution are not allowed per 10 CSR 20-7.031(5)(A)4.B.(I)(a) and (b), as the base stream flow does not provide dilution to the effluent. For information how this regulation is used in determining effluent limits with or without mixing, see WASTELOAD ALLOCATION in Part III. If the base stream flow is above 0.1 cfs, mixing may be applied if 1) zones of passage are present, 2) mixing velocities are sufficient and stream bank configuration allows, 3) the aquatic life support system is maintained, 4) mixing zones do not overlap, 5) there are no drinking water intakes in the vicinity downstream, 6) the stream or lake has available pollutant loading to be allocated, and 7) downstream uses are protected. If mixing was not allowed in this permit, the facility may submit information, such as modeling, as to why mixing should be afforded to the outfall.

PART III. RATIONALE AND DERIVATION OF PERMIT CONDITIONS

ANTIBACKSLIDING:
Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(l)] require a reissued permit to be as stringent as the previous permit with some exceptions. Backsliding (a less stringent permit limitation) is only allowed under certain conditions.

✓ Limitations in this operating permit reissuance conform to the anti-backsliding provisions of CWA §402(o), and 40 CFR 122.44.
- ✓ 40 CFR 122.44(l)(i)(B)(1); information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) which would have justified the application of a less stringent effluent limitation.
  - The Department developed a new framework for establishing effluent limitations for Ammonia as N. As a result, the effluent limitations have become less stringent. These limits are still protective of water quality.
  - The domestic system had sampling requirements twice monthly. As the domestic system's effluent is relatively consistent in strength and character, sampling once monthly is sufficient to characterize the discharge. These sampling requirements are still protective of water quality.
  - Biological Oxygen Demand has been replaced with Chemical Oxygen Demand for Outfall #003, as it more accurately portrays the character of effluent that is not nutrient-dominated, but instead dominated by metals and solids. This switch is just as protective as before.
  - Total Settleable Solids has been switched from having a limit to being monitoring only, as this facility mostly reports non-detects of this parameter. The parameter was not removed entirely, as either Total Suspended Solids or Total Dissolved Solids monitoring is required to be in all Water Treatment Plant permits in order to determine a technology-based standard for solids.
- ✓ 40 CFR 122.44(l)(i)(B)(2); the Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under CWA §402(a)(1)(b).
  - The previous permit required this facility to adhere to Standard Conditions Part II. While this facility is a POTW, none of these standard conditions apply, as this facility does not have a collection system and is not authorized to accept waste from any other source.
  - The previous permit established special conditions related to operation and maintenance of the lagoon. These conditions are redundant, as they are already established in Standard Conditions Part III and 10 CSR 20-8, and as such they have been removed.

- The previous permit required annual soil samples on fields where lime residuals are applied. This permit introduces soil sampling once per five years, as the previous condition was unnecessarily restrictive, and this facility's residuals will be relatively consistent in strength and character.
- The previous permit special conditions contained a specific set of prohibitions related to general criteria (GC) found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of those general water quality criteria in the previous permit. This permit assesses each general criteria as listed in the previous permit's special conditions. Federal regulations 40 CFR 122.44(d)(1)(iii) requires instances where reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4)(A) through (I) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific effluent limitations were not included for those general criteria where it was determined the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality while maintaining permit conditions applicable to facility disclosures and in accordance with 10 CSR 20-7.031(4) where no water contaminant by itself or in combination with other substances shall prevent the water of the state from meeting the following conditions:
  (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
    - For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates putrescent wastewater would be discharged from the facility.
    - For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates unsightly or harmful bottom deposits would be discharged from the facility. In addition, monitoring for net suspended and settleable solids and WET test requirements will allow the Department to determine if the facility has RP in the future.
  (B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses.
    - For all outfalls, there is no RP for oil in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates oil will be present in sufficient amounts to impair beneficial uses.
    - For all outfalls, there is no RP for scum and floating debris in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates scum and floating debris will be present in sufficient amounts to impair beneficial uses.
  (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
    - For all outfalls, there is no RP for unsightly color or turbidity in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates unsightly color or turbidity will be present in sufficient amounts to impair beneficial uses. In addition, monitoring for net suspended and settleable solids and WET test requirements will allow the Department to determine if the facility has RP in the future. Lastly, color monitoring has been introduced for when this facility decants the water in their settling ponds to ascertain if excessive lime residuals are being discharged during drawdown.
    - For all outfalls, there is no RP for offensive odor in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates offensive odor will be present in sufficient amounts to impair beneficial uses.
  (D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
    - The permit writer considered specific toxic pollutants when writing this permit, including the consideration of WET testing. Numeric effluent limitations are included for those pollutants which could be discharged in toxic amounts. These effluent limitations are protective of human health, animals, and aquatic life. Specific toxic pollutants are discussed below in Derivation and Discussion of Limits, and where appropriate, numeric effluent limitations added.
  (E) Waters shall maintain a level of water quality at their confluences to downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including waters of another state.
    - This criteria was not assessed for antibacksliding as this is a new requirement, approved by the EPA on July 30, 2019.
  (F) There shall be no significant human health hazard from incidental contact with the water.
    - This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.
  (G) There shall be no acute toxicity to livestock or wildlife watering.

- This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.

(H) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

- For all outfalls, there is no RP for physical changes impairing the natural biological community because nothing disclosed by the facility indicates this is occurring.
- It has been established any chemical changes are covered by the specific numeric effluent limitations established in the permit.
- For all outfalls, there is no RP for hydrologic changes impairing the natural biological community because nothing disclosed by the facility indicates this is occurring.

(I) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law 260.200 RSMo, except as the use of such materials is specifically permitted pursuant to 260.200 through 260.247 RSMo.

- There are no solid waste disposal activities or any operation which has reasonable potential to cause or contribute to the materials listed above being discharged through any outfall.
- There is no reasonable potential for the wastes listed above to be found in the receiving stream at any of the outfalls at this solid waste facility. 10 CSR 80-3.010(16)(A)-(C) require litter and solid wastes be controlled on the site for aesthetic purposes, preventing it from entering the stream.

ANTIDEGRADATION REVIEW:
Process water discharges with new, altered, or expanding flows, the Department is to document, by means of antidegradation review, if 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 https://dnr.mo.gov/document-search/antidegradation-implementation-procedure Per [10 CSR 20-7.015(4)(A)], new discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream, or connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

✓ Not applicable; the facility has not submitted information proposing expanded or altered process water discharge; no further degradation proposed therefore no further review necessary.

BEST MANAGEMENT PRACTICES:
Minimum site-wide best management practices are established in this permit to ensure all facilities are managing their sites equally to protect waters of the state from certain activities which could cause negative effects in receiving water bodies. While not all sites require a SWPPP because the SIC codes are specifically exempted in 40 CFR 122.26(b)(14), these best management practices are not specifically included for stormwater purposes. These practices are minimum requirements for all industrial sites to protect waters of the state. If the minimum best management practices are not followed, the facility may violate general criteria [10 CSR 20-7.031(4)]. Statutes are applicable to all permitted facilities in the state, therefore pollutants cannot be released unless in accordance with 644.011 and 644.016 (17) RSMo.

CLOSURE:
To properly decontaminate and close a wastewater basin, the facility must draft a complete closure plan, and include the Closure Request Form #2512 https://dnr.mo.gov/document-search/facility-closure-request-form-mo-780-2512 The publication, Wastewater Treatment Plant Closure - PUB2568 found at https://dnr.mo.gov/print/document-search/pub2568 may be helpful to develop the closure plan. The regional office will then approve the closure plan, and provide authorization to begin the work. The regional office contact information can be found here: https://dnr.mo.gov/about-us/division-environmental-quality/regional-office

COST ANALYSIS FOR COMPLIANCE (CAFCOM):
Pursuant to 644.145 RSMo, when incorporating a new requirement for discharges from publicly owned facilities, or when enforcing provisions of this chapter or the CWA, pertaining to any portion of a publicly owned facility, the Department 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 CWA. This process is completed through a CAFCom. Permits not including new requirements may be deemed affordable.

✓ The Department is required to make a finding of affordability on the new environmental requirement(s) within the permit as this facility is publicly owned. However, the facility chose to waive the finding of affordability requirement; therefore, no CAFCom was conducted.

CHANGES IN DISCHARGES OF TOXIC POLLUTANT:
This special condition reiterates the federal rules found in 40 CFR 122.44(f) for technology treatments and 122.42(a)(1) for all other toxic substances. In these rules, the facility is required to report changes in amounts of toxic substances discharged. Toxic substances are defined in 40 CFR 122.2 as "…any pollutant listed as toxic under section 307(a)(1)" or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing section 405(d) of the CWA." Section 307 of the clean water act then refers to those parameters listed in 40 CFR 401.15 and any other toxic parameter the Department determines is applicable for reporting under these rules in the permit. The facility should also consider any other toxic pollutant in the discharge as reportable under this condition and must report all increases to the Department as soon as discovered in the effluent. The Department may open the permit to implement any required effluent limits pursuant to CWA §402(k) where sufficient data was not supplied within the application but was supplied at a later date by either the facility or other resource determined to be representative of the discharge, such as sampling by Department personnel.

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.
✓ Not applicable; the facility is not currently under Water Protection Program enforcement action.

DISCHARGE MONITORING REPORTING – ELECTRONIC (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 requiring electronic data reporting. To comply with the federal rule, the Department is requiring all facilities to submit discharge monitoring data and reports online. To review historic data, the Department's database has a publically facing search engine, available at https://apps5.mo.gov/mocwis_public/dmrDisclaimer.do

Registration and other information regarding MoGEM can be found at https://dnr.mo.gov/mogem. Information about the eDMR system can be found at https://dnr.mo.gov/env/wpp/edmr.htm.The first user shall register as an Organization Official and the association to the facility must be approved by the Department. To access the eDMR system, use: https://apps5.mo.gov/mogems/welcome.action For assistance using the eDMR system, contact edmr@dnr.mo.gov or call 855-789-3889 or 573-526-2082. To assist the facility in entering data into the eDMR system, the permit describes limit sets designators in each table in Part A of the permit. Facility personnel will use these identifiers to ensure data entry is being completed appropriately. For example, M for monthly, Q for quarterly, A for annual, and others as identified.

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 facility must first submit an eDMR Waiver Request form available on the Department's web page. A request must be made for each operating permit. An approved waiver is not 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.
✓ This facility has not been granted a waiver, nor would this facility qualify for a waiver.

DOMESTIC WASTEWATER, SLUDGE, AND BIOSOLIDS:
Domestic wastewater is defined as wastewater originating primarily from the sanitary conveyances of bathrooms and kitchens. Domestic wastewater excludes stormwater, wash water, animal waste, process and ancillary wastewater.
✓ Applicable; this facility uses a lagoon system which the Department of Natural Resources must authorize in accordance with 19 CSR 20-3.060(6)(D) as Department of Health and Senior Services rules only provide for the use of a lagoon for single residences.

Sewage sludge is solid, semi-solid, 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 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. Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for productive use (i.e. fertilizer) and after having pathogens removed.
✓ Standard conditions Part III is incorporated into this permit.

EFFLUENT LIMITATIONS:
Two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs) are reviewed. Permits are required to establish the most stringent or most protective limit. If the TBEL or WQBEL does not provide adequate protection for the receiving water, then the other must be used per 10 CSR 20-7.015(9)(A) or 40 CFR 122.44(b)(1). See WASTELOAD ALLOCATION below which describes how WQBEL wasteload allowances are established under the permit. Effluent limitations derived and established for this permit are based on current operations of the facility. Any flow through the outfall is considered a discharge and must be sampled and reported as provided in the permit. Daily maximums and monthly averages are required per 40 CFR 122.45(d)(1) for continuous discharges (not from a POTW).

EMERGENCY DISCHARGE:
For non-discharging permits, some permits may allow a small amount of wastewater discharge under very specific circumstances.
✓ Not applicable; this permit does not contain conditions allowing emergency discharges.

FEDERAL EFFLUENT LIMITATION GUIDELINES:
Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. Effluent guidelines are not always established for every pollutant present in a point source discharge. In many instances, EPA promulgates effluent guidelines for an indicator pollutant. Industrial facilities complying with the effluent guidelines for the indicator pollutant will also control other pollutants (e.g. pollutants with a similar chemical structure). For example, EPA may choose to regulate only one of several metals present in the effluent from an industrial category, and compliance with the effluent guidelines will ensure similar metals present in the discharge are adequately controlled. All are technology based limitations which must be met by the applicable facility at all times. Should Reasonable Potential be established for any particular parameter, and water-quality derived effluent limits are more protective of the receiving water's quality, the WQS will be used as the limiting factor in accordance with 40 CFR 122.44(d) and 10 CSR 20-7.015(9)(A).
✓ The facility does not have an associated ELG.

GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants determined to cause, have reasonable potential to cause, or to contribute to, an excursion above any water quality standard, including narrative water quality criteria. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether discharges have reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). In instances where reasonable potential exists, the permit includes limitations to address the reasonable potential. In discharges where reasonable potential does not exist, the permit may include monitoring to later determine the discharge's potential to impact the narrative criteria. Additionally, 644.076.1 RSMo, as well as Part I §D – Administrative Requirements of Standard Conditions included in this permit state it shall be unlawful for any person to cause or allow any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of §§644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule, or regulation promulgated by the commission. See Part IV for specific determinations.

GROUNDWATER MONITORING:
Groundwater is a water of the state according to 644.016(27) RSMo, is subject to regulations at 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6), and must be protected accordingly.
✓ This facility is not required to monitor groundwater for the water protection program.

LAND APPLICATION:
Land application, or surficial dispersion of wastewater and/or sludge, is performed by facilities as an alternative to discharging. Authority to regulate these activities is pursuant to 644.026 RSMo. The Department implements requirements for these types of operations pursuant to 10 CSR 20-6.015(4)(A)1 which instructs the Department to develop permit conditions containing limitations, monitoring, reporting, and other requirements to protect soils, crops, surface waters, groundwater, public health, and the environment.
✓ Applicable, the facility shall comply with all applicable land application requirements listed in this permit. These requirements incorporated into this permit pursuant to 10 CSR 20-6.015(4) ensure appropriate minimum operational controls of the no-discharge land application systems. When operated correctly these permit conditions will prevent unauthorized and illicit discharges to waters of the state; and will protect soils, vegetation, surface water, groundwater, and public health. These requirements also ensure application activities fall within a productive use demonstration (agricultural use), prevent plant phytotoxicity, and prevent and protect soils loading of specified pollutants. The minimum requirements established in the permit are to meet, not only DNRs requirements, but to also ensure the exemptions for agricultural stormwater runoff in 10 CSR 20-6.200(1)(B)5 or 10 CSR 20-6.300(2)(D)2 continue to be met. When the facility follows all permit requirements, stormwater discharge monitoring requirements from land application sites found at 10 CSR 20-6.200(2)(B)3.B. are excused. The BMPs prescribed in the permit, such as not applying to saturated or frozen soil, or applying outside the setbacks, are specific BMPs appropriate for wastewater and stormwater management from land application areas.
✓ Following is a list of helpful publications; while generally geared to biosolids and domestic sludge, these documents can show operators and facilities specific best management practices which may be important to their own operations.

- State and EPA Regulations for Domestic Wastewater Sludge and Biosolids https://extension.missouri.edu/publications/eq421
- Land Application of Septage https://extension.missouri.edu/publications/eq422
- Standards for Pathogens and Vectors https://extension.missouri.edu/publications/wq424
- Interpretation of Laboratory Analysis of Samples https://extension2.missouri.edu/wq429
- Biosolids Glossary of Terms https://extension2.missouri.edu/eq449

✓ Operations and Maintenance, and equipment resources:
- Collection and Storage https://extension2.missouri.edu/eq431
- Equipment for Off-Site Application https://extension2.missouri.edu/wq432
- Equipment for On-Site Land Application https://extension2.missouri.edu/wq433
- Operating Considerations for Equipment https://extension2.missouri.edu/wq434

✓ Land application of all pollutants must consider cumulative and average limits based on how the pollutant responds in the soil environment. Limits or monitoring requirements may reflect different monthly calculations based on pollutant behavior.

✓ The facility must follow the applicable application loading rates indicated in the permit's facility description and/or special conditions. The facility must follow the applicable loading rates in the permit's facility description for each land application area. This permit dictates the most conservative calculation will be used when determining application rates so that the most abundant pollutant is not over-applied.

✓ **Hydraulic Loading Rates** – wastewater must be land applied at rates to allow for proper soil absorption and plant uptake. In accordance with 10 CSR 20-8.200(6)(B), the hydraulic loading rate shall not exceed the soil permeability rate, or result in a discharge of wastewater from the land application field.

✓ **Nitrogen Loading Rates** – wastewater application rates should not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year, and the applied wastewater should not exceed 10 mg/L of nitrate nitrogen as N at any time.

✓ Fertilizer recommendations can also be obtained by using one of the following tools:
- Land Applications Considerations (nutrient requirements for plant growth) https://extension.missouri.edu/publications/eq202
- Crop/Nutrient Considerations https://extension2.missouri.edu/eq430
- University of Missouri Nutrient Management Home Page: https://nmplanner.missouri.edu/
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Nutrient Management technical resources https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/ecoscience/mnm/?cid=stelprdb1044741

✓ **Trace Element Loading Rate** – specific parameters have maximum soil loading rates; limitations are established in this permit to protect sudden phytotoxicity for the short term, future soil use, and overall plant fertility and fecundity over the long term. These requirements are authorized under 10 CSR 20-6.015(4)(A)1. Information used to develop parameter-specific conditions were based on *Design of Land Treatment Systems for Industrial Wastes – Theory and Practice*; by Pal and Overcash (P&O) 1981; and the development document and science-based numeric guidelines pursuant to 40 CFR 503 Subpart B; see also
- Standards for Metals and Other Trace Substances https://extension.missouri.edu/publications/wq425
- Activity and Movement of Plant Nutrients and Other Trace Substance https://extension.missouri.edu/publications/wq428

✓ Additional citations for specific parameters:
- Boron is a known toxicant to plant life; per the Land Treatment book (P&O; p. 377-379), the permit writer has determined using 2 mg/L appropriate to the vegetation at this facility. A cap of 2 mg/L is established at this time to ensure acute plant toxicity is prevented. The Land Treatment book indicates commonly used application rates for crops are between 0.25 and 3 kg/ha/yr. However, it doesn't reference slight crop injury (corn and another unspecified crop) until 5-20 kg/ha. Therefore the annual loading applied to this facility is 5 kg/ha or 4.5 lbs/ac. This will be reevaluated at the next renewal.
- Chloride is limited at 125 mg/L to prevent sudden phytotoxicity. (P&O; p. 379)
- Cobalt is limited at 1 ppm to prevent heavy metal toxicity. (P&O; p. 406)
- Copper dosing was limited to 10 mg/L per application event to prevent abrupt plant phytotoxicity. (P&O; p. 418)
- Lead, considered a heavy metal which will show injurious effects at levels above 1 mg/L (P&O; p. 406)
- Selenium (P&O; P. 384) Selenium does not degrade in soil, water, or sunlight. Selenium can be a plant toxicant and in the form of selenate (SeO_4^{2-}) can be taken up by plants, and bioaccumulate. See also: Hladun, Parker, Tran, and Trumble. *Effects of selenium accumulation on phytotoxicity, herbivory, and pollination ecology in radish (Raphanus sativus L.).* Environmental Pollution 172 (2013) 70-75.

✓ Definitions used in the land application section of the permit can be found at 644.016 RSMo, 10 CSR 20-2, and 40 CFR 503.11.

✓ This permit does not authorize land disposal or the application of hazardous waste.

✓ Soils testing. The permit's special conditions stipulate soil testing for this facility. Soil testing is performed to ensure soil accumulation rates of the specified parameters are below established soil loading rates. By adhering to the soil sampling methodology and frequency, the Department can determine reasonable potential to cause or contribute to plant toxicity required under 10 CSR 20-6.015(4).

✓ Sludge testing. 40 CFR 503.16 indicates sludge testing frequency should be based on the amount of sludge applied annually. The Program has determined these frequencies to be a suitable guideline to other sludge or high-strength wastewater as well. Sludge and/or wastewater sampling frequency for this permit was based on the following:

Amount of sewage sludge (metric tons)	US Tons	Liquid Gallons	Frequency
Greater than zero but < 290	+0 to 319.6	+0 to 76,609.9	once per year

≥ 290 but < 1,500	319.7 to 1653.4	76,610.0 to 396,258.1	once per quarter
≥ 1,500 but < 15,000	1653.5 to 16534.6	396,258.2 to 3,962,580.7	six times per year
≥ 15,000	≥ 16534.7	≥ 3,962,580.7	once per month

LAND DISTURBANCE:
Land disturbance, sometimes called construction activities, are actions which cause disturbance of the root layer or soil; these include clearing, grading, and excavating of the land. 40 CFR 122.26(b)(14) and 10 CSR 20-6.200(3) requires permit coverage for these activities. Coverage is not required for facilities when only providing maintenance of original line and grade, hydraulic capacity, or to continue the original purpose of the facility.

✓ Not applicable; this permit does not provide coverage for land disturbance activities. The facility may obtain a separate land disturbance permit (MORA) online at https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/stormwater/construction-land-disturbance MORA permits do not cover disturbance of contaminated soils, however, site specific permits such as this one can be modified to include appropriate controls for land disturbance of contaminated soils by adding site-specific BMP requirements and additional outfalls.

MAJOR WATER USER:
Any surface or groundwater user with a water source and the equipment necessary to withdraw or divert 100,000 gallons (or 70 gallons per minute) or more per day combined from all sources from any stream, river, lake, well, spring, or other water source is considered a major water user in Missouri. https://dnr.mo.gov/water/business-industry-other-entities/reporting/major-water-users All major water users are required by law to register water use annually (Missouri Revised Statutes Chapter 256.400 Geology, Water Resources and Geodetic Survey Section). https://dnr.mo.gov/document-search/frequently-asked-major-water-user-questions-pub2236/pub2236

✓ Applicable; this facility is a major water user and is registered with the state under registration number 64578949.

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). "Aquatic Life Protection" in 10 CSR 20-7.031 Tables A1 and A2, as well as general criteria protections in 10 CSR 20-7.031(4) apply to this discharge. The hardness value used for hardness-dependent metals calculations is typically based on the ecoregion's 50th percentile (also known as the median) per 10 CSR 20-7.015(1)(CC), and is reported in the calculations below, unless site specific data was provided. Per a memorandum dated August 6, 2019, the Director has determined permit writers should use the median of the Level III Ecoregion to calculate permit limits, or site specific data if applicable. Additional use criterion (HHP, DWS, GRW, IRR, or LWW) may also be used, as applicable, to determine the most protective effluent limit for the receiving waterbody's class and uses. HHP, DWS, GRW, IRR, or LWW do not take hardness into account.

MODIFICATION REQUESTS:
Facilities have the option to request a permit modification from the Department at any time under RSMo 644.051.9. Requests must be submitted to the Water Protection Program with the appropriate forms and fees paid per 10 CSR 20-6.011. It is recommended facilities contact the permit writer early so the correct forms and fees are submitted, and the modification request can be completed in a timely fashion. Minor modifications, found in 40 CFR 122.63, are processed without the need for a public comment period. Major modifications, those requests not explicitly fitting under 40 CFR 122.63, do require a public notice period. Modifications to permits should be completed when: a new pollutant is found in the discharge; operational or functional changes occur which affect the technology, function, or outcome of treatment; the facility desires alternate numeric benchmarks; or other changes are needed to the permit.

Modifications are not required when utilizing or changing additives in accordance with the publication https://dnr.mo.gov/document-search/additive-usage-wastewater-treatment-facilities-pub2653/pub2653 nor are required when a temporary change or provisional discharge has been authorized by the regional office. While provisional discharges may be authorized by the regional office, they will not be granted for more than the time necessary for the facility to obtain an official modification from the Water Protection Program. Temporary provisional discharges due to weather events or other unforeseen circumstances may or may not necessitate a permit modification. The facility may ask for a Compliance Assistance Visit (CAV) from the regional office to assist in the decision-making process; CAVs are provided free to the permitted entity.

MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4):
This permit allows discharge to waters of the state. The discharges this permit allows may flow into and through the city's stormwater collection system. Regulated MS4s are managed by public entities, cities, municipalities, or counties. Phase I MS4s are Kansas City, Independence, and Springfield. Phase II MS4s are determined by population or location in an urbanized area. Regulated MS4s are required to develop and maintain a stormwater management program. These programs have requirements for developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system.

Phase I MS4s also maintain oversight programs for industrial and high risk runoff. Regulated MS4s may keep a list of all of the other regulated dischargers (wastewater and stormwater) flowing through their system. If this facility discharges into a separate storm sewer system, the facility should make contact with the owner/operator of that system to coordinate with them. Regulated MS4 operators may request to inspect facilities discharging into their system; a list of regulated MS4s can be viewed at https://dnr.mo.gov/document-search/missouris-regulated-municipal-separate-storm-sewer-systems-ms4s or search by permit ID: MOR04 at https://apps5.mo.gov/mocwis_public/permitSearch.do to determine if this facility needs to contact a local stormwater authority.

NUTRIENT MONITORING:
Nutrient monitoring is required for facilities characteristically or expected to discharge nutrients (nitrogenous compounds and/or phosphorus) when the design flow is equal to or greater than 0.1 MGD per 10 CSR 20-7.015(9)(D)8. This requirement is applicable to all Missouri waterways.

✓ The total design flow for this facility is 0.875 MGD and the facility discharges nutrients, therefore nutrient monitoring is required on a quarterly basis per 10 CSR 20-7.015(9)(D)8.A. for discharges equal to or greater than 0.1 MGD but less than 1 MGD. This facility is required to monitor for ammonia, total Kjeldahl nitrogen, nitrate plus nitrite, and phosphorus.

Water quality standards per 10 CSR 20-7.031(5)(N) describe nutrient criteria requirements assigned to lakes (which include reservoirs) in Missouri, equal to or greater than 10 acres during normal pool conditions. The Department's Nutrient Criteria Implementation Plan (NCIP) may be reviewed at: https://dnr.mo.gov/document-search/nutrient-criteria-implementation-plan-july-27-2018 Discharges of wastewater in to lakes or lake watersheds designated as L1 (drinking water use) are prohibited per 10 CSR 20-7.015(3)(C).

✓ Not applicable; this facility does not discharge in a lake watershed or the lake is less than 10 acres.

OIL/WATER SEPARATORS:
Oil water separator (OWS) tank systems are frequently found at industrial sites where process water and stormwater may contain oils and greases, oily wastewaters, or other immiscible liquids requiring separation. Food industry discharges typically require pretreatment prior to discharge to municipally owned treatment works. Per 10 CSR 26-2.010(2)(B), all oil water separator tanks must be operated according best management practices and USTs may be authorized in NPDES permits per 10 CSR 26-2.010(2) or otherwise may be regulated as a petroleum tank. Sludge generated by OWS is a waste pursuant to 10 CSR 25-11.279 requiring specific management standards pursuant to self-implementing regulations of 40 CFR Part 279.

✓ Not applicable; the facility has not disclosed the use of any oil water separators they wish to include under the NPDES permit at this facility, therefore oil water separator tanks are not authorized by this permit.

OPERATOR CERTIFICATION REQUIREMENTS:
Operators or supervisors of operations at regulated domestic wastewater treatment facilities shall be certified in accordance with 10 CSR 20-9 and any other applicable state law or regulation.

✓ Applicable; this facility is a publicly owned treatment works with a domestic-only outfall. This domestic-only outfall has a PE of over 200. As such, they are subject to operator certification requirements per 10 CSR 20-9.030 and must maintain a certified "D" operator. See appendix for operator certification classification sheet.

PERMIT SHIELD:
The permit shield provision of the Clean Water Act (Section 402(k)) and Missouri Clean Water Law (644.051.16 RSMo) provides that when a permit holder is in compliance with its NPDES permit or MSOP, it is effectively in compliance with certain sections of the Clean Water Act, and equivalent sections of the Missouri Clean Water Law. In general, the permit shield is a legal defense against certain enforcement actions, but is only available when the facility is in compliance with its permit and satisfies other specific conditions, including having completely disclosed all discharges and all facility processes and activities to the Department at time of application. It is the facility's responsibility to ensure that all potential pollutants, waste streams, discharges, and activities, as well as wastewater land application, storage, and treatment areas, are all fully disclosed to the Department at the time of application or during the draft permit review process. Previous permit applications are not necessarily evaluated or considered during permit renewal actions. All relevant disclosures should be provided with each permit application, including renewal applications, even when the same information was previously disclosed in a past permit application. Subsequent requests for authorization to discharge additional pollutants, expanded or newly disclosed flows, or for authorization for previously unpermitted and undisclosed activities or discharges, will likely require an official permit modification, including another public participation process.

PRETREATMENT:
This permit does not regulate pretreatment requirements for facilities discharging to an accepting permitted wastewater treatment facility. If applicable, the receiving entity (the publicly owned treatment works - POTW) is to ensure compliance with any effluent limitation guidelines for pretreatment listed in 40 CFR Subchapter N per 10 CSR 20-6.100. Pretreatment regulations per 644.016 RSMo are limitations on the introduction of pollutants or water contaminants into publicly owned treatment works or facilities.

✓ Not applicable, this facility does not discharge industrial wastewater to a POTW. Domestic wastewater is not subject to pretreatment requirements.

REASONABLE POTENTIAL (RP):
Regulations per 10 CSR 20-7.015(9)(A)2 and 40 CFR 122.44(d)(1)(i) requires effluent limitations for all pollutants which are (or may be) discharged at a level causing or have the reasonable potential to cause (or contribute to) an in-stream excursion above narrative or numeric water quality standards. Per 10 CSR 20-7.031(4), general criteria shall be applicable to all waters of the state at all times; however, acute toxicity criteria may be exceeded by permit allowance in zones of initial dilution, and chronic toxicity criteria may be exceeded by permit allowance in mixing zones. If the permit writer determines 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 the pollutant per 40 CFR Part 122.44(d)(1)(iii) and the most stringent limits per 10 CSR 20-7.031(9)(A).

Permit writers use reasonable potential determinations (RPD) as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD. An RPD consists of evaluating visual observations, non-numeric information, or small amounts of numerical data (such as 1 data point supplied in the application). A stormwater RPD consists of reviewing application data and/or discharge monitoring data and comparing those data to narrative or numeric water quality criteria. RPD decisions are based on minimal numeric samples, the type of effluent proposed for discharge, or the unavailability of numerical RPA for a parameter, such as pH, or oil and grease. Absent effluent data, effluent limits are derived without consideration of effluent variability and is assumed to be present unless found to be absent to meet the requirements of antidegradation review found in 10 CSR 20-7.031(3) and reporting of toxic substances pursuant to 40 CFR 122.44(f).

Reasonable potential determinations are also performed for WET testing in wastewater. While no WET regulations specific to industrial wastewater exist, 40 CFR 122.21(j)(5) implies the following should be considered: 1) the variability of the pollutants; 2) the ratio of wastewater flow to receiving stream flow; and 3) current technology employed to remove toxic pollutants. Generally, sufficient data does not exist to mathematically determine RPA for WET, but permit writers compare the data for other toxic parameters in the wastewater with the necessity to implement WET testing with either monitoring or limits. When toxic parameters exhibit RP, WET testing is generally included in the permit. However, if all toxic parameters are controlled via limitations or have exhibited no toxicity in the past, then WET testing may be waived. Only in instances where the wastewater is well characterized can WET testing be waived. Permit writers do not implement WET testing for stormwater as 10 CSR 20-7.015(9)(L) does not apply to stormwater. Precipitation can itself be acidic, or may contain run-in from other un-controlled areas and can provide false positives. The Department works with the Missouri Department of Conservation and has understanding of streams already exhibiting toxicity; even without the influence of industrial wastewater or stormwater. Facilities discharging to streams with historic toxicity are required to use laboratory water for dilution, instead of the receiving stream.

Permit writers use the Department's permit writer's manual (https://dnr.mo.gov/water/business-industry-other-entities/technical-assistance-guidance/wastewater-permit-writers-manual), the EPA's permit writer's manual (https://www.epa.gov/npdes/npdes-permit-writers-manual), program policies, and best professional judgment. For each parameter in each permit, the permit writer carefully considers all applicable information regarding: technology based effluent limitations, effluent limitation guidelines, water quality standards, inspection reports, stream water quality information, stream flows, uses assigned to each waterbody, and all applicable site specific information and data gathered by the facility through discharge monitoring reports and renewal (or new) application sampling. Best professional judgment is based on the experience of the permit writer, cohorts in the Department and resources at the EPA, research, and maintaining continuity of permits if necessary.

For stormwater permits, the permit writer is required per 10 CSR 6.200(6)(B)2 to consider: A. application and other information supplied by the facility; B. effluent guidelines; C. best professional judgment of the permit writer; D. water quality; and E. BMPs. Part IV provides specific decisions related to this permit.

Secondly, permit writers use mathematical reasonable potential analysis (RPA) using the *Technical Support Document for Water Quality Based Toxics Control (TSD)* methods (EPA/505/2-90-001) for continuous discharges. The TSD RPA method cannot be performed on stormwater as the flow is intermittent. See additional considerations under Part II WATERBODY MIXING CONSIDERATIONS and Part III WASTELOAD ALLOCATIONS. Wasteload allocations are determined utilizing the same equations and statistical methodology.

✓ A statistical RPA was conducted on appropriate parameters and was conducted as per (TSD § 3.3.2). A more detailed version including calculations of this RPA is available upon request. See Part IV for Limits and further parameter-specific discussion.

Ammonia (early life stages+)	mg/L	14.44	3.52	AQL	8.6	3.27	7	0.600	33.2	3.5	117.6	117.6	Yes
Aluminum, TR	µg/L	750	n/a	AQL	750.00	242.01	56	2.094	5040	3.3	16493.4	16493.4	Yes
Chloride	mg/L	860	230	AQL	422	164.13	50	1.055	115	2.3	266.7	266.7	Yes
Iron, TR	µg/L	n/a	1000	AQL	1408.22	889.10	59	0.348	800	1.3	1079.6	1079.6	Yes
Sulfate	mg/L	n/a	250.00	DWS	315.52	232.03	50	0.220	90	1.2	111.2	111.2	No
TRC-Warm	µg/L	19	11	AQL-Warm	19.0	7.71	59	0.947	100	2.0	203.3	203.3	Yes

Units are (µg/L) unless otherwise noted.
n/a Not Applicable
n number of samples; if the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.
CV Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the mean of the same sample set.
CCC continuous chronic concentration
CMC continuous maximum concentration

RWC Receiving Water Concentration: concentration of a toxicant or the parameter in the receiving water after mixing (if applicable)
MF Multiplying Factor; 99% confidence level and 99% probability basis
RP Reasonable Potential: 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).

REGIONAL OFFICES (ROS):
Regional Offices will provide a compliance assistance visit at a facility's request; a regional map with links to phone numbers can be found here: https://dnr.mo.gov/about-us/division-environmental-quality/regional-office. Or use https://dnr.mo.gov/compliance-assistance-enforcement to request assistance from the Region online.

RENEWAL REQUIREMENTS:
The renewal special condition permit requirement is designed to guide the facility to prepare and include all relevant and applicable information in accordance with 10 CSR 20-6.010(7)(A)-(C), and if applicable, federal regulations. The special condition may not include all requirements and requests for additional information may be made at the time of permit renewal under 644.051.13(5) RSMo and 40 CFR 122.21(h). Prior to submittal, the facility must review the entire submittal to confirm all required information and data is provided; it is the facility's responsibility to discern if additional information is required. Failure to fully disclose applicable information with the application or application addendums may result in a permit revocation per 10 CSR 20-6.010(8)(A) and may result in the forfeiture of permit shield protection authorized in 644.051.16 RSMo. Forms are located at:
https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater

SAMPLING FREQUENCY JUSTIFICATION:
Sampling and reporting frequency was generally retained from previous permit. 40 CFR 122.45(d)(1) indicates all continuous discharges, such as wastewater discharges, shall be permitted with daily maximum and monthly average limits, except in the case of POTWs for BOD_5 and TSS. Minimum sampling frequency for all parameters is annually per 40 CFR 122.44(i)(2).

SAMPLING TYPE JUSTIFICATION:
Sampling type was continued from the previous permit. The sampling types are representative of the discharges, and are protective of water quality. Discharges with altering effluent should have composite sampling; discharges with uniform effluent can have grab samples. Grab samples are usually appropriate for stormwater. Parameters which must have grab sampling are: pH, ammonia, *E. coli*, total residual chlorine, free available chlorine, hexavalent chromium, dissolved oxygen, total phosphorus, volatile organic compounds, and others. For further information on sampling and testing methods see 10 CSR 20-7.015(9)(D)2.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, effluent limits, 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. SOCs are allowed under 40 CFR 122.47 and 10 CSR 20-7.031(11) providing certain conditions are met. An SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed in accordance with 40 CFR 125.3.
- For a newly constructed facility in most cases per 644.029 RSMo. Newly constructed facilities must meet all applicable effluent limitations (technology and water quality) when discharge begins. New facilities are required to install the appropriate control technologies as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit 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 specifically granted for conducting these activities.

In order to provide guidance in developing SOCs, and to attain a greater level of consistency, the Department issued a policy on development of SOCs on October 25, 2012. The policy provides guidance to permit writers on standard time frames for schedules for common activities, and guidance on factors to modify the length of the schedule.

✓ Not applicable; this permit does not contain a SOC. No SOC is allowed because the facility is already capable of meeting the new effluent limits.

SPILLS, OVERFLOWS, AND OTHER UNAUTHORIZED DISCHARGE REPORTING:
Per 260.505 RSMo, any emergency involving a hazardous substance must be reported to the Department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest possible moment after discovery. The Department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I.
https://revisor.mo.gov/main/OneSection.aspx?section=260.500&bid=13989&hl=

Any other spills, overflows, or unauthorized discharges reaching waters of the state must be reported to the regional office during normal business hours, or after normal business hours, to the Department's 24 hour Environmental Emergency Response spill line at 573-634-2436.

Certain industrial facilities are subject to the self-implementing regulations for Oil Pollution Prevention in 40 CFR 112, and are required to initiate and follow Spill Prevention, Control, and Countermeasure (SPCC) Plans. This permit, as issued, is not intended to be a replacement for any SPCC plan, nor can this permit's conditions be automatically relaxed based on the SPCC plan if the permit is more stringent than the plan.

SLUDGE – INDUSTRIAL:
Industrial sludge is solid, semi-solid, or liquid residue generated during the treatment of industrial process or non-process wastewater in a treatment works; including but not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment process; scum and solids filtered from water supplies and backwashed; and any material derived from industrial sludge. Industrial sludge could also be derived from lagoon dredging or other similar maintenance activities. Certain oil sludge, like those from oil water separators, are subject to self-implementing federal regulations under 40 CFR 279 for used oils.

- ✓ Applicable; sludge is stored in the settling basin, dried, and sold to farmers. The permitted management strategy must be followed, see permit under FACILITY DESCRIPTION. If the permitted management strategy cannot be followed, the facility must obtain a permit modification.

STANDARD CONDITIONS:
The standard conditions Part I attached to this permit incorporate all sections of 10 CSR 20-6.010(8) and 40 CFR 122.41(a) through (n) by reference as required by law. These conditions, in addition to the conditions enumerated within the standard conditions should be reviewed by the facility to ascertain compliance with this permit, state regulations, state statutes, federal regulations, and the Clean Water Act. Standard Conditions Part III, if attached to this permit, incorporate requirements dealing with domestic wastewater, domestic sludge, and land application of domestic wastes.

STORMWATER PERMITTING: LIMITATIONS AND BENCHMARKS:
Because of the fleeting nature of stormwater discharges, the Department, under the direction of EPA guidance, has determined monthly averages are capricious measures of stormwater-only discharges. The *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001; 1991) §3.1 indicates most procedures within the document apply only to water quality based approaches, not end-of-pipe technology-based controls. Hence, stormwater-only outfalls will generally only contain a maximum daily limit (MDL), a benchmark, or a monitoring requirement as dictated by site specific conditions, the BMPs in place, the BMPs proposed, past performance of the facility, and the receiving water's current quality.

Sufficient rainfall to cause a discharge for one hour or more from a facility would not necessarily cause significant flow in a receiving stream. Acute Water Quality Standards (WQSs) are based on one hour of exposure, and must be protected at all times. Therefore, industrial stormwater facilities with toxic contaminants present in the stormwater may have the potential to cause a violation of acute WQSs if toxic contaminants occur in sufficient amounts. In this instance, the permit writer may apply daily maximum limitations.

Conversely, it is unlikely for rainfall to cause a discharge for four continuous days from a facility; if this does occur however, the receiving stream will also likely sustain a significant amount of flow providing dilution. Most chronic WQSs are based on a four-day exposure with some exceptions. Under this scenario, most industrial stormwater facilities have limited potential to cause a violation of chronic water quality standards in the receiving stream.

A standard mass-balance equation cannot be calculated for stormwater because stormwater flow and flow in the receiving stream cannot be determined for conditions on any given day or storm event without real-time ad-hoc monitoring. The amount of stormwater discharged from the facility will vary based on current and previous rainfall, soil saturation, humidity, detention time, BMPs, surface permeability, etc. Flow in the receiving stream will vary based on climatic conditions, size of watershed, area of surfaces with reduced permeability (houses, parking lots, and the like) in the watershed, hydrogeology, topography, etc. Decreased permeability may increase the stream flow dramatically over a short period of time (flash).

Numeric benchmark values are based on site specific requirements taking in to account a number of factors but cannot be applied to any process water discharges. First, the technology in place at the site to control pollutant discharges in stormwater is evaluated. The permit writer also evaluates other similar permits for similar activities. A review of the guidance forming the basis of Environmental Protection Agency's (EPA's) *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP) may also occur. Because precipitation events are sudden and momentary, benchmarks based on state or federal standards or recommendations use the Criteria Maximum Concentration (CMC) value, or acute standard may also be used. The CMC is the estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The CMC for aquatic life is intended to be protective of the vast majority of the aquatic communities in the United States. If a facility has not disclosed BMPs applicable to the pollutants for the site, the facility may not be eligible for benchmarks.

40 CFR 122.44(b)(1) requires the permit implement the most stringent limitations for each discharge, including industrially exposed stormwater; and 40 CFR 122.44(d)(1)(i) and (iii) requires the permit to include water-quality based effluent limitations where reasonable potential has been found. However, because of the non-continuous nature of stormwater discharges, staff are unable to perform statistical Reasonable Potential Analysis (RPA) under most stormwater discharge scenarios. Reasonable potential determinations (RPDs; see REASONABLE POTENTIAL above) using best professional judgment are performed.

Benchmarks require the facility to monitor, and if necessary, replace and update stormwater control measures. Benchmark concentrations are not effluent limitations. A benchmark exceedance, therefore, is not a permit violation; however, failure to take corrective action is a violation of the permit. Benchmark monitoring data is used to determine the overall effectiveness of control measures and to assist the facility in knowing when additional corrective actions may be necessary to comply with the conditions of the permit.

BMP inspections typically occur more frequently than sampling. Sampling frequencies are based on the facility's ability to comply with the benchmarks and the requirements of the permit. Inspections should occur after large rain events and any other time an issue is noted; sampling after a benchmark exceedance may need to occur to show the corrective active taken was meaningful.

When a permitted feature or outfall consists of only stormwater, a benchmark may be implemented at the discretion of the permit writer, if there is no RP for water quality excursions.

✓ Applicable, this facility has stormwater-only outfalls where benchmarks or limitations were deemed appropriate contaminant measures.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

Pursuant to 40 CFR 122.44(k), Best Management Practices (BMPs) must be used to control or abate the discharge of pollutants when: 1) Authorized under §304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under §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. A BMP may take the form of a numeric benchmark. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators,* (EPA 833-B-09-002) published by the EPA in 2015 and again in 2021 https://www.epa.gov/sites/default/files/2021-03/documents/swppp_guide_industrial_2021_030121.pdf BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. 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 storm water discharges. Additional information can be found in *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-006; September 1992).

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 facility 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.

The facility should review the precipitation frequency maps for development of appropriate BMPs. The online map https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=mo can be targeted to the facility location and is useful when designing detention structures and planning for any structural BMP component. The stormwater map can also be used to determine if the volume of stormwater caused a disrupted BMP; and if the BMP should be re-designed to incorporate additional stormwater flows.

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 (https://dnr.mo.gov/document-search/antidegradation-implementation-procedure).

Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs which are reasonable and cost effective. The AA evaluation should include practices 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 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), §II.B.

If parameter-specific numeric benchmark exceedances continue to occur and the facility 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 facility 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, which includes an appropriate fee; the application is found at: https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater

✓ Applicable; a SWPPP shall be developed and implemented for this facility; see specific requirements in the SPECIAL CONDITIONS section of the permit.

SUFFICIENTLY SENSITIVE ANALYTICAL METHODS:

Please review Standard Conditions Part 1, §A, No. 4. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 and/or 40 CFR 136 unless alternates are approved by the Department and incorporated within this permit. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure the selected methods are able to quantify the presence of pollutants in any given discharge at concentrations 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. The reporting limits established by the chosen laboratory must be below the lowest effluent limits established for the specified parameter (including any parameter's future limit after an SOC) in the permit unless the permit provides for an ML or if the facility provides a written rationale to the Department. It is the facility's responsibility to ensure the laboratory has adequate equipment and controls in place to quantify the pollutant. Inflated reporting limits will not be accepted by the Department if the reporting limit is above the parameter value stipulated in the permit.

A method is "sufficiently sensitive" when; 1) the method quantifies the pollutant below the level of the applicable water quality criterion 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 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 and or 40 CFR 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established. A facility is responsible for working with their contractors to ensure the analysis performed is sufficiently sensitive.

UNDERGROUND INJECTION CONTROL (UIC):

The UIC program for all classes of wells in the State of Missouri is administered by the Missouri Department of Natural Resources and approved by EPA pursuant to §§1422 and 1425 of the Safe Drinking Water Act (SDWA) and 40 CFR 147 Subpart AA. Injection wells are classified based on the liquids which are being injected. Class I wells are hazardous waste wells which are banned by 577.155 RSMo; Class II wells are established for oil and natural gas production; Class III wells are used to inject fluids to extract minerals; Class IV wells are also banned by Missouri in 577.155 RSMo; Class V wells are shallow injection wells; some examples are heat pump wells and groundwater remediation wells. Domestic wastewater being disposed of sub-surface is also considered a Class V well. In accordance with 40 CFR 144.82, construction, operation, maintenance, conversion, plugging, or closure of injection wells shall not cause movement of fluids containing any contaminant into Underground Sources of Drinking Water (USDW) if the presence of any contaminant may cause a violation of any drinking water standards or groundwater standards under 10 CSR 20-7.031, or other health based standards, or may otherwise adversely affect human health. If the director finds the injection activity may endanger USDWs, the Department may require closure of the injection wells, or other actions listed in 40 CFR 144.12(c), (d), or (e). In accordance with 40 CFR 144.26, the facility shall submit a Class V Well Inventory Form for each active or new underground injection well drilled, or when the status of a well changes, to the Missouri Department of Natural Resources, Geological Survey Program, P.O. Box 250, Rolla, Missouri 65402. The Class V Well Inventory Form can be requested from the Geological Survey Program or can be found at the following web address: https://dnr.mo.gov/document-search/class-v-well-inventory-form-mo-780-1774 Single family

residential septic systems and non-residential septic systems used solely for sanitary waste and having the capacity to serve fewer than 20 persons a day are excluded from the UIC requirements (40 CFR 144.81(9)). The Department implements additional requirements for these types of operations pursuant to 10 CSR 20-6.015(4)(A)1 which instructs the Department to develop permit conditions containing limitations, monitoring, reporting, and other requirements to protect soils, crops, surface waters, groundwater, public health, and the environment.

✓ Not applicable; the facility has not submitted materials indicating the facility will be performing UIC at this site.

VARIANCE:

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 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. Thermal variances are regulated separately and are found under 644.

✓ Not applicable; this permit is not drafted under premise of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010; definitions], the WLA is the maximum amount of pollutant each discharger is allowed to discharge into the receiving stream without endangering water quality. Only streams with available load allocations can be granted discharge allowances. Outfalls afforded mixing allocations provide higher limits because the receiving stream is able to accept more pollutant loading without causing adverse impacts to the environment or aquatic life.

✓ Applicable; wasteload allocations for toxic parameters were calculated using water quality criteria or water quality model results and by applying the dilution equation below. These equations are statistical equations (See Part III – REASONABLE POTENTIAL ANALYSIS) used to calculate the hypothetical or actual variability of the wastewater and the spreadsheet output obtains an effluent limit. Most toxic parameter's WLAs are calculated using the *Technical Support Document For Water Quality-Based Toxics Control* or "TSD" EPA/505/2-90-001; 3/1991, §4.5.5.

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$

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

✓ For ammonia: The Department previously followed the 2007 ammonia guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-Based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined the approach established in TSD §5.4.2, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits, is more appropriate limit derivation approach for ammonia. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. WLAs are then applied as effluent limits, per §5.4.2 of the TSD, where the CMC is the daily maximum and the CCC is the monthly average.
The direct application of both acute and chronic criteria as WLA is also applicable for facilities discharging into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the standard mass-balance equation. In the event mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL.

✓ For chloride, the Department uses TSD §5.4.1 for two-value steady state acute and chronic protection of aquatic life. It allows comparison of two independent WLAs (acute and chronic) to determine which is more limiting for a discharge. The WLA output provides two numbers for protection against two types of toxic effects, acute and chronic permit limitations resulting in a daily maximum and monthly average limit.

✓ Criteria maximum concentration (CMC) are the acute in-stream standards for a specific pollutant.

✓ Criteria continuous concentration (CCC) are the chronic in-stream standards for a specific pollutant.

✓ Acute wasteload allocations (WLAa) are designated as daily maximum limits (maximum daily limit: MDL)., were determined using applicable water quality criteria

✓ Chronic wasteload allocations (WLAc) are designated as monthly average limits (average monthly limit: AML) and are typically the most stringent limits applied. Facilities subject to average monthly limits are welcome to take additional samples in the month to meet any lower limit by averaging the results. When only one sample is taken in the month, the sample result is applied to both the daily maximum and monthly average.

✓ Mixing: when a stream's flow 7Q10 is above 0.1 cfs, (or lake width is sufficient) the discharge may be afforded mixing allowances. The mixing criteria for toxics are found at 10 CSR 20-7.031(5)(A)4 and a full explanation of mixing is found in Part II – WATERBODY MIXING CONSIDERATIONS.

✓ Number of Samples "n": effluent quality is determined by the underlying distribution of daily values, 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 assumption which should be, at a minimum, targeted to comply with the values dictated by the WLA. Therefore, it is recommended the actual

planned frequency of monitoring 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 uses an assumed number of samples "n = 4". See additional information under Part III – REASONABLE POTENTIAL ANALYSIS

WASTELOAD ALLOCATION (WLA) MODELING:

Facilities may submit site specific studies to better determine the site specific wasteload allocations applied in permits.

✓ Not applicable; a WLA study was either not submitted or determined not applicable by Department staff.

WATER QUALITY STANDARD REVISION:

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

✓ This operating permit does not contain requirements for a water quality standard changing twenty-five percent or more since the previous operating permit.

PART IV. EFFLUENT LIMIT DETERMINATIONS

PERMITTED FEATURE INT –ALLUVIAL WELL INTAKE

INTAKE MONITORING TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
CONVENTIONAL							
TOTAL DISSOLVED SOLIDS (TDS)	mg/L	*	*	NEW	MONTHLY	MONTHLY	GRAB
TOTAL SUSPENDED SOLIDS (TSS)	mg/L	*	*	NEW	MONTHLY	MONTHLY	GRAB

* monitoring and reporting requirement only
** monitoring with associated benchmark
† report the minimum and maximum pH values; pH is not to be averaged
‡ An ML is established for TRC; see permit.
new parameter not established in previous state operating permit
interim parameter requirements prior to end of SOC
final parameter requirements at end of SOC
TR total recoverable

Intake Total Dissolved Solids.
Intake monitoring is a new requirement. There are no technology limits or water quality standards for this parameter. Because this facility's source water is, ultimately, the Mississippi River through alluvial wells, any effluent limits on solids may consider the source water solids contribution pursuant to 40 CFR 122.45(g). As such, total settleable solids monitoring, in both the effluent and at the intake, is added to this permit. The facility reported from 0.1 mg/L during the previous permit cycle for effluent only. Understanding the river contribution is important to determine future reasonable potential and promulgating a technology-based standard for water treatment plant solids.

Intake Total Suspended Solids (TSS)
New monitoring requirement. There is no numeric water quality standard for TSS; however, sediment discharges can negatively impact aquatic life habitat. Increased suspended solids in effluent can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Solids, if uncontrolled, may also cause a violation of general criteria pursuant to 10 CSR 20-7.031(4), but there is currently no observable solids discharge at this facility. This facility treats water from the Mississippi River alluvial plain and, during the treatment process, may concentrate or add solids in the discharge. Suspended solids are common pollutants from water treatment plants. Because this facility's source water is, ultimately, the Mississippi River, any effluent limits on solids may consider the source water solids contribution pursuant to 40 CFR 122.45(g). As such, total suspended solids monitoring, in both the effluent and the intake, is added to this permit. Regardless of the TSS value at discharge, the facility is not permitted to violate 10 CSR 20-7.031(5)(G) or (H) or general criteria for visual unsightliness under 10 CSR 20-7.031(4)(C).

PERMITTED FEATURE INF – DOMESTIC INFLUENT

INFLUENT MONITORING TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
CONVENTIONAL							
BIOLOGICAL OXYGEN DEMAND	mg/L	*	*	SAME	MONTHLY	MONTHLY	GRAB
TOTAL SUSPENDED SOLIDS (TSS)	mg/L	*	*	SAME	MONTHLY	MONTHLY	GRAB
NUTRIENTS							
AMMONIA AS N	mg/L	*	*	NEW	QUARTERLY	QUARTERLY	GRAB
NITRATE + NITRITE	mg/L	*	*	NEW	QUARTERLY	QUARTERLY	GRAB
TOTAL KJELDAHL NITROGEN	mg/L	*	*	NEW	QUARTERLY	QUARTERLY	GRAB
TOTAL PHOSPHORUS	mg/L	*	*	NEW	QUARTERLY	QUARTERLY	GRAB

* monitoring and reporting requirement only
** monitoring with associated benchmark
† report the minimum and maximum pH values; pH is not to be averaged
‡ An ML is established for TRC; see permit.
new parameter not established in previous state operating permit
interim parameter requirements prior to end of SOC
final parameter requirements at end of SOC
TR total recoverable

Biochemical Oxygen Demand (BOD_5)
In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for BOD_5. To calculate percent removal, the facility must take an influent sample for this parameter.

Total Suspended Solids (TSS)
In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for TSS. To calculate percent removal, the facility must take an influent sample for this parameter.

Ammonia as N
Ammonia nitrogen is expected to be present in domestic wastewater therefore quarterly monitoring is required per 10 CSR 20-7.015(9)(D)8.A.

Nitrate plus Nitrite as N
Nitrogen is expected to be present in domestic wastewater therefore quarterly monitoring is required per 10 CSR 20-7.015(9)(D)8.A. This is not a new monitoring requirement; the previous permit required Total Nitrogen monitoring, but in this permit Total Nitrogen is speciated into Nitrate + Nitrite as N and Total Kjeldahl Nitrogen.

Total Kjeldahl Nitrogen
Nitrogen is expected to be present in domestic wastewater therefore bimonthly monitoring is required per 10 CSR 20-7.015(9)(D)8.A. This is not a new monitoring requirement; the previous permit required Total Nitrogen monitoring, but in this permit Total Nitrogen is speciated into Nitrate + Nitrite as N and Total Kjeldahl Nitrogen.

Phosphorus, Total P (TP)
Phosphorus is expected to be present in domestic wastewater therefore bimonthly monitoring is required per 10 CSR 20-7.015(9)(D)8.A.

PERMITTED FEATURE #002 – LAND APPLICATION OPERATIONAL MONITORING

IRRIGATION OPERATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
IRRIGATION ACTIVITY							
APPLICATION AREA	ACRES	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
APPLICATION RATE	GAL/ACRE	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
IRRIGATION PERIOD	HOURS	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
VOLUME IRRIGATED	GALLONS	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD

♠ Facility will maintain records for each day land application occurred. If no application occurred, a record is not required.

LAND APPLICATION OPERATIONAL MONITORING:

Application Area
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, reporting the area utilized will allow the Department to ensure compliance with setback distances. Adhering to the required setbacks prevents illicit discharges to waterbodies.

Application Rate
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, monitoring the rate will allow the Department to ensure appropriate permeability and plant uptake is occurring. Rates of application must be adjusted based on soil saturation; and rate monitoring will prevent soil saturation conditions possibly resulting in runoff or illicit discharges to waterbodies.

Irrigation Period
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200 monitoring of irrigation period is required. Monitoring the irrigation period will also ensure soils do not get saturated and result in runoff or cause illicit discharges to waterbodies.

Volume Irrigated
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, monitoring of application activity is required. Monitoring the volume irrigated will allow the Department to ensure over application does not occur, and appropriate hydraulic loading is maintained within design levels. This will also help prevent runoff and illicit discharges due to soil saturation.

PERMITTED FEATURE #002 – NO-DISCHARGE WASTEWATER STRUCTURE

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MINIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FREEBOARD	FEET	2.0	*	SAME	ONCE/MONTH	MONTHLY	MEASUREMENT
PRECIPITATION	INCHES	*	*	SAME	ONCE/DAY	DAILY	MEASUREMENT

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Freeboard

2 foot minimum freeboard level pursuant to 10 CSR 20-8.200(4)(A)3 for lagoons/basins. Monthly monitoring of the freeboard in the basin is required to ensure proper operational controls. This permitted feature was determined to be no-discharge. As such, an antidegradation review was not conducted and discharge authorization has not been granted.

To ensure the basin remains no-discharge, comply with all BMPs listed, monitor freeboard/liquid levels, and report highest reading monthly. Permits only authorize discharges after the facility has documented compliance with state and federal Clean Water laws and regulations, including antidegradation and construction requirements. Freeboard is the distance between the top of the liquid level and the bottom of the discharge pipe or canal. Freeboard should be measured to the nearest inch, and is reported in tenths of feet.

Precipitation. Monitoring requirement to ensure appropriate land application is conducted to account for accumulated water in the storage basin.

OUTFALL #002-DOMESTIC OUTFALL

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	WEEKLY AVG.	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	*		*	SAME	ONCE/MONTH	ONCE/MONTH	24 HR. TOT
CONVENTIONAL								
BIOLOGICAL OXYGEN DEMAND$_5$	mg/L	-	65	45	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TOTAL SUSPENDED SOLIDS	mg/L	-	110	70	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
BIOLOGICAL OXYGEN DEMAND$_5$ PERCENT REMOVAL	%			65 minimum	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TOTAL SUSPENDED SOLIDS PERCENT REMOVAL	%			65 minimum	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
PH †	SU	6.5-9.0	-	6.5-9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
E. COLI	#/100 mL	-	1,030	206	SAME	ONCE/WEEK	ONCE/MONTH	GRAB
NUTRIENTS								
AMMONIA AS N (APRIL – SEPTEMBER)	mg/L	12.1	-	1.2	3.6/1.4	ONCE/MONTH	ONCE/MONTH	GRAB
AMMONIA AS N (OCTOBER – MARCH)	mg/L	10.1	-	2.0	7.5/2.9	ONCE/MONTH	ONCE/MONTH	GRAB
NITRATE PLUS NITRITE AS N	mg/L	*	-	*	SAME	ONCE/QUARTER	ONCE/QUARTER	GRAB
TOTAL KJELDAHL NITROGEN	mg/L	*	-	*	SAME	ONCE/QUARTER	ONCE/QUARTER	GRAB
PHOSPHORUS, TOTAL P (TP)	mg/L	*	-	*	SAME	ONCE/QUARTER	ONCE/QUARTER	GRAB

* monitoring and reporting requirement only
** monitoring with associated benchmark
† report the minimum and maximum pH values; pH is not to be averaged
‡ An ML is established for TRC; see permit.
new parameter not established in previous state operating permit
interim parameter requirements prior to end of SOC
final parameter requirements at end of SOC
TR total recoverable

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 ensure compliance with permitted effluent limitations. If the facility is unable to obtain effluent flow, then it is the responsibility of the facility to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), bimonthly monitoring continued from previous permit. The facility reported 0.04 to 1.33 MGD in the last permit term.

CONVENTIONAL:

Biochemical Oxygen Demand - 5 Day (BOD$_5$)
65 mg/L weekly average, 45 mg/L monthly average per 10 CSR 20-7.015(8)(A)(3)(D)(II)(a) for all other waters. The facility reported from 7.23 to 23.75 mg/L in the last permit term. There are no water quality standards established in Missouri for this parameter; the permit writer has determined the technology limits are the most applicable limits to this discharge meeting requirements pursuant to 10 CSR 20-7.015(9)(A).

Escherichia coli (E. coli)
Daily maximum limit of 1030 colony forming units per 100 mL [10 CSR 20-7.015(9)(B)1.E.] and a monthly geometric mean limit of 206 bacteria per 100 mL [10 CSR 20-7.031 Table A1] during the recreational season from April 1 through October 31 only [10 CSR 20-7.031(5)(C)], to protect Whole Body Contact (B) [10 CSR 20-7.031(C)2.A.(II)] designated use of the receiving waterbody. Weekly sampling required for discharges greater than 0.1 MGD [10 CSR 20-7.015(9)(D)6.A]. The facility reported 160 #/100 mL in the last permit term. An effluent limit for both daily maximum and monthly geometric mean is required by 40

CFR 122.45(d). The geometric mean is calculated by multiplying all of the data points and then taking the n^{th} root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 5, 6, and 10 (#/100 mL). Geometric mean = 5^{th} root of (1)(4)(5)(6)(10) = 5^{th} root of 1,200 = 4.1 #/100 mL.

pH
6.5 to 9.0 SU – instantaneous grab sample. Water quality limits [10 CSR 20-7.031(5)(E)] are applicable to this outfall. Technology limits established in 10 CSR 20-7.015 are not protective of the receiving stream therefore water quality limits are applied. The facility reported 7.23 to 8.98 SU in the last permit term. pH is a fundamental water quality indicator. Additionally, ammonia availability in wastewater is dependent on pH. Limitations in this permit will protect against aquatic organism toxicity, downstream water quality issues, human health hazard contact, and negative physical changes in accordance with the general criteria at 10 CSR 20-7.031(4) and the Clean Water Act's (CWA) goal of 100% fishable and swimmable rivers and streams.

Total Suspended Solids (TSS)
110 mg/L daily maximum, 70 mg/L monthly average per 10 CSR 20-7.015(8)(A)(3)(D)(II)(a) for all other waters. The facility reported from 25.5 to 50.18 mg/L in the last permit term. There are no water quality standards established in Missouri for this parameter; the permit writer has determined the technology limits are the most applicable limits to this discharge meeting requirements pursuant to 10 CSR 20-7.015(9)(A).

Biochemical Oxygen Demand (BOD_5) Percent Removal. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for BOD_5.

Total Suspended Solids (TSS) Percent Removal. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 65% removal efficiency for TSS.

NUTRIENTS:

Ammonia, Total as Nitrogen
Ammonia is a parameter of concern in domestic wastewater. This facility reported from 0.72 to 33.2 mg/L during the previous permit cycle. Early life stages present [10 CSR 20-7.031(5)(B)7.C & Table B3], salmonids absent based on WWH designation of stream; total ammonia nitrogen criteria apply. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3].

The Department previously followed the 2007 ammonia guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-Based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined the approach established in §5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits, is more appropriate limit derivation approach for ammonia. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. WLAs are then applied as effluent limits, per §5.4.2 of the TSD, where the CMC is the daily maximum and the CCC is the monthly average. The direct application of both acute and chronic criteria as WLA is also applicable for facilities discharging into receiving waterbodies with mixing considerations. The CCC and CMC will need to be calculated into WLA with mixing considerations using the standard mass-balance equation. In the event mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL.

Nitrate plus Nitrite as N
Nitrogen is expected to be present in domestic wastewater therefore quarterly monitoring is required per 10 CSR 20-7.015(9)(D)8.A. This is not a new monitoring requirement; the previous permit required Total Nitrogen monitoring, but in this permit Total Nitrogen is speciated into Nitrate + Nitrite as N and Total Kjeldahl Nitrogen.

Total Kjeldahl Nitrogen
Nitrogen is expected to be present in domestic wastewater therefore bimonthly monitoring is required per 10 CSR 20-7.015(9)(D)8.A. This is not a new monitoring requirement; the previous permit required Total Nitrogen monitoring, but in this permit Total Nitrogen is speciated into Nitrate + Nitrite as N and Total Kjeldahl Nitrogen.

Phosphorus, Total P (TP)
Phosphorus is expected to be present in domestic wastewater therefore bimonthly monitoring is required per 10 CSR 20-7.015(9)(D)8.A.

OUTFALL #003 – WATER TREATMENT PLANT BACKWASH

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	SAME	ONCE/MONTH	ONCE/MONTH	24 HR. TOT
CONVENTIONAL							
BIOLOGICAL OXYGEN DEMAND$_5$	REMOVED						
CHEMICAL OXYGEN DEMAND	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
TOTAL SETTLEABLE SOLIDS	mg/L	*	*	1.0/1.0	ONCE/MONTH	ONCE/MONTH	GRAB
NET TOTAL SETTLEABLE SOLIDS	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
TOTAL SUSPENDED SOLIDS	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
NET TOTAL SUSPENDED SOLIDS	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
PH †	SU	6.5-9.0	6.5-9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TOTAL RESIDUAL CHLORINE	µg/L	<130	<130	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
METALS							
ALUMINUM, TOTAL RECOVERABLE	µg/L	750	242	*/*	ONCE/MONTH	ONCE/MONTH	GRAB
IRON, TOTAL RECOVERABLE	µg/L	1408	889	*/*	ONCE/MONTH	ONCE/MONTH	GRAB
OTHER							
SULFATE	mg/L	*	*	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
CHLORIDE	mg/L	422	164	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
SULFATE + CHLORIDE	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
COLOR	0/1 (pass/ fail)	*	*	NEW	ONCE/CLEANOUT	ONCE/YEAR	GRAB
ACUTE WET TESTING	TUa	*	-	NEW	ONCE/CLEANOUT	ONCE/YEAR	GRAB

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to ensure compliance with permitted effluent limitations. If the facility is unable to obtain effluent flow, then it is the responsibility of the facility to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), monthly monitoring continued from previous permit. The facility reported from 0.03 to 1.33 MGD in the last permit term.

CONVENTIONAL:

Chemical Oxygen Demand (COD)

Monitoring is included using the permit writer's best professional judgment. There is no numeric water quality standard for COD; however, increased oxygen demand may impact instream water quality. COD is also a valuable indicator parameter. COD monitoring allows the facility to identify increases in COD may indicate materials/chemicals within the wastewater causing an increase in oxygen demand. Increases in COD may indicate a need for maintenance or improvement of treatment.

Chlorine, Total Residual (TRC)

The facility reported from 10 to 100 µg/L in the last permit term. Water quality limits are applicable to this permit for this parameter. The effluent limits are calculated, however, the Department has established an ML for this parameter; the ML is 130 µg/L, see note ‡ in the permit.

pH

6.5 to 9.0 SU – instantaneous grab sample. Water quality limits [10 CSR 20-7.031(5)(E)] are applicable to this outfall. pH is a fundamental water quality indicator. Additionally, metals leachability and ammonia availability in wastewater is dependent on pH. Limitations in this permit will protect against aquatic organism toxicity, downstream water quality issues, human health hazard contact, and negative physical changes in accordance with the general criteria at 10 CSR 20-7.031(4) and the Clean Water

Act's (CWA) goal of 100% fishable and swimmable rivers and streams. The facility reported from 6.57 to 8.99 SU during the previous permit cycle.

Total Settleable Solids (Effluent and Net)
Monitoring only continued from previous permit for effluent monitoring. Intake monitoring is a new requirement. There are no technology limits or water quality standards for this parameter. Because this facility's source water is, ultimately, the Mississippi River through alluvial wells, any effluent limits on solids may consider the source water solids contribution pursuant to 40 CFR 122.45(g). As such, total settleable solids monitoring, in both the effluent and at the intake, is added to this permit. The facility reported from 0.1 mg/L during the previous permit cycle for effluent only. Understanding the river contribution is important to determine future reasonable potential and promulgating a technology-based standard for water treatment plant solids.

Total Suspended Solids (TSS) (Effluent and Net)
New monitoring requirement. There is no numeric water quality standard for TSS; however, sediment discharges can negatively impact aquatic life habitat. Increased suspended solids in effluent can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Solids, if uncontrolled, may also cause a violation of general criteria pursuant to 10 CSR 20-7.031(4), but there is currently no observable solids discharge at this facility. This facility treats water from the Mississippi River alluvial plain and, during the treatment process, may concentrate or add solids in the discharge. Suspended solids are common pollutants from water treatment plants. Because this facility's source water is, ultimately, the Mississippi River, any effluent limits on solids may consider the source water solids contribution pursuant to 40 CFR 122.45(g). As such, total suspended solids monitoring, in both the effluent and the intake, is added to this permit. Regardless of the TSS value at discharge, the facility is not permitted to violate 10 CSR 20-7.031(5)(G) or (H) or general criteria for visual unsightliness under 10 CSR 20-7.031(4)(C).

METALS:

Aluminum, Total Recoverable. The previous permit had this parameter as monitoring only; however, this parameter has RP (see Reasonable Potential section of Fact Sheet above), and as such, a numeric limit has been introduced. This facility uses chemicals for iron removal and coagulation and flocculation that contain aluminum. The facility reported from 30.2 to 1540 µg/L during the previous permit cycle.

Iron, Total Recoverable. The previous permit had this parameter as monitoring only; however, this parameter has RP (see Reasonable Potential section of Fact Sheet above), and as such, a numeric limit has been introduced. This facility's intake is high in iron; however, the facility is still required to meet water quality standards with their discharge even with high environmental iron. The facility reported from 100 to 800 µg/L during the previous permit cycle.

OTHER:

Chloride
The previous permit set this parameter as monitoring only; however, this facility has RP (see Reasonable Potential section of Fact Sheet above), and as such, a numeric limit has been introduced. This facility uses chemicals for water treatment that may contain chloride. The facility reported from 4 to 115 mg/L in the last permit term.

Sulfate
Monitoring required to determine chloride plus sulfate below. The facility shall sample and independently report the analytical value of sulfate. The facility reported from 41 to 90 mg/Lin the last permit term.

Chloride Plus Sulfate
This is a new reporting requirement, but not a new sampling requirement, to help determine if this facility has reasonable potential to exceed water quality standards for this combined parameter.

Whole Effluent Toxicity (WET) Test
A WET test is a quantifiable method to conclusively determine if discharges from the facility cause toxicity to aquatic life by itself, in combination with, or through synergistic responses, when mixed with receiving stream water. Under the CWA §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits to quantify toxicity. WET testing is also required by 40 CFR 122.44(d)(1).
WET testing ensures the provisions in 10 CSR 20-6 and Missouri's Water Quality Standards in 10 CSR 20-7 are being met. Under 10 CSR 20-6.010(8)(A)4, the Department may require other terms and conditions it deems necessary to ensure compliance with the CWA and related regulations of the Missouri Clean Water Commission. Missouri Clean Water Law (MCWL) RSMo 644.051.3 requires the Department to set permit conditions complying with the MCWL and CWA. 644.051.4 RSMo specifically references toxicity as an item the Department must consider in permits (along with water quality-based effluent limits); and RSMo 644.051.5 is the basic authority to require testing conditions.

Acute
Monitoring is required to determine if reasonable potential exists for the discharge to cause toxicity within the receiving stream, as this is a facility that utilizes lime as a water softener. Lime that is accidentally discharged instead of being settled out has the ability to kill aquatic life given that it is high in suspended and settleable solids. As such, Acute WET testing is a valuable indicator parameter for BMP failures at this site.

Color:
Color is being used as an indicator parameter for BMP failures during settling pond cleanout. BMP failures that cause the discharge of large amounts of lime residuals will cause excursions of general criteria for color, per 10 CSR 20-7.031(4)(C), even in facilities that discharge directly to streams with high assimilative capacity. This facility discharges to a stream with low assimilative capacity, making this indicator parameter even more important to ensure that no lime solids reach the receiving stream. If the facility reports any value other than 0 for "pass," additional BMPs to remove the possibility of lime residuals to reach the receiving stream are required. If the facility reports "0" each reporting period over the next permit cycle, this parameter may be reassessed and removed.

PERMITTED FEATURE #005 – LAND RECLAMATION STORMWATER AREA

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAXIMUM LIMIT	BENCH-MARK	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	SAME	ONCE/MONTH	ONCE/MONTH	24 HR. ESTIMATE
CONVENTIONAL							
COD	mg/L	*	100	NEW	ONCE/QUARTER	QUARTERLY	GRAB
pH †	SU	6.5-9.0 DAILY MAX AND MONTHLY AVERAGE	-	SAME	ONCE/QUARTER	QUARTERLY	GRAB
SETTLEABLE SOLIDS	mL/L/hr	**	1.0	SAME	ONCE/QUARTER	QUARTERLY	GRAB
TSS	mg/L	**	100	SAME	ONCE/QUARTER	QUARTERLY	GRAB
METALS							
ALUMINUM, TR	µg/L	**	750	SAME	ONCE/QUARTER	QUARTERLY	GRAB

* monitoring and reporting requirement only
** monitoring with associated benchmark
† report the minimum and maximum pH values; pH is not to be averaged
‡ An ML is established for TRC; see permit.
new parameter not established in previous state operating permit
interim parameter requirements prior to end of SOC
final parameter requirements at end of SOC
TR total recoverable

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to ensure compliance with permitted effluent limitations. If the facility is unable to obtain effluent flow, then it is the responsibility of the facility to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), monthly monitoring continued from previous permit. The facility reported from 0.03 to 0.09 MGD in the last permit term.

CONVENTIONAL:

Chemical Oxygen Demand (COD)

Monitoring with 100 mg/L daily maximum benchmark is included using best professional judgment under 10 CSR 20-6.200(6)(B)2.C. There is no numeric water quality standard for COD; however, increased oxygen demand may impact instream water quality. COD is also a valuable indicator parameter. COD monitoring allows the facility to identify increases in COD may indicate materials/chemicals coming into contact with stormwater causing an increase in oxygen demand. Increases in COD may indicate a need for maintenance or improvement of BMPs.. The benchmark value falls within the range of values implemented in other permits having similar industrial activities and is achievable through proper BMP controls.

pH

6.5 to 9.0 SU. Technology based limits [10 CSR 20-7.015(9)(I)1.] are applicable to this outfall. Using RPD, there is no reasonable potential to affect water quality therefore technology limitations for wastewater are applied. The facility reported from 7.96 to 8.85 SU in the last permit term.

Settleable Solids (SS)

Monitoring with a daily maximum benchmark of 1.0 mL/L/hour. There is no numeric water quality standard for SS; however, sediment discharges can negatively impact aquatic life habitat. Settleable solids are also a valuable indicator parameter. Solids monitoring allows the facility to identify increases in sediment and solids may indicate uncontrolled materials leaving the site.

The benchmark value falls within the range of values implemented in other permits having similar industrial activities. The facility reported 0.1 mg/L during the previous permit cycle.

Total Suspended Solids (TSS)
Monitoring with a daily maximum benchmark of 100 mg/L. There is no numeric water quality standard for TSS; however, sediment discharges can negatively impact aquatic life habitat. TSS is also a valuable indicator parameter. TSS monitoring allows the facility to identify increases in TSS indicating uncontrolled materials leaving the site. Increased suspended solids in runoff can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Suspended solids can also be carriers of toxins, which can adsorb to the suspended particles; therefore, total suspended solids are a valuable indicator parameter for other pollution. The facility reported from 5.4 to 100 mg/L in the last permit term. The benchmark is achievable through proper operational and maintenance of BMPs and falls within the range of values implemented in other permits having similar industrial activities.

METALS:

Aluminum, Total Recoverable. Monitoring with 750 µg/L benchmark continued from previous permit cycle. This facility uses chemicals for iron removal and coagulation and flocculation that contain aluminum, and these metals are present in the solids used in the land reclamation area. The facility reported from 79 to 5040 µg/L during the previous permit cycle.

PART V. ADMINISTRATIVE REQUIREMENTS

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

PUBLIC NOTICE:
The Department shall give public notice 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 or with 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 facility must be notified of the denial in writing. https://dnr.mo.gov/water/what-were-doing/public-notices The Department must issue public notice of a pending operating 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 wishing to submit comments regarding this proposed operating permit, 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. All comments must be in written form.

✓ The Public Notice period for this operating permit started June 10, 2022 and ended July 12, 2022. No comments were received.

DATE OF FACT SHEET: APRIL 13, 2022
COMPLETED BY:
JESSICA VITALE, ENVIRONMENTAL PROGRAM ANALYST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL UNIT
(573) 522-2575
Jessica.Vitale@dnr.mo.gov

Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

Item	Points Possible	Points Assigned
Maximum Population Equivalent (P.E.) served , peak day	1 pt./10,000 PE or major fraction thereof. (Max 10 pts.)	
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	
Effluent Discharge		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, lake or reservoir area supporting whole body contact recreation	3	
Direct reuse or recycle of effluent	6	
Land Application/Irrigation		
Drip Irrigation	3	
Land application/irrigation	5	5
Overland flow	4	
Variation in Raw Wastes (highest level only)		
Variations do not exceed those normally or typically expected	0	0
Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow	2	
Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow	4	
Department-approved pretreatment program	6	
Preliminary Treatment		
STEP systems (operated by the permittee)	3	
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow	3	
Flow equalization	5	
Primary Treatment		
Primary clarifiers	5	
Chemical addition (except chlorine, enzymes)	4	
Secondary Treatment		
Trickling filter and other fixed film media with or without secondary clarifiers	10	
Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization)	15	
Stabilization ponds without aeration	5	5
Aerated lagoon	8	
Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film	10	
Biological, physical, or chemical	12	
Carbon regeneration	4	
Total from page **ONE (1)**	----	10

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	5	5
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Disinfection		
Chlorination or comparable	5	
On-site generation of disinfectant (except UV light)	5	
Dechlorination	2	
UV light	4	
Required Laboratory Control Performed by Plant Personnel (highest level only)		
Lab work done outside the plant	0	
Push – button or visual methods for simple test such as pH, settleable solids	3	3
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
Total from page **TWO (2)**	----	8
Total from page **ONE (1)**	---	10
Grand Total	---	18

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

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

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

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

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

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

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

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

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

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

Section B – Reporting Requirements

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

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

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

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

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

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

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

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

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

Section C – Bypass/Upset Requirements

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

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

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

Section D – Administrative Requirements

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
August 1, 2019

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

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

SECTION B – DEFINITIONS

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food, feed or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR Part 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with 40 CFR Part 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limted to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
14. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E – INCINERATION OF SLUDGE

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or, if the ash is determined to be hazardous, with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or sludge must be removed to maintain adequate storage capacity in the facility.
    a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section I.

SECTION G – LAND APPLICATION OF BIOSOLIDS

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

5. Pollutant limits
    a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
    b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to achieve pollutant concentration below those identified in Table 1, below.
    c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

TABLE 1

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

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

TABLE 2

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

e. Annual pollutant loading rate.

Table 3

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

f. Cumulative pollutant loading rates.

Table 4

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

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

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.

i. PAN can be determined as follows:

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

[1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis.

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

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

d. Buffer zones are as follows:

i. 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;

ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstandingstate resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;

iii. 150 feet of dwellings or public use areas;

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

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

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

e. Slope limitation for application sites are as follows:

i. For slopes less than or equal to 6 percent, no rate limitation;

ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;

iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.

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

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

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

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

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

iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6. 010 and 10 CSR 20 – 6.015.
3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
    a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
    b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
    c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
        i. PAN can be determined as follows:
        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are "similar treatment works" under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
    a. Testing for metals or fecal coliform is not required.
    b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
    c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate

surface water drainage without creating erosion.

b. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.

c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill, reclamation, or other beneficial use. Other solid wastes must be removed.

8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR Part 503, Subpart C.

SECTION J – MONITORING FREQUENCY

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

TABLE 5

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

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

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

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

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

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

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

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

5. Annual report contents. The annual report shall include the following:
    a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
    b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
    c. Gallons and % solids data used to calculate the dry ton amounts.
    d. Description of any unusual operating conditions.
    e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
        i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
    f. Contract Hauler Activities:
    If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
    g. Land Application Sites:
        i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
        ii. If the "Low Metals" criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.

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AUG 24 2020
Water Protection Program

AP 35409

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

FORM C – APPLICATION FOR DISCHARGE PERMIT – MANUFACTURING, COMMERCIAL, MINING, SILVICULTURE OPERATIONS, AND STORMWATER

GENERAL INFORMATION (PLEASE SEE INSTRUCTIONS)

1.0 NAME OF FACILITY

St. Jude Industrial Park - Drinking Water Treatment Plant

1.1 THIS FACILITY IS OPERATING UNDER MISSOURI STATE OPERATING PERMIT (MSOP) NUMBER:

MO-0098418

1.2 IS THIS A NEW FACILITY? PROVIDE CONSTRUCTION PERMIT (CP) NUMBER IF APPLICABLE.

NO

1.3 Describe the nature of the business, in detail. Identify the goods and services provided by the business. Include descriptions of all raw, intermediate, final products, byproducts, or waste products used in the production or manufacturing process, stored outdoors, loaded or transferred and any other pertinent information for potential sources of wastewater or stormwater discharges.

Lime softening, iron removal ground water treatment facility to furnish potable water to industrial park tenants. Process uses pumped ground water, pebble lime, coagulant aid, CO2 and bleach. Produces a lime "sludge" that is stored in settling ponds. Pond effluent after settling is discharged to industrial park storm water ditches via NPDES Outfall #003. "Sludge" is periodically removed and stockpiled in a drying area. "Sludge" is suitable for use as a lime substitute onto farmland or as a clean fill (MO DNR Solid Waste Management Program has deemed the material satisfactory for clean fill).

FLOWS, TYPE, AND FREQUENCY

2.0 Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in item B. Construct a water balance on the line drawing by showing average and maximum flows between intakes, operations, treatment units, evaporation, public sewers, and outfalls. If a water balance cannot by determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

2.1 For each outfall (1) below, provide: (2) a description of all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, stormwater runoff, and any other process or non-process wastewater, (3) the average flow and maximum flow (put max in parentheses) contributed by each operation and the sum of those operations, (4) the treatment received by the wastewater, and (5) the treatment type code. Continue on additional sheets if necessary.

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW; INCLUDE ALL PROCESSES AND SUB PROCESSES AT EACH OUTFALL	3. AVERAGE FLOW AND (MAXIMUM FLOW), INCLUDE UNITS.	4. TREATMENT DESCRIPTION	5. TREATMENT CODES FROM TABLE A
005	Stormwater on lime sludge storage	Flow intermittent -	N/A - material placed to dry	5-H
		only after certain		
		rain events. 2019		
		Max flow=.06 MGD		
		Avg flow=.05 MGD		
		4 discharges		

Attach additional pages if necessary.

2.2 INTERMITTENT DISCHARGES

Except for stormwater runoff, leaks, or spills, are any of the discharges described in items 2.0 or 2.1 intermittent or seasonal?

☐ Yes *(complete the following table)* ☑ No *(go to section 2.3)*

1. OUTFALL NUMBER	2. OPERATION(S) CONTRIBUTING FLOW	3. FREQUENCY		4. FLOW				C. DURATION *(in days)*
				A. FLOW RATE *(in mgd)*		B. TOTAL VOLUME (specify with units)		
		A. DAYS PER WEEK *(specify average)*	B. MONTHS PER YEAR *(specify average)*	1. MAXIMUM DAILY	2. LONG TERM AVERAGE	4. LONG TERM DAILY	3. MAXIMUM AVERAGE	

2.3 PRODUCTION

A. Does an effluent limitation guideline (ELG) promulgated by EPA under section 304 of the Clean Water Act apply to your facility? Indicate the part and subparts applicable.

☐ Yes 40 CFR_____ Subpart(s) _____ ☑ No *(go to section 2.5)*

B. Are the limitations in the effluent guideline(s) expressed in terms of production (or other measure of operation)? Describe in C below.

☐ Yes *(complete C.)* ☑ No *(go to section 2.5)*

C. If you answered "yes" to B, list the quantity representing an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline and indicate the affected outfalls.

A. OUTFALL(S)	B. QUANTITY PER DAY	C. UNITS OF MEASURE	D. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*

2.4 IMPROVEMENTS

A. Are you required by any federal, state, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ Yes *(complete the following table)* ☑ No *(go to 2.6)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
			A. REQUIRED	B. PROJECTED

B. Optional: provide below or attach additional sheets describing water pollution control programs or other environmental projects which may affect discharges. Indicate whether each program is underway or planned, and indicate actual or planned schedules for construction. This may include proposed bmp projects for stormwater.

2.5 SLUDGE MANAGEMENT

Describe the removal of any industrial or domestic biosolids or sludges generated at your facility. Include names and contact information for any haulers used. Note the frequency, volume, and methods (incineration, landfilling, composting, etc) used. See Form A for additional forms which may need to be completed.

Lime softening water treatment process produces a sludge that is contained in settling ponds, removed annually by St. Jude Industrial Park personnel, and placed onto a material drying area. Volume of material varies year to year - estimated amount of 3,000 cubic yards wet material in 2019 = approximately 1,500 cubic yards dry.

DATA COLLECTION AND REPORTING REQUIREMENTS FOR APPLICANTS

3.0 EFFLUENT (AND INTAKE) CHARACTERISTICS (SEE INSTRUCTIONS)

A. & B. See instructions before continuing – complete one Table 1 for **each outfall** (and intake) – annotate the outfall (intake) number or designation in the space provided. The facility is not required to complete intake data unless required by the department or rule.

C. Use the space below to list any pollutants listed in the instructions section 3.0 C. Table B which you know or have reason to believe is discharged or may be discharged from any outfall not listed in parts 3.0 A or B on Table 1. For every pollutant listed, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	3. OUTFALL(S)	4. ANALYTICAL RESULTS (INCLUDE UNITS)

3.1 Whole Effluent Toxicity Testing

A. To your knowledge, have any Whole Effluent Toxicity (WET) tests been performed on the facility discharges (or on receiving waters in relation to your discharge) within the last three years?

☐ Yes (go to 3.1 B) ☑ No (go to 3.2)

3.1 B

Disclose wet testing conditions, including test duration (chronic or acute), the organisms tested, and the testing results. Provide any results of toxicity identification evaluations (TIE) or toxicity reduction evaluations (TRE) if applicable. Please indicate the conclusions of the test(s) including any pollutants identified as causing toxicity and steps the facility is taking to remedy the toxicity.

3.2 CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported herein, above, or on Table 1 performed by a contract laboratory or consulting firm?

☑ Yes (list the name, address, telephone number, and pollutants analyzed by each laboratory or firm.) ☐ No *(go to 4.0)*

A. LAB NAME	B. ADDRESS	C. TELEPHONE *(area code and number)*	D. POLLUTANTS ANALYZED *(list or group)*
Environmental Analysis South	4000 East Jackson Blvd. Jackson, MO 63755	(573) 204-8817	COD, Coliform, TOC, Ammonia (as N) and others as needed.

4.0 STORMWATER

4.1
Do you have industrial stormwater discharges from the site? If so, attach a site map outlining drainage areas served by each outfall. Indicate the following attributes within each drainage area: pavement or other impervious surfaces; buildings; outdoor storage areas; material loading and unloading areas; outdoor industrial activities; structural stormwater control measures; hazardous waste treatment, storage, and disposal units; and wells or springs in the area.

OUTFALL NUMBER	TOTAL AREA DRAINED (PROVIDE UNITS)	TYPES OF SURFACES (VEGETATED, STONE , PAVED, ETC)	BEST MANAGEMENT PRACTICES EMPLOYED; INCLUDE STRUCTURAL BMPS AND TREATMENT DESIGN FLOW FOR BMPS DESCRIBE HOW FLOW IS MEASURED

4.2 STORMWATER FLOWS
Provide the date of sampling with the flows, and how the flows were estimated.

SIGNATORY REQUIREMENTS

5.0 CERTIFICATION

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

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Fred Turner - Manager	(573) 643-2784
SIGNATURE (SEE INSTRUCTIONS) Fred Turner	DATE SIGNED 08/21/2020

SEE INSTRUCTIONS; PLEASE PRINT OR TYPE.
You may report some or all of this information on separate sheet *(use similar format)* instead of completing these pages.

FORM C TABLE 1 FOR 3.0 - ITEMS A AND B

EFFLUENT (AND INTAKE) CHARACTERISTICS — THIS OUTFALL IS: WTP Lime Sludge Drying Area — OUTFALL NO. 005

3.0 PART A – You must provide the results of at least one analysis for every pollutant in Part A. Complete one table for each outfall or proposed outfall. See instructions.

1. POLLUTANT	2. VALUES						D. NO. OF ANALYSES	3. UNITS *(specify if blank)*	
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES			A. CONCEN-TRATION	B. MASS
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
A. Biochemical Oxygen Demand, 5-day (BOD_5)	3.02						1	mg/l	
B. Chemical Oxygen Demand (COD)	<5						1	mg/l	
C. Total Organic Carbon (TOC)	5.0						1	mg/l	
D. Total Suspended Solids (TSS)	41.0				16.98		4	mg/l	
E. Ammonia as N	<0.03						1	mg/l	
F. Flow	VALUE 0.06		VALUE		VALUE 0.053		4	MILLIONS OF GALLONS PER DAY (MGD)	
G. Temperature *(winter)*	VALUE 15.3C		VALUE		VALUE		4	°F	
H. Temperature *(summer)*	VALUE 28.7C		VALUE		VALUE		4	°F	
I. pH	MINIMUM 7.96		MAXIMUM 8.85		AVERAGE		4	STANDARD UNITS (SU)	

3.0 PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark Column 2A for any pollutant, you must provide the results for at least one analysis for the pollutant. Complete one table for each outfall (intake). Provide results for additional parameters not listed here in Part 3.0 C.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES						D. NO. OF ANALYSES	4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES			A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants											
A. Alkalinity ($CaCO_3$)		X	MINIMUM		MINIMUM		MINIMUM				
B. Bromide (24959-67-9)		X									
C. Chloride (16887-00-6)		X									
D. Chlorine, Total Residual		X									
E. Color		X									
F. Conductivity		X									
F. Cyanide, Amenable to Chlorination		X									

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants (Continued)											
G. *E. coli*		X									
H. Fluoride (16984-48-8)		X									
I. Nitrate plus Nitrate *(as N)*		X									
J. Kjeldahl, Total (as N)		X									
K. Nitrogen, Total Organic *(as N)*		X									
L. Oil and Grease		X									
M. Phenols, Total		X									
N. Phosphorus *(as P)*, Total (7723-14-0)		X									
O. Sulfate *(as SO^4)* (14808-79-8)		X									
P. Sulfide *(as S)*		X									
Q. Sulfite (as SO^3) (14265-45-3)		X									
R. Surfactants		X									
S. Trihalomethanes, Total		X									
Subpart 2 – Metals											
1M. Aluminum, Total Recoverable (7429-90-5)	X		2300				1005		4	ug/l	
2M. Antimony, Total Recoverable (7440-36-9)		X									
3M. Arsenic, Total Recoverable (7440-38-2)		X									
4M. Barium, Total Recoverable (7440-39-3)		X									
5M. Beryllium, Total Recoverable (7440-41-7)		X									
6M. Boron, Total Recoverable (7440-42-8)		X									
7M. Cadmium, Total Recoverable (7440-43-9)		X									
8M. Chromium III Total Recoverable (16065-83-1)		X									
9M. Chromium VI, Dissolved (18540-29-9)		X									
10M. Cobalt, Total Recoverable (7440-48-4)		X									

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 2 – Metals (Continued)											
11M. Copper, Total Recoverable (7440-50-8)		X									
12M. Iron, Total Recoverable (7439-89-6)		X									
13M. Lead, Total Recoverable (7439-92-1)		X									
14M. Magnesium, Total Recoverable (7439-95-4)		X									
15M. Manganese, Total Recoverable (7439-96-5)		X									
16M. Mercury, Total Recoverable (7439-97-6)		X									
17M. Methylmercury (22967926)		X									
18M. Molybdenum, Total Recoverable (7439-98-7)		X									
19M. Nickel, Total Recoverable (7440-02-0)		X									
20M. Selenium, Total Recoverable (7782-49-2)		X									
21M. Silver, Total Recoverable (7440-22-4)		X									
22M. Thallium, Total Recoverable (7440-28-0)		X									
23M. Tin, Total Recoverable (7440-31-5)		X									
24M. Titanium, Total Recoverable (7440-32-6)		X									
25M. Zinc, Total Recoverable (7440-66-6)		X									
Subpart 3 – Radioactivity											
1R. Alpha Total											
2R. Beta Total		X									
3R. Radium Total		X									
4R. Radium 226 plus 228 Total		X									

ST. JUDE INDUSTRIAL PARK NPDES PERMIT MO-0098418

OUTFALL #005 TEST RESULTS DURING DISCHARGES IN 2019 AND NO DISCHARGE IN 2020

	April 2019	May 2019	June 2019	July 2019	June 2020
*Aluminum (ug/L)	79	2,300	1,500	141	
*Flow (MGD)	0.06	0.06	0.04	0.05	
*pH	8.27	7.96	8.47	8.85	
*Settleable Solids (ml/L)	0.10	0.10	0.10	0.10	
*Total Suspended Solids (mg/L)	41.0	5.4	13.0	8.5	
*Temperature (°C)	15.30	23.20	26.00	28.70	
**BOD5 (mg/L)					3.02
**COD (mg/L					<5.0
**TOC (mg/L)					5
**Ammonia as N (mg/L)					<0.030

NOTES:

* - Samples taken during discharge and reported on eMDR

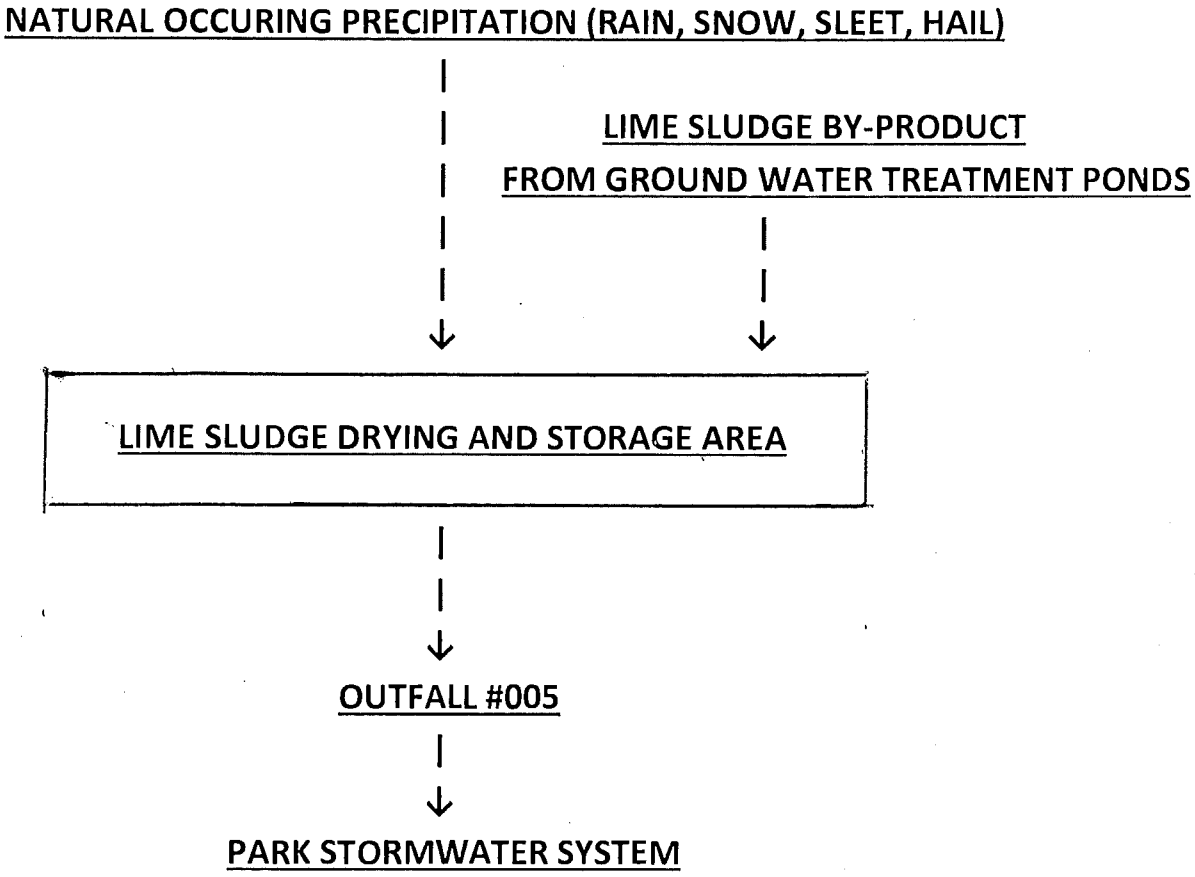
** - Sample taken from storm water holding area - no discharge

A sample was taken from the park stormwater ditch upstream from outfall #005 in May, 2020 and tested for Total Recoverable Aluminum for background reference - the result was 8.37 mg/L (8,370 ug/L). The stormwater runoff from the sludge drying area had a maximum of 2,300 ug/L in 2019. THE STORMWATER RUNOFF FROM THE SLUDGE MATERIAL DOES NOT POSE A SIGNIFICANT CONTAMINATION THREAT TO THE ENVIRONMENT.

St. Jude Industrial Park

N.P.D.E.S. Permit MO-0098418

Flow Diagram for Outfall # 005 (Water Treatment Plant Lime Sludge Drying Area)



ST. JUDE INDUSTRIAL PARK

N.P.D.E.S. PERMIT # MO-0098418

OUTFALL #005 - WATER TREATMENT PLANT SLUDGE STORAGE AND DRYING AREA

STORMWATER RUNOFF CALCULATIONS

"A" - (TOTAL AREA COVERED) = APPROXIMATELY 300,000 FT^2

"F" - RUNOFF FACTOR (0.5)

"E" – RAINFALL EVENT IN FEET (AVERAGE/24 HOURS)

"K" – VOLUME OF WATER PER CUBIC FOOT (7.48 GALLONS)

STORMWATER FLOW (MGD) FORMULA

A*F*K*E ÷ 1,000,000 = FLOW IN MILLION GALLONS/DAY

300,000 FT^2 X 0.5 X 7.48 GAL/FT^3 X E ÷ 1,000,000 = 1.122 X E = MGD

STORMWATER FLOW IN MGD = 1.122 X RAINFALL EVENT IN FEET

EXAMPLE: RAINFALL EVENT "E" OF 1.75 INCHES (0.15 FT)

CACLULATED STORMWATER RUNOFF WOULD BE 1.122 X 0.15 = 0.168 MGD

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AUG 24 2020
Water Protection Program

St. Jude Industrial Park

NPDES Permit Renewal

MO0098418

2020

ST. JUDE INDUSTRIAL PARK

Mailing Address:
P.O. Box 441
New Madrid, MO 63869

Shipping Address:
23 St. Jude Industrial Hwy.
Marston, MO 63866

Phone: (573) 643-2784
FAX: (573) 643-2734
E-Mail: sjip1@sjipb.com

August 21, 2020

Missouri Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176

RE: Renewal of NPDES Permit # MO-0098418

Attached please find the St. Jude Industrial Park NPDES permit # MO-0098418 renewal application forms and other supporting information.

Table of Contents

A. Completed Form "A" for outfalls 002, 003, 005, 006, 007 and 008
B. Acceptance of Continuing Authority by the City of New Madrid
C. UTM Coordinates and legal description table for all outfalls
D. Completed Form "B2", Parts "A", "B" and "C" for Outfall #002. Parts "D" through "G" not applicable
   1. Flow diagram for wastewater lagoon system
   2. Topographical maps
   3. 2019 sample analysis summary chart
   4. 2019 Outfall #002 discharge reports (4)
   5. Lagoon cells 1-4 profile sketches and volume calculations
   6. Outfall #002 "Progress Report for Wastewater E-coli Compliance"
   7. 2019 wastewater lagoon influent and effluent data for Total Suspended Solids and BOD5 (See request below)
E. Wastewater Treatment System Description and lagoon details for Forms B2 and I
F. Form "I", Page 1, for irrigators/outfalls #006, and #007, and Form "I", Page 2, for irrigator/outfall #008
   1. Copy of 2019 annual irrigation report submitted to DNR
   2. 2019 Irrigation Logs (3 pages)
   3. 2019 Daily Rainfall log
G. Wastewater Treatment Operations and Maintenance Plan
H. Completed Form "C" for Outfall #003
   1. Flow diagram
   2. 2019 sample analysis data chart as reported on monthly e-DMR reports
   3. Analysis reports for Form "C", Table 1 (2 pages)
I. Completed Form "C" for Outfall #005
   1. Test results for Outfall #005 stormwater during 2019 discharges and 2020 with no discharges (holding area)
   2. Flow diagram for sludge storage area
   3. Outfall #005 flow calculations worksheet
J. Water treatment sludge
   1. University of Missouri 2020 sludge ENM report
   2. Environmental Analysis South, Inc. 2020 sludge test results
   3. MO DNR letter designating sludge as an acceptable clean fill
      a. University of Missouri 2019 sludge ENM reports on 3 samples
      b. Environmental Analysis South, Inc. test results on 3 samples

We respectfully request certain modifications to the following current limits be considered when renewing the permit:

1. Outfall #002 – Wastewater Treatment Facility:
   a. Item D 7: Remove the current permit requirement of a 65% removal for BOD5 and Total Suspended Solids. Since our wastewater influent is very diluted, weak and has relatively low BOD5 and TSS values (reference item D7 above), it is virtually impossible for a lagoon system to obtain such efficiencies. We feel the percent removal is totally irrelevant as long as the effluent limits are met, which we consistently do.
2. Outfall #003 – Water Treatment Facility:
   a. Total Residual Chlorine: The treatment system no longer uses chlorine as its disinfectant, but generates its own "bleach" via a Miox system plus the fact that no detectable amounts have ever been found. Therefore, we feel testing for Total Residual Chlorine is not necessary.
   b. pH: We request the maximum limit be either eliminated or raised to 9.5 SUs. We believe this would not cause any environmental quality issues, especially since we do not discharge large quantities of water.
3. Outfall #005 – WTP sludge handling/drying area:
   a. Stormwater Total Recoverable Aluminum parameter – we feel this is not necessary because our testing results show the amount found in the effluent (maximum of 2,300 ug/l) is way below that which was measured in a farmland stormwater ditch (8,370 ug/l) that was upstream from Outfall #005 (see I1 above for test results).
4. Sludge:
   a. The MO Department of Natural Resources Waste Program has deemed the lime "sludge" to be "clean fill", suitable for land reclamation (see Item J above for attachments).
   b. We believe it is beyond the scope of the NPDES system plus the determination that this material is "clean fill" by DNR to require farmers to test fields for anything other than ENM requirements prior to application. This appears to be the responsibility of the Agricultural Department. Since the new testing requirements for farmers were added to the current permit, no farmer has taken the product for distribution onto their farmland.

Please contact me by phone, FAX or e-mail if you have any questions.

Sincerely,

Fred Turner

Fred Turner
Manager, St. Jude Industrial Park

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
FORM A – APPLICATION FOR NONDOMESTIC PERMIT UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
JET PAY CONFIRMATION NUMBER	

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

IF YOUR FACILITY IS ELIGIBLE FOR A NO EXPOSURE EXEMPTION:
Fill out the No Exposure Certification Form (Mo 780-2828): https://dnr.mo.gov/forms/780-2828-f.pdf

1. REASON FOR APPLICATION:

☑ a. This facility is now in operation under Missouri State Operating Permit (permit) MO – 0098418, is submitting an application for renewal, and there is no proposed increase in design wastewater flow. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.

☐ b. This facility is now in operation under permit MO – _____, is submitting an application for renewal, and there is a proposed increase in design wastewater flow. Antidegradation Review may be required. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.

☐ c. This is a facility submitting an application for a new permit (for a new facility). Antidegradation Review may be required. New permit fee is required.

☐ d. This facility is now in operation under Missouri State Operating Permit (permit) MO – _____ and is requesting a modification to the permit. Antidegradation Review may be required. Modification fee is required.

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
ST. JUDE INDUSTRIAL PARK		(573) 643-2784	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
23 ST. JUDE INDUSTRIAL ROAD	MARSTON	MO	63866

3. OWNER

NAME		TELEPHONE NUMBER WITH AREA CODE	
AECI Land2, LLC		(417) 371-5275	
EMAIL ADDRESS			
bprestwood@aeci.org			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
2814 S. Golden Ave., P.O. Box 754	Springfield	MO	65807

4. CONTINUING AUTHORITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
City of New Madrid		(573) 748-2866	
EMAIL ADDRESS			
RichardM@new-madrid.mo.us			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
560 Mott St./ P.O. Box 96	New Madrid	MO	63869

5. OPERATOR CERTIFICATION

NAME	CERTIFICATE NUMBER	TELEPHONE NUMBER WITH AREA CODE	
LARRY WILSON	83	(573) 643-2784	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
23 ST. JUDE INDUSTRIAL ROAD	MARSTON	MO	63866

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
FRED TURNER	MANAGER	(573) 643-2784
E-MAIL ADDRESS		
sjip1@sjipb.com		

7. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary.

NAME			
MISSOURI DELTA MEDICAL CENTER			
ADDRESS	CITY	STATE	ZIP CODE
1008 MAIN ST.	SIKESTON	MO	63801

8. ADDITIONAL FACILITY INFORMATION

8.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)
For Universal Transverse Mercator (UTM), use Zone 15 North referenced to North American Datum 1983 (NAD83)

001 ____¼ ____¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

002 SE ¼ SW ¼ Sec 30 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): _____ Northing (Y): _____

003 NE ¼ SE ¼ Sec 30 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): _____ Northing (Y): _____

004 SE ¼ NE ¼ Sec 30 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): 269319.3738353 Northing (Y): 4044911.833314

8.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.
Primary SIC _____ and NAICS _____ SIC 4952 and NAICS 221320
SIC 4941 and NAICS 221310 SIC 4941 and NAICS 221310

9. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION

A. Is this permit for a manufacturing, commercial, mining, solid/hazardous waste, or silviculture facility? YES ☐ NO ☑
If yes, complete Form C.

B. Is the facility considered a "Primary Industry" under EPA guidelines (40 CFR Part 122, Appendix A) : YES ☐ NO ☑
If yes, complete Forms C and D.

C. Is wastewater land applied? YES ☑ NO ☐
If yes, complete Form I.

D. Are sludge, biosolids, ash, or residuals generated, treated, stored, or land applied? YES ☐ NO ☑
If yes, complete Form R.

E. Have you received or applied for any permit or construction approval under the CWA or any other environmental regulatory authority? YES ☐ NO ☑
If yes, please include a list of all permits or approvals for this facility.

F. Do you use cooling water in your operations at this facility? YES ☐ NO ☑
If yes, please indicate the source of the water: _____

G. Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.

10. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data. **One of the following must be checked in order for this application to be considered complete.** Please visit http://dnr.mo.gov/env/wpp/edmr.htm to access the Facility Participation Package.

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

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

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

11. FEES

Permit fees may be paid by attaching a check, or online by credit card or eCheck through the JetPay system. Use the URL provided to access JetPay and make an online payment: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/

12. CERTIFICATION

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

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Fred Turner, Manager	(573) 643-2784
SIGNATURE Fred Turner	DATE SIGNED 8/21/20

City of New Madrid
560 Mott St./P.O. Box 96
New Madrid, MO 63869
P: (573) 748-2866
F: (573) 748-5402
www.new-madrid.mo.us

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102

August 19, 2020

To Whom It May Concern:

The City of New Madrid, Missouri, is the holder of NPDES Permit #MO-0098418.

This permit applies to the water and wastewater facilities leased by the City of New Madrid and are located at the St. Jude Industrial Park, approximately two miles east of Marston, MO.

The City of New Madrid hereby accepts the responsibility as the Continuing Authority on said permit.

The City realizes that the continuing authority is responsible for operation, maintenance, and modernization of the facility for which the application is made, as found in 10 CSR 20-6.010 (3XA).

Please feel free to contact me if you have any questions or need additional information.

Respectfully,

Richard McGill
City Administrator

ST. JUDE INDUSTRIAL PARK NPDES PERMIT MO-0098418 OUTFALL DESCRIPTIONS
FROM GOOGLE MAPS AND COORDINATES TO UTM CONVERTER

	LEGAL DESCRIPTION	UTM COORDINATES – ZONE 16S	COORDINATES
OUTFALL 002 – WASTEWATER LAGOON	NW1/4, NW1/4, SEC 31, T22N, R14E, NEW MADRID COUNTY	268261.15 Easting 4043586.69 Northing	36.509591, -89.587723
OUTFALL 003 – WATER TREATMENT PLANT	NE1/4, NE1/4, SE1/4, SEC 30, T22N, R14E, NEW MADRID COUNTY	269565.62 Easting 4044572.24 Northing	36.518782, -89.573464
OUTFALL 005 – SLUDGE STORAGE AREA	NW1/4, SE1/4, NE1/4, SEC 30, T22N, R14E, NEW MADRID COUNTY	269313.62 Easting 4044867.57 Northing	36.521381, -89.576364
OUTFALL 006 – WW IRRIGATOR #2	SE1/4, SE1/4, NW1/4, SEC 31, T22N, R14E, NEW MADRID COUNTY	268606.35 Easting 4043209.66 Northing	36.506279, -89.583759
OUTFALL 007 – WW IRRIGATOR #3	SW1/4, NE1/4, SW1/4, SEC 31, T22N, R14E, NEW MADRID COUNTY	268381.61 Easting 4042632.19 Northing	36.501024, -89.586093
OUTFALL 008 – WW IRRIGATOR #4	SW1/4, NE1/4, SE1/4, SEC 31, T22N, E14E, NEW MADRID COUNTY	269272.96 Easting 4042655.81 Northing	36.501452, -89.576157

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AUG 24 2020
Water Protection Program

UNIVERSITY *of* MISSOURI

EXPERIMENT STATION CHEMICAL LABORATORIES

COLLEGE OF AGRICULTURE, FOOD AND NATURAL RESOURCES

OFFICE OF THE MISSOURI STATE CHEMIST

May 29, 2020

Fred Turner
St Jude Industrial Park Board
P.O. Box 441
New Madrid, MO 63869

Dear Fred Turner:

The following report includes the analyses on the sample submitted to the Experiment Station Chemical Laboratories on May 20, 2020. The sample is reported on a dry basis.

A University of Missouri Invoice will be sent to you by the Accounting Department for payment for the analysis of this sample.

ESCL Sample No.	5779
Sample ID	Lime Sludge
Free water, w/w%	29.16
ENM*, #/ton	720
CCE**, w/w%	90.3
US Std. Sieve, retained weight	
% +8	0.1
% -8 +40	0.2
% -40 + 60	0.2
% -60	99.5
Fineness Factor	99.6

Reference standards were performed with these analyses. The original results will be on file in our office and are available for review by you on request. We are glad that we have been able to perform these tests for you and we look forward to being of service to you again. Please contact us if you have any questions.

Sincerely,

Dr. Thomas P. Mawhinney
Director

**ENM - Effective Neutralizing Value* ***CCE - Calcium Carbonate Equivalence*

Environmental Analysis South, Inc

4000 East Jackson Blvd. - Jackson MO 63755 - 573-204-8817 - Fax 573-204-8818

Samples in Process Report

St Jude Industrial Park

2504920 **Lime Sludge** **5/18/2020**

Analysis		Results	Units
Aluminum by ICP		961	mg/Kg
Arsenic by ICP	<	2.50	mg/Kg
Cadmium	<	0.30	mg/Kg
Chromium		18.4	mg/Kg
Copper		6.9	mg/Kg
Mercury by Cold-Vapor Technique	<	0.10	mg/Kg
Total Metals Flame-AA Digestion		1	Prep
Metals ICP Sample Digestion		1	Prep
Kjeldahl Nitrogen	<	10.0	mg/Kg
Molybdenum by ICP	<	1.20	mg/Kg
Nickel	<	1.5	mg/Kg
Lead by ICP	<	4.00	mg/Kg
Selenium by ICP	<	4.00	mg/Kg
Total Solids		71.5	% w/w
Zinc		14.8	mg/Kg

All results are preliminary and pending quality control review. Final report to follow

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

MAY 1 0 2019

Gregory Bell, P.E.
Smith and Co. Engineers
901 Vine Street
P.O. Box 72
Poplar Bluff, MO 63902

RE: Clean Fill Determination for Lime Sludge at St. Jude Industrial Park, Marston, Missouri

Dear Mr. Bell:

On March 26, 2019, the Missouri Department of Natural Resources' Waste Management Program (WMP) received your letter with the three additional sets of sample data from newly analyzed sludge samples obtained from the existing lime pile. The letter includes permit number MO 0098418 for the St. Jude Industrial Park in Marston, Missouri. The letter requested the lime sludge material be allowed to be used as clean fill material. The WMP has reviewed the results and has determined the material qualifies as clean fill.

The definition of "clean fill", found in Chapter 260.200 of the Missouri Solid Waste Management Law, is as follows:

> *(4) "Clean fill", uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the department for fill, reclamation or other beneficial use.*

The WMP does not require a solid waste disposal area permit for the use of these materials as fill. Our regulations regarding this exemption are found in 10 CSR 80-2.020(9)(A)1 state:

> *(9) Permit Exemptions.*
> *(A) The following types of activities, solid waste disposal areas or solid waste processing facilities are not required to obtain a permit provided that pollution, a public nuisance or a health hazard is not created:*
>
> > *1. Any area receiving only uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks and bricks for fill or reclamation;*

The WMP appreciates your efforts toward conducting business in an environmentally sound manner. If you have any questions regarding this letter, please contact Mr. Brian D. Newby at 573-526-3544, at brian.newby@dnr.mo.gov, or at P.O. Box 176, Jefferson City, MO 65102-0176. Thank you.

Sincerely,

WASTE MANAGEMENT PROGRAM

Charlene S. Fitch

Charlene S. Fitch, P.E.
Chief, Engineering Section

CSF:bnl

c: Southeast Regional Office

OFFICE OF THE MISSOURI STATE CHEMIST

March 12, 2019

Fred Turner
St. Jude Industrial Park Board
P.O. Box 441
New Madrid, MO 63869

Dear Mr. Turner:

The following report includes the analyses on the samples submitted to the Experiment Station Chemical Laboratories on March 4, 2019. The samples are reported on a dry weight basis.

A University of Missouri Invoice will be sent to you by the Accounting Department for payment for the analysis of these samples.

ESCL Sample No.	2244	2245	2246
Sample ID	1	2	3
Free water, w/w%	23.2	24.0	26.1
ENM*, #/ton	658	690	710
EMg**, #/ton	16	16	16
CCE***, w/w%	82.8	86.7	89.2
Magnesium, w/w % Mg	0.8	0.8	0.8
US Std. Sieve, retained weight			
% +8	0.2	0.2	0.2
% -8 +40	0.4	0.4	0.3
% -40 + 60	0.3	0.2	0.3
% -60	99.1	99.2	99.2
Fineness Factor	99.4	99.4	99.5

Reference standards were performed with these analyses. The original results will be on file in our office and are available for review by you on request. We are glad that we have been able to perform these tests for you and we look forward to being of service to you again. Please contact us if you have any questions.

ESCL
Agriculture Experiment Station
Experiment Station Chemical Laboratories
University of Missouri- Columbia

Sincerely,

Dr. Thomas P. Mawhinney
Director

*ENM - Effective Neutralizing Value **EMg - Effective Magnesium ***CCE - Calcium Carbonate Equivalence

Environmental Analysis South, Inc

4000 East Jackson Blvd. - Jackson MO 63755 - 573-204-8817 - Fax 573-204-8818

Samples in Process Report

St Jude Industrial Park

2311519 **Sludge #1** **2/26/2019**

Analysis		Results	Units
Aluminum by ICP		1200	mg/Kg
Arsenic by ICP	<	3.0	mg/Kg
Cadmium	<	0.30	mg/Kg
Chromium		11.5	mg/Kg
Copper		4.2	mg/Kg
Iron		157	mg/Kg
Mercury by Cold-Vapor Technique	<	0.10	mg/Kg
Total Metals Flame-AA Digestion		1	Prep
Metals ICP Sample Digestion		1	Prep
Potassium		36.3	mg/Kg
Kjeldahl Nitrogen		44.0	mg/Kg
Molybdenum by ICP	<	2.4	mg/Kg
Nickel		1.9	mg/Kg
Lead by ICP		2.2	mg/Kg
Selenium by ICP	<	2.0	mg/Kg
Phosphorus		548	mg/Kg
Total Solids		72.8	% w/w
Zinc		5.7	mg/Kg

2311520 **Sludge #2** **2/26/2019**

Analysis		Results	Units
Aluminum by ICP		1000	mg/Kg
Arsenic by ICP	<	3.0	mg/Kg
Cadmium	<	0.30	mg/Kg
Chromium		22.1	mg/Kg
Copper		5.1	mg/Kg
Iron		16500	mg/Kg
Mercury by Cold-Vapor Technique	<	0.10	mg/Kg
Total Metals Flame-AA Digestion		1	Prep
Metals ICP Sample Digestion		1	Prep
Potassium		40.1	mg/Kg
Kjeldahl Nitrogen		129	mg/Kg
Molybdenum by ICP	<	2.4	mg/Kg

All results are preliminary and pending quality control review. Final report to follow

Nickel	<	1.5	mg/Kg
Lead by ICP	<	2.0	mg/Kg
Selenium by ICP	<	2.0	mg/Kg
Phosphorus		838	mg/Kg
Total Solids		73.5	% w/w
Zinc		15.1	mg/Kg

2311521 Sludge #3 **2/26/2019**

Analysis		Results	Units
Aluminum by ICP		1300	mg/Kg
Arsenic by ICP	<	3.0	mg/Kg
Cadmium	<	0.30	mg/Kg
Chromium		22.3	mg/Kg
Copper		6.2	mg/Kg
Iron		15400	mg/Kg
Mercury by Cold-Vapor Technique	<	0.10	mg/Kg
Total Metals Flame-AA Digestion		1	Prep
Metals ICP Sample Digestion		1	Prep
Potassium		77.7	mg/Kg
Kjeldahl Nitrogen		64.0	mg/Kg
Molybdenum by ICP	<	2.4	mg/Kg
Nickel	<	1.5	mg/Kg
Lead by ICP		2.5	mg/Kg
Selenium by ICP	<	2.0	mg/Kg
Phosphorus		848	mg/Kg
Total Solids		76.3	% w/w
Zinc		16.7	mg/Kg

All results are preliminary and pending quality control review. Final report to follow

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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

FACILITY NAME	
ST. JUDE INDUSTRIAL PARK (WASTEWATER TREATMENT)	
PERMIT NO.	COUNTY
MO 0098418	NEW MADRID

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
JET PAY OONFIRMATION NUMBER	

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
(Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)

☑ An operating permit renewal: Permit #MO- 0098418 Expiration Date 12/31/2020

☐ An operating permit modification: Permit #MO-_____ Reason: _____

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

2. FACILITY

NAME			TELEPHONE NUMBER WITH AREA CODE
ST. JUDE INDUSTRIAL PARK (WASTEWATER TREATMENT)			(573) 643-2784
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
23 ST. JUDE INDUSTRIAL HIGHWAY	MARSTON	MO	63866

2.1 LEGAL DESCRIPTION (Facility Site): Sec. 31 , T 22N , R 14E — COUNTY: NEW MADRID

2.2 UTM Coordinates Easting (X): 268261.15 Northing (Y): 4043586.69
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: UNNAMED TRIBUTARY TO PORTAGE OPEN BAY

2.4 Number of Outfalls: 4 wastewater outfalls: 4 stormwater outfalls: 0 instream monitoring sites: 0

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
AECI Land2, LLC	bprestwood@aeci.org	(417) 371-5275	
ADDRESS	CITY	STATE	ZIP CODE
2814 S. Golden Ave./ P.O. Box 754	Springfield	MO	65807

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

3.2 Are you a Publically Owned Treatment Works (POTW)? ☐ YES ☑ NO
If yes, is the Financial Questionnaire attached? ☐ YES ☑ NO See: https://dnr.mo.gov/forms/780-2511-f.pdf

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

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

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of New Madrid	RichardM@new-madrid.mo.us	(573) 748-2866	
ADDRESS	CITY	STATE	ZIP CODE
560 Mott St./ P.O. Box 96	New Madrid	MO	63869

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

5. OPERATOR

NAME	TITLE	CERTIFICATE NUMBER (IF APPLICABLE)
LARRY WILSON	FOREMAN	83
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
sjip1@sjipb.com	(573) 643-2784	

6. FACILITY CONTACT

NAME	TITLE		
FRED TURNER	MANAGER		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
sjip1@sjipb.com	(573) 643-2784		
ADDRESS	CITY	STATE	ZIP CODE
23 ST. JUDE INDUSTRIAL HIGHWAY	MARSTON	MO	63866

FACILITY NAME	PERMIT NO.	OUTFALL NO.
ST. JUDE INDUSTRIAL PARK	MO- 0098418	002

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

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

A 4 cell lagoon wastewater treatment system. Influent is classified as domestic wastewater from park tenants. No process wastes or storm water runoff. Effluent is irrigated onto farmland via 3 center pivot irrigators designated 006L, 007L and 008L. Discharge to ditch via outfall #002 occurs only when necessary and allowed by permit. Solids are retained in lagoons. Test samples are taken at Influent, irrigator pump station and outfall #002.

Lagoon influent BOD and TSS are relatively very low which makes it very difficult, if not impossible, for the lagoons to achieve a 65% reduction in either case. BOD and TSS at the outfall #002 have consistently been well below the discharge limits. It is requested that the requirement of 65% reduction for BOD and TSS be removed.

Flow diagram and lagoon details are attached to this form.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
ST. JUDE INDUSTRIAL PAERK	MO- 0098418	002

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

7.2 **Map.** Attach to this application an aerial or topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. A map can be obtained by visiting the following website: https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce

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

7.3	Facility SIC Code: 4952	Discharge SIC Code: 4952

7.4 Number of people presently connected or population equivalent (P.E.): 800 Design P.E. 8,750

7.5 Connections to the facility:

Number of units presently connected: 5

Residential: 0 Commericial: 0 Industrial 5

7.6	Design Flow 825,000 GPD	Actual Flow NONE EXCEPT DURING DISCHARGE OR IRRIGATI

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

Discharge will occur during the following months: MAINLY NOVEMBER THROUGH MARCH - OTHERS AS NEEDED

How many days of the week will discharge occur? VARIES - NORMALLY 7 DAYS/WEEK DURING DISCHARGE ONLY

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

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

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

7.9	Does the facility accept or process leachate from landfills?:	Yes ☐	No ☑
7.10	Is wastewater land applied? **If yes**, please attach Form I See: https://dnr.mo.gov/forms/780-1686-f.pdf	Yes ☑	No ☐
7.11	Does the facility discharge to a losing stream or sinkhole?	Yes ☐	No ☑
7.12	Has a wasteload allocation study been completed for this facility?	Yes ☐	No ☑

8. LABORATORY CONTROL INFORMATION

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
St. Jude Industrial Park Wastewater Treat	MO- 0098418	002

PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

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

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

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

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

9.4 Type of storage:
☐ Holding Tank ☐ Building
☐ Basin ☑ Lagoon
☐ Concrete Pad ☐ Other (Describe) _____

9.5 Sludge Treatment:

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

9.6 Sludge use or disposal:

☐ Land Application ☐ Contract Hauler ☐ Hauled to Another Treatment Facility ☐ Solid Waste Landfill
☐ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration
☑ Other (Attach Explanation Sheet) Not applicable - sludge is retained in lagoons.

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

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

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

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

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

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
St. Jude Industrial Park Wastewater Treat	MO- 0098418	002

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

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

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

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

10.2 Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) 4 miles

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

11. BYPASSING

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

12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

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

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

13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
St. Jude Industrial Park Wastewater Treat	MO- 0098418	002

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least **three samples** and must be no more than four and one-half years apart. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8

Outfall Number 002 - During 2019 Discharges Only # At Various Times # # Not tested

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	7.63	S.U.	8.20	S.U.	4
pH (Maximum)	9.75	S.U.	9.10	S.U.	4
Flow Rate	1.33	MGD	1.21	MGD	4 - during 4 discharges

*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	34.6	mg/L	18.67	mg/L	8	SM-5210 B-2011	
	$CBOD_5$		mg/L		mg/L			
E. COLI		135	#/100 mL	53.03	#/100 mL	6	Colilert-18	
TOTAL SUSPENDED SOLIDS (TSS)		65.85	mg/L	31.09	mg/L	8	209E	
TOTAL PHOSPHORUS		1.86	mg/L	1.32	mg/L	5	lachat10-115-01-1c	
TOTAL KJELDAHL NITROGEN		36.7	mg/L	19.42	mg/L	5	lachat10-107-06-2d	
NITRITES + NITRATES		8.70	mg/L	5.86	mg/L	5	lachat10-107-04-1J	
AMMONIA AS N		34.2	mg/L	13.68	mg/L	10	lachat10-107-06-1k	
CHLORINE* (TOTAL RESIDUAL, TRC)		N/A	mg/L	N/A	mg/L	N/A		
DISSOLVED OXYGEN		11.80	mg/L	10.85	mg/L	4	D.O. Meter	
OIL and GREASE		N/A	mg/L	N/A	mg/L	N/A		
OTHER: _____			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
St. Jude Industrial Park Wastewater Treat	MO- 0098418	002

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

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

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

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

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

16. JETPAY

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

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

17. CERTIFICATION

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
Fred Turner	Manager

SIGNATURE

Fred Turner

TELEPHONE NUMBER WITH AREA CODE

(573) 643-2784

DATE SIGNED

8/21/2020

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

Send Completed Form to:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176

END OF PART C

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

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

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

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
St. Jude Industrial Park	MO- 0098418	002

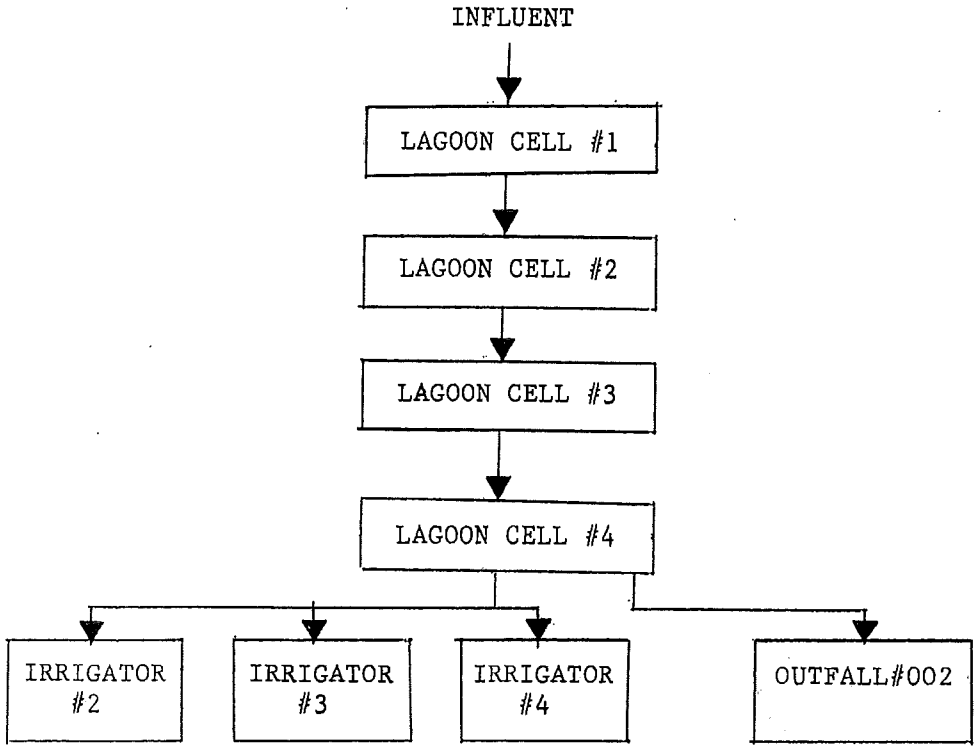
PART A - BASIC APPLICATION INFORMATION

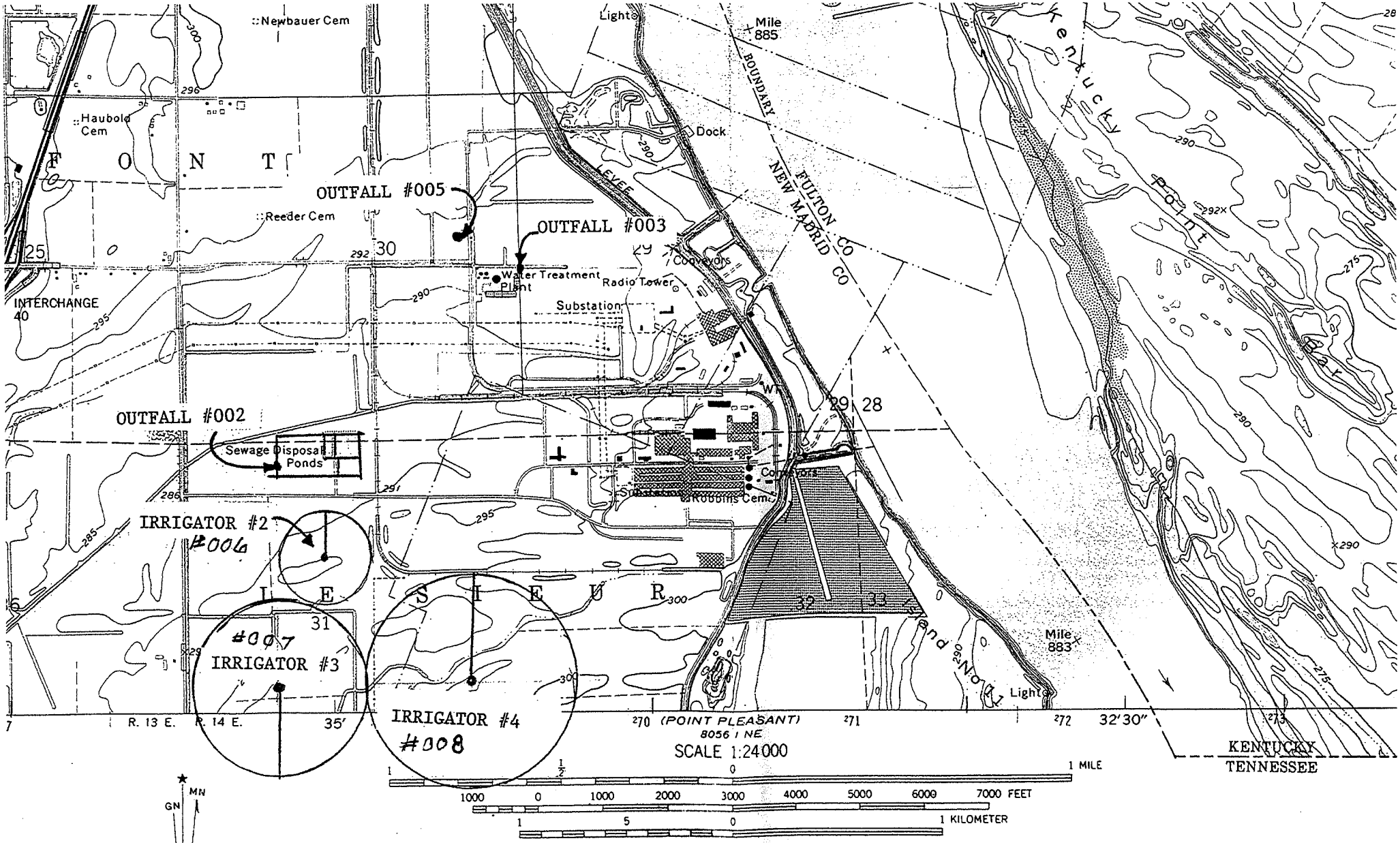
7. FACILITY INFORMATION

7.1 **Process Flow Diagram or Schematic.** Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – Chlorination and Dechlorination), influents, and outfalls. 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.

A 4 cell lagoon wastewater treatment system - influent is domestic wastewater from park tenants - no process wastes or storm water runoff - effluent is irrigated onto farmland via 3 center pivot irrigators - discharge via outfall #002 only when necessary and allowed - solids are retained in lagoons.

ST. JUDE INDUSTRIAL PARK
WASTEWATER TREATMENT FACILITY





SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN GN 1°32' 27 MILS 2° 36 MILS

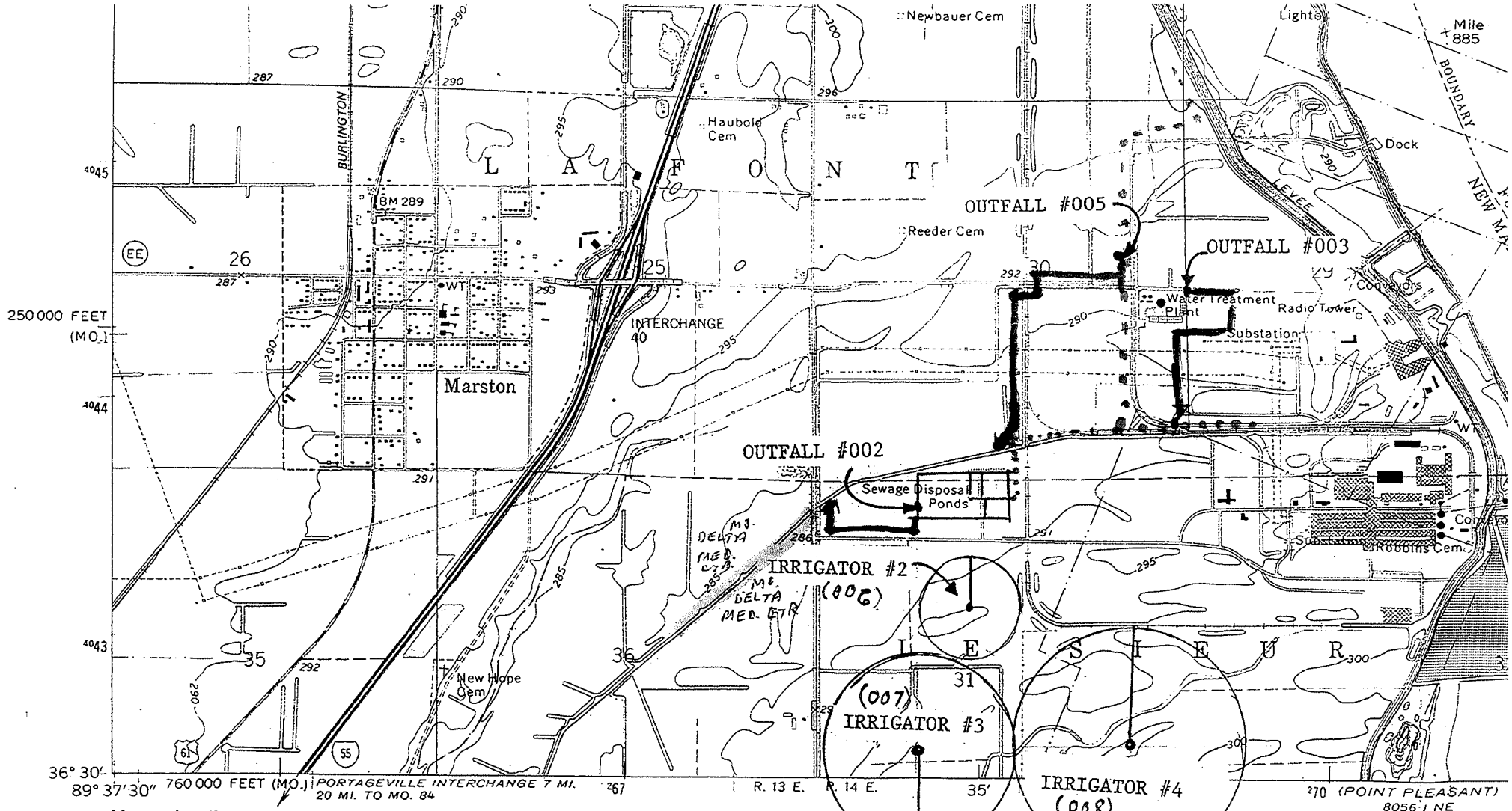
UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

evisions shown in purple and woodland compiled in cooperation ith State of Kentucky agencies from aerial photographs taken 981 and other sources. Contours adjusted adjacent to certain hotorevised hydrographic features. This information not field necked. Map edited 1982

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092,
DIVISION OF GEOLOGY AND LAND SURVEY
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401,
KENTUCKY GEOLOGICAL SURVEY, LEXINGTON, KENTUCKY 40506,
AND KENTUCKY DEPARTMENT OF COMMERCE, FRANKFORT, KENTUCKY 40601
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION



(PORTAGEVILLE)
8056 I NW

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1969. Field checked 1971
Supersedes New Madrid SE dated 1951

Polyconic projection. 10,000-foot grid ticks based on Missouri coordinate system, east zone and Kentucky coordinate system, south zone. 1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum. To place on the predicted North American Datum 1983 move the projection lines 5 meters south and 7 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

There may be private inholdings within the boundaries of the National or State reservations shown on this map

ST. JUDE INDUSTRIAL PARK

GN MN
1°32' 27 MILS
2° 36 MILS

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

= DOMESTIC W.W.
= STORMWATER DITCH
= OUTFALLS 002, 003 & 005

Revisions shown in purple and woodland compiled in cooperation with State of Kentucky agencies from aerial photographs taken 1981 and other sources. Contours adjusted adjacent to certain photorevised hydrographic features. This information not field checked. Map edited 1982

THIS MAP COMPLIES WITH NATIONAL MAP AC
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORAI
DIVISION OF GEOLOGY AND LAN
MISSOURI DEPARTMENT OF NATURAL RESOURCI
KENTUCKY GEOLOGICAL SURVEY, LEXINGT
AND KENTUCKY DEPARTMENT OF COMMERCE, FF
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMB

ST. JUDE INDUSTRIAL PARK NPDES PERMIT MO-0098418

2020 RENEWAL - FORM B2 FOR OUTFALL #002

2019 TEST RESULTS PERFORMED BY ENVIRONMENTAL ANALYSIS SOUTH, INC.

SAMPLE DATE	AMMONIA AS N (MG/L)	KJELDAHL NITROGEN (MG/L)	NITRATE/NITRITE AS N (MG/L)	TOTAL NITROGEN (MG/L)	PHOSPHORUS (MG/L)	E-COLI (MPN/100ML)
1/23/19	34.2					
2/21/19	0.855					
3/14/19	33.2	36.7	5.05	41.8	1.86	
3/29/19	31.6	35.9	8.40	44.3	1.78	
4/15/19						42.2
6/3/19	<0.02	4.05	8.70	12.8	1.09	70.3
6/27/19	0.821	3.43	5.43	8.86	0.758	365
11/8/19	0.844				1.10	
11/11/19						48.7
11/26/19	8.29					
12/3/19	10.2	17.0	1.72	18.7		
12/30/19	16.8					
MAX	34.2	36.7	8.7	44.3	1.86	365
AVERAGE	13.68	19.42	5.86	25.29	1.32	131.55

2019 ST. JUDE INDUSTRIAL PARK OUTFALL #002 WASTEWATER DISCHARGE REPORT

DISCHARGE NUMBER: 2019-01

STOP DATE AND TIME:	03/31/2019 - 09:30 A.M.			
START DATE AND TIME:	03/14/2019 - 09:30 A.M.			
DISCHARGE TIME (HOURS):	408			
DISCHARGE TIME (DAYS - HRS/24)	17.00			
		INCHES		**FEET**
LAGOON LEVEL START:	9 ft. - 4 in.	112	**FREEBOARD START:**	0.67
LAGOON LEVEL STOP:	7 ft. - 5.0 in.	89.0	**FREEBOARD STOP:**	2.58
TOTAL DROP IN LAGOON (IN):		23		

TOTAL DISCHARGE CALCULATIONS		**GALLONS**
INFLUENT FROM MAIN LIFT STATION: AVG GPH =	7,968	3,250,944
AVG. GALLONS PER HOUR FOR MONTH TIMES NUMBER OF HOURS OF DISCHARGE		
INFLUENT FROM RAINFALL DURING DISCHARGE TIMES 733,115 GAL/INCH		491,187
RAINFALL INCHES: 0.67		
DROP IN LAGOON LEVEL - INCHES TIMES 733,115 GAL/INCH		16,861,645
TOTAL DISCHARGE (GALLONS)		20,603,776
FLOW: MILLION GALLONS/DAY: (TOTAL DISCHARGE ÷ DAYS ÷ 1,000,000)		1.21

	(3/14/19)		(3/29/19)		
	INFLUENT	**EFFLUENT**	**INFLUENT**	**EFFLUENT**	
FLOW (MGD)					
BOD (MG/L)	18.8	11.33	14.40	10.95	%
AVERAGE			16.6	11.14	32.3
TOTAL SUSPENDED SOLIDS (MG/L)	88.37	21.60	9.94	33.00	
AVERAGE			49.16	27.3	44.5
AMMONIUM AS N (MG/L)		33.20		31.60	
E.COLI					
TOTAL PHOSPHORUS (MG/L)		1.86		1.78	
AVERAGE				1.82	
TOTAL NITROGEN (MG/L)		41.80		44.30	
AVERAGE				43.05	
Ph		8.63		8.64	
D O					

2019 ST. JUDE INDUSTRIAL PARK OUTFALL #002 WASTEWATER DISCHARGE REPORT

DISCHARGE NUMBER: 2019-02

STOP DATE AND TIME:	06/30/2019 - 4:00 P.M.			
START DATE AND TIME:	06/03/2019 - 09:45 A.M.			
DISCHARGE TIME (HOURS):	654.25			
DISCHARGE TIME (DAYS - HRS/24)	27.26			
		INCHES		**FEET**
LAGOON LEVEL START:	9 ft. - 3.0 in.	111.0	**FREEBOARD START:**	0.75
LAGOON LEVEL STOP:	6 ft. -9.50 in.	81.5	**FREEBOARD STOP:**	3.21
TOTAL DROP IN LAGOON (IN):	29.5			

TOTAL DISCHARGE CALCULATIONS		**GALLONS**
INFLUENT FROM MAIN LIFT STATION: AVG GPH =	12,050	7,883,713
AVG. GALLONS PER HOUR FOR MONTH TIMES NUMBER OF HOURS OF DISCHARGE		
INFLUENT FROM RAINFALL DURING DISCHARGE TIMES 733,115 GAL/INCH		3,174,388
RAINFALL INCHES: 4.33		
DROP IN LAGOON LEVEL - INCHES TIMES 733,115 GAL/INCH		21,626,893
TOTAL DISCHARGE (GALLONS)		32,684,993
FLOW: MILLION GALLONS/DAY: (TOTAL DISCHARGE ÷ DAYS ÷ 1,000,000)		1.20

	(6/3/19)		(6/27/19)		
	INFLUENT	**EFFLUENT**	**INFLUENT**	**EFFLUENT**	
FLOW (MGD)		1.20		1.20	
BOD (MG/L)	8.58	8.37		5.88	%
AVERAGE				7.23	2.50
TOTAL SUSPENDED SOLIDS (MG/L)	12.00	27.80		17.00	%
AVERAGE				14.50	-131.67
AMMONIUM AS N (MG/L)		< 0.02		0.82	
AVERAGE				0.42	
E.COLI		70.3		365.0	
AVERAGE				217.65	
TOTAL PHOSPHORUS (MG/L)		1.09		0.758	
AVERAGE				0.9375	
TOTAL NITROGEN (MG/L)		12.80		8.86	
AVERAGE				10.83	
Ph	7.79	9.41	8.74	7.63	

2019 ST. JUDE INDUSTRIAL PARK OUTFALL #002 WASTEWATER DISCHARGE REPORT

DISCHARGE NUMBER: 2019-03

STOP DATE AND TIME:	11/30/2019 - 12:00 Midnight			
START DATE AND TIME:	11/08/2019 - 09:45 A.M.			
DISCHARGE TIME (HOURS):	542.25			
DISCHARGE TIME (DAYS - HRS/24)	22.59			
		INCHES		**FEET**
LAGOON LEVEL START:	8 ft. - 2.0 in.	98.0	**FREEBOARD START:**	1.83
LAGOON LEVEL STOP:	5 ft. -6.0 in.	66.0	**FREEBOARD STOP:**	4.50
TOTAL DROP IN LAGOON (IN):	32.0			

TOTAL DISCHARGE CALCULATIONS		**GALLONS**
INFLUENT FROM MAIN LIFT STATION: AVG GPH =	6,838	3,707,906
AVG. GALLONS PER HOUR FOR MONTH TIMES NUMBER OF HOURS OF DISCHARGE		
INFLUENT FROM RAINFALL DURING DISCHARGE TIMES 733,115 GAL/INCH		2,844,486
RAINFALL INCHES: **3.88**		
DROP IN LAGOON LEVEL - INCHES TIMES 733,115 GAL/INCH		23,459,680
TOTAL DISCHARGE (GALLONS)		30,012,072
FLOW: MILLION GALLONS/DAY: (TOTAL DISCHARGE ÷ DAYS ÷ 1,000,000)		1.33

	(11/8/19)		(11/26/19)		
	INFLUENT	**EFFLUENT**	**INFLUENT**	**EFFLUENT**	
FLOW (MGD)		1.33		1.33	
BOD (MG/L)	9.42	11.5	4.88	13.6	%
2X/MO & 1X/Q AVERAGE			7.15	12.55	-75.50
TOTAL SUSPENDED SOLIDS (MG/L)	12.00	34.00	21.0	30.77	%
2X/MO & 1X/Q AVERAGE				25.50	-131.67
AMMONIUM AS N (MG/L)		0.84		8.29	
2X/MO AVERAGE					4.57
E.COLI		48.7			48.7
AVERAGE					
TOTAL PHOSPHORUS (MG/L)		1.10			
1X/Q AVERAGE					
TOTAL NITROGEN (MG/L)					
1X/Q AVERAGE				10.83	
Ph	8.45	9.75	9.07	8.3	

2019 ST. JUDE INDUSTRIAL PARK OUTFALL #002 WASTEWATER DISCHARGE REPORT

DISCHARGE NUMBER: 2019-04

STOP DATE AND TIME:	**12/31/2019 - 13:00 P.M.**			
START DATE AND TIME:	**12/01/2019 - 0:01 A.M.**			
DISCHARGE TIME (HOURS):	**733**			
DISCHARGE TIME (DAYS - HRS/24)	**30.54**			
		INCHES		**FEET**
LAGOON LEVEL START:	**5 ft. - 6.0 in.**	**66.0**	**FREEBOARD START:**	**4.50**
LAGOON LEVEL STOP:	**2 ft. - 5.0 in.**	**31.0**	**FREEBOARD STOP:**	**7.42**
TOTAL DROP IN LAGOON (IN):	**35.0**			

TOTAL DISCHARGE CALCULATIONS		**GALLONS**
INFLUENT FROM MAIN LIFT STATION: AVG GPH =	**7,448**	**5,459,384**
AVG. GALLONS PER HOUR FOR MONTH TIMES NUMBER OF HOURS OF DISCHARGE		
INFLUENT FROM RAINFALL DURING DISCHARGE X 733,115 GAL/INCH		**2,338,637**
RAINFALL INCHES: **3.19**		
DROP IN LAGOON LEVEL - INCHES X 733,115 GAL/INCH		**25,659,025**
TOTAL DISCHARGE (GALLONS)		**33,457,046**
FLOW: MILLION GALLONS/DAY: (TOTAL DISCHARGE ÷ DAYS ÷ 1,000,000)		**1.10**

		(12/03/19)		(12/30/19)		
		INFLUENT	**EFFLUENT**	**INFLUENT**	**EFFLUENT**	
FLOW (MGD)			1.10		1.10	
BOD (MG/L)		4.71	8.08	9.25	34.6	%
2X/MO & 1X/Q	AVERAGE			13.96	21.34	-52.29
TOTAL SUSPENDED SOLIDS (MG/L)		15.40	34.50	25.0	65.85	%
2X/MO & 1X/Q	AVERAGE			20.2	50.18	-148.42
AMMONIUM AS N (MG/L)			10.20		16.80	
2X/MO	AVERAGE					13.5
E.COLI						
	AVERAGE					
TOTAL PHOSPHORUS (MG/L)			1.10			
1X/Q			12/3/2019			
TOTAL NITROGEN (MG/L)			18.70			
1X/Q						
Ph		9.19	8.56	9.07	8.3	

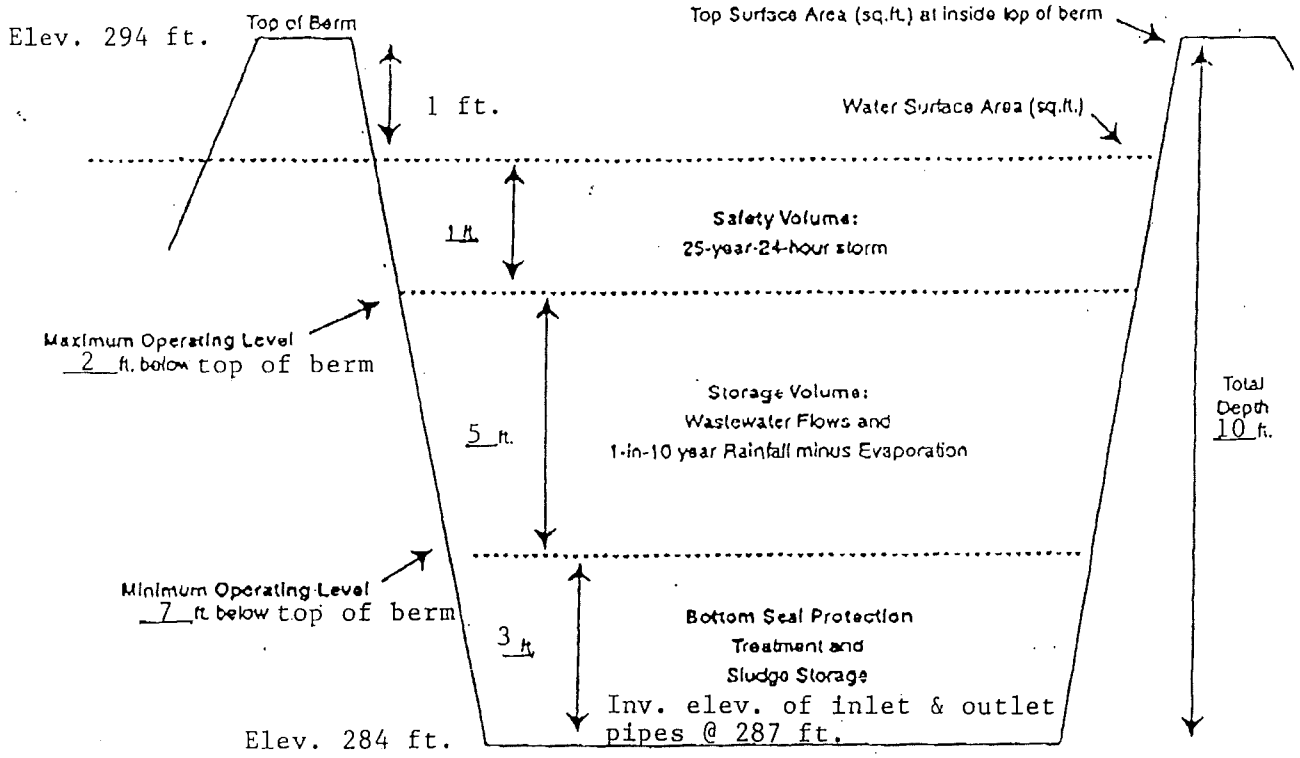
ATTACHMENT A
(To be included with Form I and Form R)

LAGOON CELL #1

Width 360 ft. X Length 360 ft. = 129,000 sq. ft. (3.0 A)
Avg. Annual influent = 81,319,425 gal = 222,793 gal./day

STORAGE VOLUME CALCULATIONS
1 in 10 yr. rainfall minus evap. = 2.7'
5.0' - 2.7' = 2.3' = 2,219,316 gal. = 10.0 days
5.0' - 1.35' (50% of 2.7') = 3.65' = 3,521,958 gal. = 16 days.

Lagoon or Storage Basin
PROFILE SKETCH



DEFINITION OF TERMS (REFER TO THE PROFILE SKETCH ABOVE).

a. Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
b. Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
c. Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
d. Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.020(15)(D). The minimum operating level may be greater than 2 feet when additional treatment volume is included.
e. Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
f. Total Depth is from top of berm to bottom of basin including freeboard.

ATTACHMENT A

(To be included with Form I and Form R)

LAGOON CELL #2

Width 360 ft. X Length 109 ft. = 39,240 sq. ft. (0.9 A)

STORAGE VOLUME CALCULATIONS

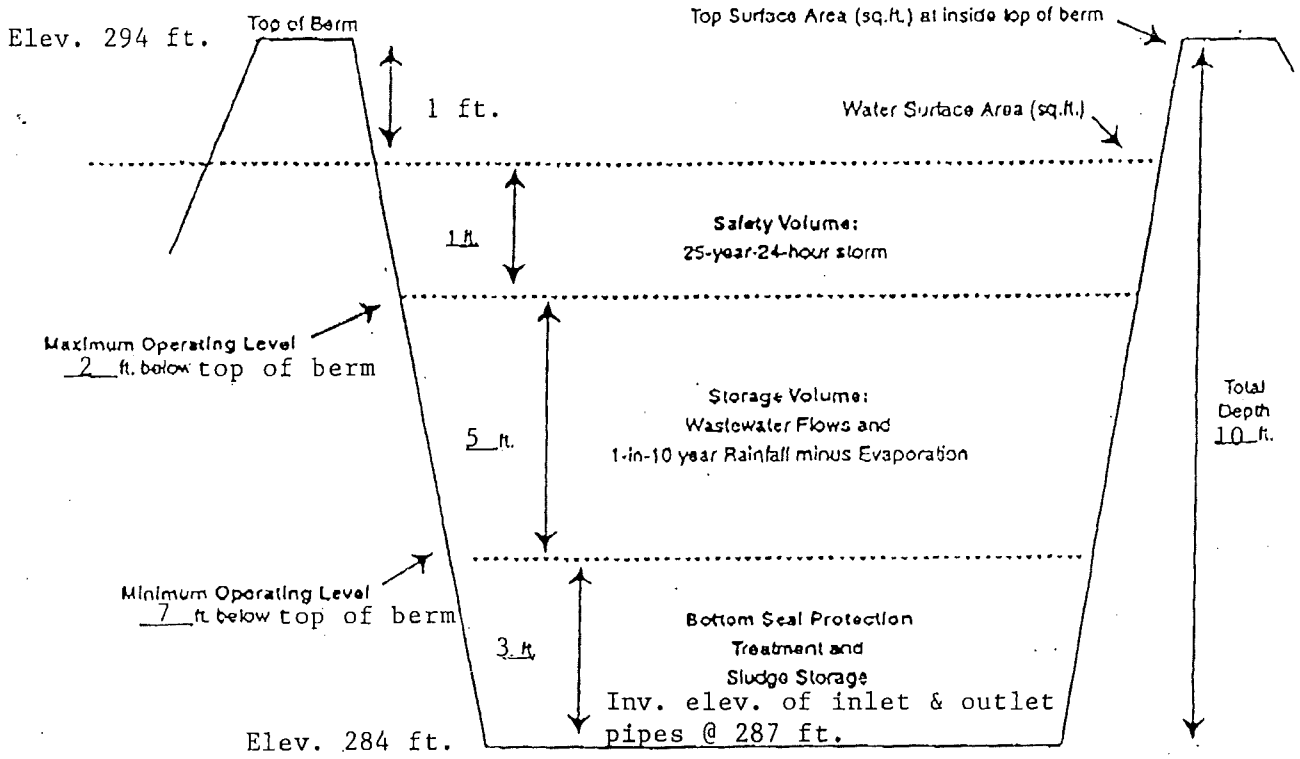
Avg. annual influent = 81,319,425 gal. = 222,793 gal./day

1 in 10 yr. rainfall minus evap. = 2.7'

a) 5.0' - 2.7' = 2.3' = 675,085 gal. = 3.0 days

b) 5.0' - 1.35' = 3.65' = 1,071,330 gal. = 5 days

Lagoon or Storage Basin
PROFILE SKETCH



DEFINITION OF TERMS (REFER TO THE PROFILE SKETCH ABOVE).

a. Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
b. Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
c. Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
d. Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.020(15)(D). The minimum operating level may be greater than 2 feet when additional treatment volume is included.
e. Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
f. Total Depth is from top of berm to bottom of basin including freeboard.

ATTACHMENT A

(To be included with Form I and Form R)

LAGOON CELL #3

Width 400 ft. X Length 980 ft. = 392,000 sq. ft. (9.0 A)

STORAGE VOLUME CALCULATIONS

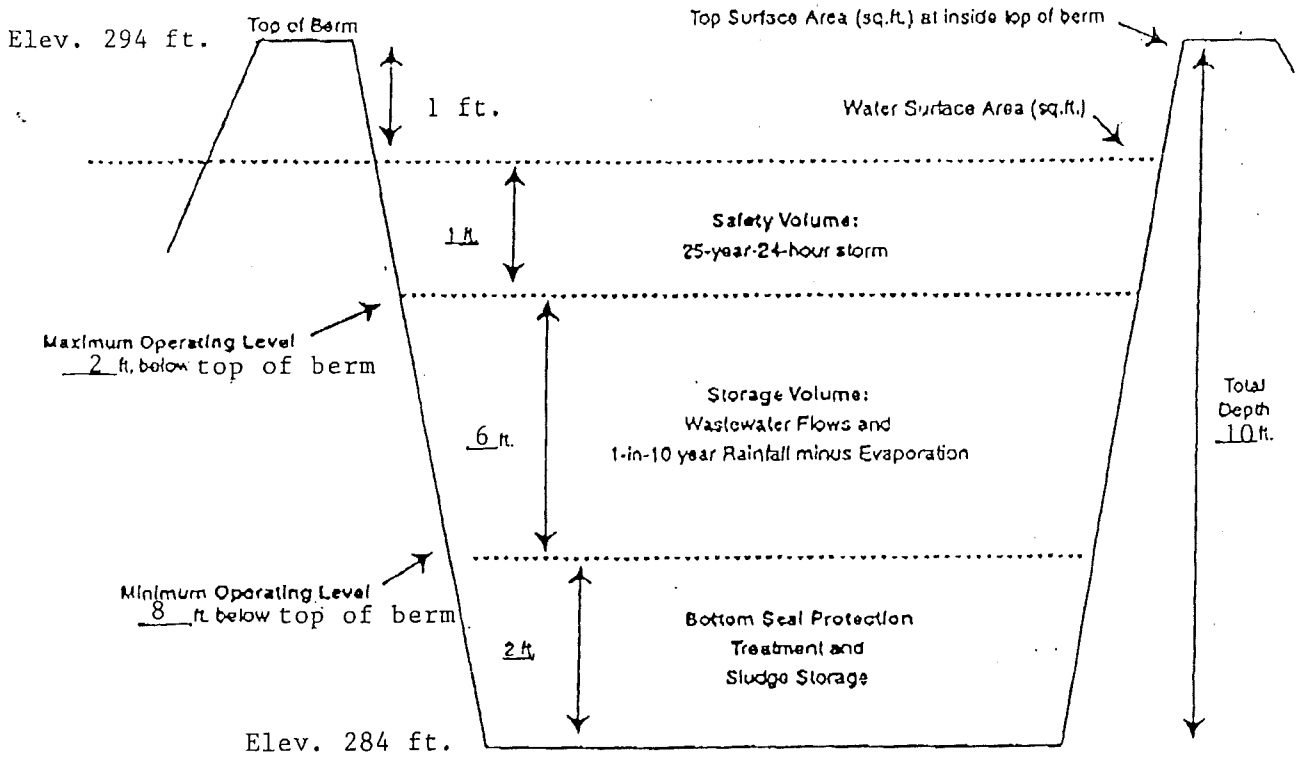
Avg. annual influent = 81,319,425 gal. = 222,793 gal./day

1 in 10 yr. rainfall minus evap. = 2.7'

a) 6.0' - 2.7' = 3.3' = 9,676,128 gal. = 43.4 days.

b) 6.0' - 1.35' (50% of 2.7') = 4.65' = 13,634,544 gal. = 61.2 days

Lagoon or Storage Basin
PROFILE SKETCH

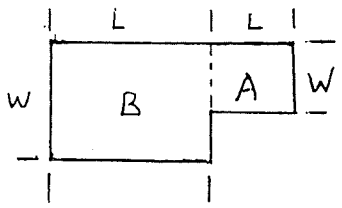


DEFINITION OF TERMS (REFER TO THE PROFILE SKETCH ABOVE).

a. Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
b. Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
c. Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
d. Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.020(15)(D). The minimum operating level may be greater than 2 feet when additional treatment volume is included.
e. Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
f. Total Depth is from top of berm to bottom of basin including freeboard.

ATTACHMENT A

(To be included with Form I and Form R)



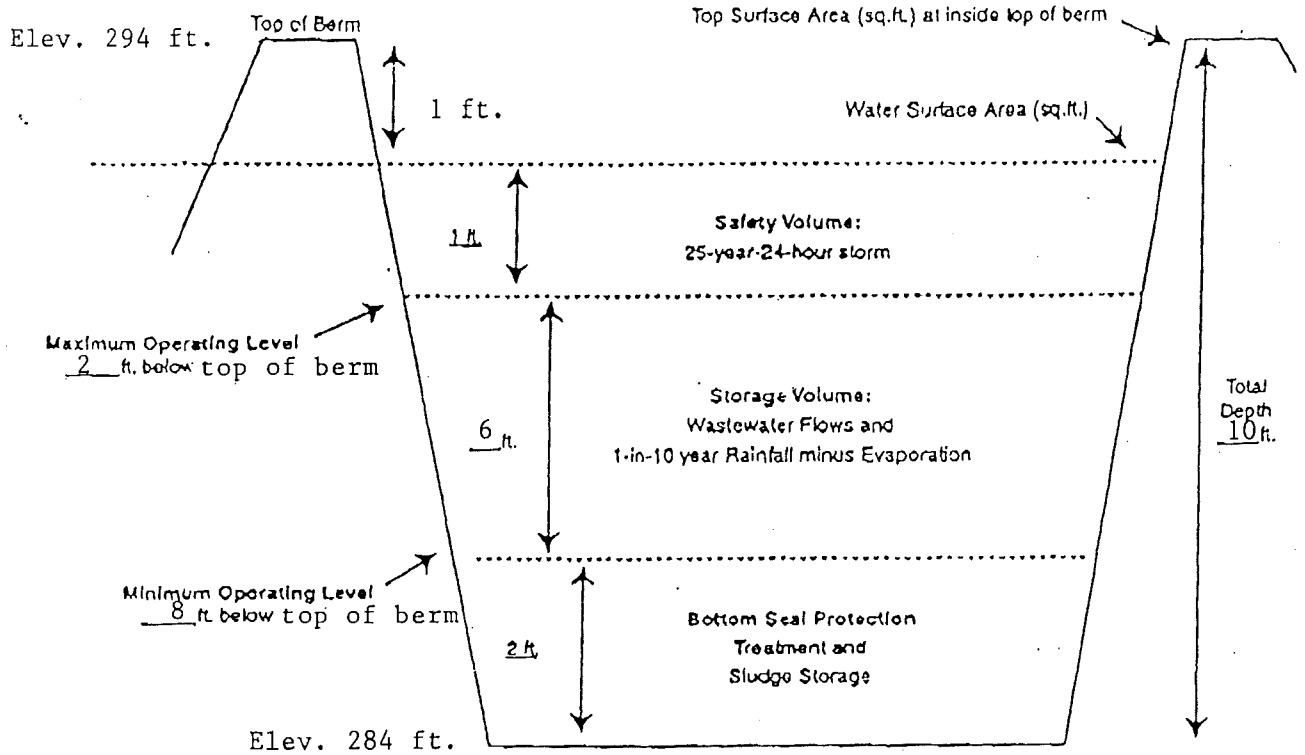
LAGOON CELL #4

Sec. A - W 380 ft. X L 460 ft. = 174,800 sq. ft.

Sec. B - W 810 ft. X L 550 ft. = 445,500 sq. ft.

TOTAL AREA = 620,300 sq. ft. (14.2 A)

Lagoon or Storage Basin
PROFILE SKETCH



STORAGE VOLUME CALCULATIONS

Avg. annual influent = 81,319,425 gal. = 222,793 gal/day

1 in 10 yr. rainfall minus evap. = 2.7 ft.

a) 6.0' - 2.7' = 3.3' = 15,311,485 gal. = 68.7 days

b) 6.0' - 1.35' (50% of 2.7') = 4.65' = 21,575,274 gal = 96.8 days

c) 6.0' - 1.62' (60% of 2.7') = 4.38' = 20,322,516 gal = 91.2 days

DEFINITION OF TERMS (REFER TO THE PROFILE SKETCH ABOVE).

a. Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
b. Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
c. Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
d. Minimum Operating Level is 2 feet above bottom of lagoon for seal protection per 10 CSR 20-8.020(15)(D). The minimum operating level may be greater than 2 feet when additional treatment volume is included.
e. Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
f. Total Depth is from top of berm to bottom of basin including freeboard.

ST. JUDE INDUSTRIAL PARK
NPDES PERMIT MO-0098418
PROGRESS REPORT FOR WASTEWATER E-COLI COMPLIANCE
JUNE 10, 2020

Per City of New Madrid, St. Jude Industrial Park NPDES Permit #MO-0098418, this is a progress report of efforts to attain compliance with the final effluent limitations for E. coli at Outfall #002 (wastewater treatment lagoons).

First

Every effort is made so there is no discharge(s) from the lagoon via Outfall #002 at any time during the "recreational" season (April 1 through October 31).

The treatment facility is designed to treat/hold and irrigate onto farmland volumes greater than actual flows. Therefore, no discharges are expected during this time period.

NOTE: DUE TO TREMENDOUS RAINFALLS IN 2019 (IN EXCESS OF 78.39 INCHES, INCLUDING A 24 HOUR TOTAL OF 6.33 INCHES) FLOODING IN MANY AREAS MADE IT NECESSARY FOR US TO DISCHARGE FROM THE LAGOONS IN MAY, JUNE, NOVEMBER AND DECEMBER. THE FARMLAND HAS BEEN WAY TOO WET AND SATURATED TO IRRIGATE AND OUR LAGOON FREEBOARD WAS LESS THAN 0.75' AT ONE POINT.

Second

Testing for E. coli at Outfall #002 has been performed six times by a certified laboratory since the beginning of the current NPDES Permit:

- 9/18/17 – less than 20 cfu/100mL
- 3/22/18 – less than 2 cfu/100mL
- 4/10/19 – 42.2 MPN/100 ml
- 6/4/19 – 70.3 cfu/100ml
- 11/11/19 – 48.7 cfu/100ml
- 5/18/20 – 135 MPN/100ml

These are all well below the final limits of a weekly average of 1,030 and a monthly average of 206.

Even though the facility is classified as "municipal" waste treatment, the influent is from industrial tenants that currently employ a total of approximately 750 personnel.

This creates an influent that is extremely "weak" when compared to normal "municipal" wastewater. This is not anticipated to change in the future.

More random testing of Outfall #002 for E. coli will be performed in the future to ensure compliance with this permit.

ST. JUDE INDUSTRIAL PARK NPDES PERMIT MO-0098418
OUTFALL #002 2019 BOD AND TOTAL SUSPENDED SOLIDS TESTING RESULTS

	LAGOON INFLUENT (CELL 1)		LAGOON EFFLUENT (CELL 4)	
	BOD5 (mg/L)	TOTAL SUSPENDED SOLIDS (mg/L)	BOD5 (mg/L)	TOTAL SUSPENDED SOLIDS (mg/L)
January	5.0	15.0	14.6	94.0
February	18.8	110.7	6.6	14.3
March	18.8/14.4	88.4/9.94	11.33/10.95	21.6/33.0
April	13.0	32.0	3.3	30.1
May	12.7	21.5	13.9	59.1
June	8.6	12.0	8.4	27.8
July	N/A	N/A	N/A	N/A
August	14.2	9.2	9.5	16.7
September	7.6	5.0	7.8	60.0
October	12.0	14.0	7.5	36.5
November	9.42/4.88	12.0/21.0	11.5/13.6	34.0/30.77
December	4.71/7.95	15.4/25.0	8.08/11.69	34.5/65.85
AVERAGE	10.85	27.94	9.91	39.87

DISCHARGE LIMITS	WEEKLY AVERAGE	65	110
	MONTHLY AVERAGE	45	70

NOTE: DUE TO VERY WEAK WASTEWATER INFLUENT, IT IS UNREASONABLE TO EXPECT A LOGOON SYSTEM TO ACHIEVE A 65% REMOVAL OF SUCH SMALL AMOUNTS OF BOD AND TOTALSUSPENDED SOLIDS. THE SYSTEM EFFLUENT LIMITS ARE EASILY ACHIEVED AND .

IT IS REQUESTED THE REQUIREMENT OF 65% REMOVAL FOR BOTH BE REMOVED FROM OUR PERMIT.

ST. JUDE INDUSTRIAL PARK
WASTEWATER TREATMENT SYSTEM DESCRIPTION
NPDES PERMIT # MO-0098418 : 2020 RENEWAL – FORMS B2 AND I
Updated 6/17/2020

General Description:
Domestic wastewater from park tenant sewers is pumped into one large stabilization lagoon (basin) that is divided into four cells. Noranda Aluminum, Inc., Associated Electric Cooperative, and New Madrid County Port/Riceland Rice effluents are pumped through forced mains via lift stations and the Water Treatment Plant effluent is pumped through a forced main via an ejector station. Lagoon (basin) effluent is distributed through three center pivot irrigators onto farmland via four pumps at the lagoon (or through a valve at out-fall #002 to drainage ditch in an emergency situation).

Lagoon (basin) Description and Form I Information:
The original lagoon consisted of two small, interconnected cells (cells one and two) and was placed into operation in 1969-1970. The effluent was discharged to Little River Ditch 69 that flows through the park. Sometime in the early to mid 1970s, a small irrigator was installed (Unit #1) and the effluent was discharged through it. Because the system was not able to handle the volume, in 1981-1982 the lagoon was greatly expanded by the addition of two more cells (cells three and four), the installation of four effluent pumps and eventually, three more irrigators (units 2, 3, & 4). Irrigator unit #1 was rendered unusable and has since been removed.
Since the expansion, influent now flows into original cell 3, then to 1, then to 2, then to 4. Lagoon effluent to irrigators is from cell 4. All cell bottoms are at elevation 284 ft. and berm tops at elevation 294 ft., or ten feet of total height. The connecting 12 inch pipes from cell 3 to cell 1, cell 1 to cell 2, and cell 2 to cell 4 have inverted elevations of 287 ft. The 12 inch pipe connecting cell 3 to cell 4 has an inverted elevation of 284 ft.

Form I:
2.1 Storage Basins

Dimensions: (Also see Attachment A for each cell)
Note: there are no emergency overflow pipes – a discharge valve at the pumping station allows for emergency discharge. All cells are ten feet deep.

Cell #1: W 360 ft. X L 360 ft. = 129,000 square ft. (3.0 acres).
Cell #2: W 360 ft. X L 109 ft. = 39,240 square ft. (0.9 acre).
Cell #3: W 400 ft. X L 980 ft. = 392,000 square ft. (9.0 acres).
Cell #4: for calculating area, use: section A: W 380 ft. X L 460 ft. = 174,800 square ft. +
section B: W 810 ft. X L 550 ft. = 445,500 square ft. = Total = 620,300 square ft. (14.24 acres)

TOTAL BASIN (LAGOON) = 1,180,540 square ft. (27.1 acres)
Freeboard for all cells is two feet below top of berm. There are no overflow pipes.

Basin Storage Volumes:

CELL	AREA (SQ. FT)	PERMANENT VOLUME (GAL)	STORAGE VOLUME (GAL)	TOTAL VOLUME (GAL)
1	129,000	3'= 2,894,760	7'= 6,754,440	9,649,200
2	39,240	3'= 880,546	7'= 2,054,606	2,935,152
3	392,000	2'= 5,864,320	8'= 23,457,280	29,321,600
4	620,300	2'= 9,279,688	8'= 37,118,752	46,398,440
LAGOON TOTAL	**1,180,540**	**18,919,314**	**69,385,078**	**88,304,392**

Operating Levels:
Maximum water level for all four cells is two feet below top of berm.
Minimum operating levels: Cells one and two = seven feet from top of berm; Cells three and four = eight feet from top of berm.

Basin design storage capacity:
See Attachment A for all four cells. Total storage volume capacity of lagoon (total volume minus freeboard, safety volume (25yr./24 hr. storm), 1 in 10 yr. rainfall minus evaporation, and bottom seal protection) is **208.8 days**, based on an annual wastewater influent of 121,291,113 gallons for 2019. Total rainfall for 2019 was 78.39 inches. The average rainfall is about 52 inches.

3. Land Application System

3.1 Lagoon effluent is to be applied to farmland via three center pivot irrigators when practical.

3.3 Specific Crops and Yields/Acre:
Row crops of soybeans and cotton are grown in the irrigated areas. Crops are rotated and planned by the farmer. Only cotton has been grown in the irrigated areas in the last few years.

CROP	YIELD GOAL	ACTUAL YIELD (AVERAGE) 2019
Cotton	1,000 Pounds/Acre	1,300 Pounds/Acre (reported by farmer

3.5 Land Application Rate Per Acre:
The pumping capacity of each of the four effluent pumps is 550 gallons per minute at 45 feet of head (total possible flow of 2,200 gpm). Each unit has an effluent valve that is used to throttle the output so there is 55 psi at the irrigator(s). A combination of pumps and throttling is used, depending on which irrigator(s) is/are in use. Each of the three irrigators is operated independently, depending on the irrigation needs of each area. All irrigators are normally operated at 100% travel and 55 psi.

At 100% travel rate, the irrigators make one revolution as follows: #2 = 6 hours/rev = 4 rev/24 hours; #3 = 17 hours/rev = 1.4 rev/24 hours; #4 = 19 hours/rev = 1.3 rev/24 hours.

The following table shows the maximum irrigator design application rates for each unit.

IRRIGATOR DESIGN FLOWS AT 55 PSI & 100% TRAVEL RATE				
IRRIG	GPM	GPH	ACRES	IN/A/HR
2	288	17,280	38.01	0.02
3	944	56,640	135.17	0.02
4	1,154	69,240	182.10	0.02
TOTAL	2,386	143,160	355.28	0.02

A 1-in-10 year storm event minus evaporation for our area is 2.7 feet X 1,180,540 square feet of basin area equals 23,821,156 gallons of water per year plus an average annual influent of 81,319,425 gallons equals 105,140,581 gallons/yr., or a maximum annual rate of 11.2 inches/acre.

3.7 Equipment Type:

There are three (3) center pivot irrigators used to distribute the lagoon effluent.

IRRIG	FLOW CAPACITY (GAL/HR @ 55 PSI)	HOURS OF OPERATION IN 2019
2	17,280 GALLONS/HR	146.4 HOURS
3	56,640 GALLONS/HR	188.8 HOURS
4	69,240 GALLONS/HR	174.0 HOURS

Soils Information:
According to the United States Department of Agriculture, Soil Conservation Service "Soil Survey of New Madrid County, Missouri" dated 1972, there are nine (9) different soil types in the areas the irrigators operate. Copies of irrigated area are attached.

SOIL TYPE	PERMEABILITY
Bosket fine sandy loam (Bta and BtB)	2.0 – 6.0 Moderate
Brosely loamy fine sand (ByA)	6.0 – 20 Moderately Rapid
Dubbs silt loam (Db)	0.6 – 2.0 Moderate
Dundee silt loam (De)	0.6 – 2.0 Moderately slow
Dundee silt clay loam (Dn)	0.2 – 0.6 Moderately slow
Forestdale silty clay loam (Ft)	0.2 – 0.6 Very slow
Gideon loam (Gd)	0.6 – 2.0 Moderately slow
Sharkey silt clay loam (Sh)	0.2 – 0.6 Very slow

Depth to bedrock is unknown. Depth to water table is estimated to be 18 to 20 feet from ground level based on depths at the water treatment plant.
Per soils survey, soil infiltration rates for most restrictive soil type, Sharkey silt clay loam (Sh) are:

0-12 inch soil depth: 0.2 – 0.6 inches/hour
12 – 24 inch soil depth: < 0.06 inches/hour
24 – 60 inch soil depth: < 0.06 inches/hour

Farm Management:
All irrigated and other farmland is owned by AECI Land2, LLC. They contract the farming operations with local farmers and assume all responsibilities of the farm program.
Wastewater irrigation is performed in cooperation with the farmer. The needs of the wastewater treatment system take priority over farming needs. Irrigation for farming is based on the need for water only. Each irrigated area can be isolated as the need arises. The irrigators are under the direct control, maintenance and operation of St. Jude Industrial Park management. When irrigating, the areas are monitored regularly by Park employees to make sure there is no run off from the field(s).
The farmer responsible for the irrigated acreage does all soil sampling and applies fertilizer, lime, etc. based on recommendations from these sample analyses. To our knowledge, there is no specific Nutrient Management Plan as such.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM I – PERMIT APPLICATION FOR OPERATION OF WASTEWATER IRRIGATION SYSTEMS

FOR AGENCY USE ONLY
PERMIT NUMBER MO -
DATE RECEIVED

INSTRUCTIONS: The following forms must be submitted with Form I: FORM B or B2 for domestic wastewater.
FORM A for industrial wastewater.

1. FACILITY INFORMATION

1.1 Facility Name
St. Jude Industrial Park Wastewater Treatment (PAGE 1-006,007)

1.2 Permit Number
MO- 0098418

1.3 Type of wastewater to be irrigated: ☑ Domestic ☐ Municipal ☐ State/National Park ☐ Seasonal business
☐ Municipal with Pretreatment Program or Significant Industrial Users ☐ Other (explain) _____

SIC Codes (list all that apply, in order of importance) 4852

1.4 Months when the business or enterprise will operate or generate wastewater:
☑ 12 months per year ☐ Part of year (list Months): ___

1.5 This system is designed for:
☑ No-discharge ☐ Partial irrigation when feasible and discharge rest of time.
☐ Irrigation during recreation season (April – October) and discharge during November – March.
☐ Other (explain) ___

1.6 List the Facility outfalls which will be applicable to the irrigation system.
Outfall Numbers: 6,7,8

2. STORAGE BASINS

2.1 Number of storage basins: 1
Type of basin: ☐ Steel ☐ Concrete ☐ Fiberglass ☑ Earthen
☐ Earthen with membrane liner

3. LAND APPLICATION SYSTEM

3.1 Number of irrigation sites 3 Total Acres 355.3
Location: SE ¼, SE ¼, NW ¼, Sec 31 T 22N R 14E New Madrid County 38.0 Acres
Location: SW ¼, NE ¼, SW ¼, Sec 31 T 22N R 14E New Madrid County 135 Acres
Attach pages as needed.

3.2 Attach a site map showing topography, storage basins, irrigation sites, property boundary, streams, wells, roads, dwellings, and other pertinent features.

3.3 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☑ Row crops ☐ Other (describe) _____

3.4 Wastewater flow (dry weather) gallons/day:
Average annual: 24.1 MG Seasonal see attac Off-season hment
Months of seasonal flow: _____

3. LAND APPLICATION SYSTEM (continued)

3.5 Land Application rate per acre (design flow including 1 in 10 year stormwater flows):

Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Total Irrigation per year (gallons): SEE ATT Design ACHED Actual

Actual months used for Irrigation (check all that apply):

☐ Jan ☐ Feb ☑ Mar ☑ Apr ☑ May ☑ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec

3.6 Land Application Rate is based on:

☐ Nutrient Management Plan (N&P)

☐ Hydraulic Loading

☑ Other (describe) WW disposal and/or farming needs - SEE ATTACHED WW DESCRIPTION FOR B2 & I

3.7 Equipment type: ☐ Sprinklers ☐ Gated pipe ☑ Center pivot ☐ Traveling gun ☐ Other (describe) _____

Equipment Flow Capacity: SEE 3.6 Gallons per hour _____ Total hours of operation per year

3.8 **Public Use Areas**. Public access shall not be allowed to public use area irrigation sites when application is occurring. Method of Public Access Restriction:

☐ Site is Fenced ☐ Wastewater disinfection prior to irrigation ☑ Site is not for public use

☐ Other (describe): _____

3.9 Separation distance (in feet) from the outside edge of the wetted irrigation area to nearby down gradient features:

NA Permanent flowing stream NA Losing Stream 2K Intermittent (wet weather) stream NA Lake or pond

100 Property boundary 2K Dwellings 2K Water supply well ____ Other (describe) _____

3.10 The facility must develop and retain an Operation and Maintenance (O&M) Plan for the irrigation system.

Date of O&M Plan: 06/17/202(

4. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment.

OWNER OR AUTHORIZED REPRESENTATIVE	OFFICIAL TITLE
Fred Turner	Manager
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE
sjipl@sjipb.com	(573) 643-2784
SIGNATURE	DATE SIGNED
Fred Turner	08/21/2020

780-1686 (08-14)

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM I – PERMIT APPLICATION FOR OPERATION OF WASTEWATER IRRIGATION SYSTEMS

FOR AGENCY USE ONLY
PERMIT NUMBER MO -
DATE RECEIVED

INSTRUCTIONS: The following forms must be submitted with Form I: FORM B or B2 for domestic wastewater.
FORM A for industrial wastewater.

1. FACILITY INFORMATION

1.1 Facility Name
St. Jude Industrial Park Wastewater Treatment (PAGE 2 - 008)

1.2 Permit Number
MO- 0098418

1.3 Type of wastewater to be irrigated: ☑ Domestic ☐ Municipal ☐ State/National Park ☐ Seasonal business
☐ Municipal with Pretreatment Program or Significant Industrial Users ☐ Other (explain) _____

SIC Codes (list all that apply, in order of importance) 4852

1.4 Months when the business or enterprise will operate or generate wastewater:
☑ 12 months per year ☐ Part of year (list Months): ___

1.5 This system is designed for:
☑ No-discharge ☐ Partial irrigation when feasible and discharge rest of time.
☐ Irrigation during recreation season (April – October) and discharge during November – March.
☐ Other (explain) ___

1.6 List the Facility outfalls which will be applicable to the irrigation system.
Outfall Numbers: 6,7,8

2. STORAGE BASINS

2.1 Number of storage basins: 1
Type of basin: ☐ Steel ☐ Concrete ☐ Fiberglass ☑ Earthen
☐ Earthen with membrane liner

3. LAND APPLICATION SYSTEM

3.1 Number of irrigation sites 3 Total Acres 355.3
Location: SW ¼, NE ¼, SE ¼, Sec 31 T 22N R 14E New Madrid County 182 Acres
Location: ___ ¼, ___ ¼, ___ ¼, Sec ___ T ___ R ___ _____ County _____ Acres
Attach pages as needed.

3.2 Attach a site map showing topography, storage basins, irrigation sites, property boundary, streams, wells, roads, dwellings, and other pertinent features.

3.3 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☑ Row crops ☐ Other (describe) _____

3.4 Wastewater flow (dry weather) gallons/day:
Average annual: 63.8 MG Seasonal _____ Off-season _____
Months of seasonal flow: _____

3. LAND APPLICATION SYSTEM (continued)

3.5 Land Application rate per acre (design flow including 1 in 10 year stormwater flows):

Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

Total Irrigation per year (gallons): SEE ATT Design CHMENT Actual

Actual months used for Irrigation (check all that apply):

☐ Jan ☐ Feb ☑ Mar ☑ Apr ☑ May ☑ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec

3.6 Land Application Rate is based on:

☐ Nutrient Management Plan (N&P)

☐ Hydraulic Loading

☑ Other (describe) WW disposal and/or farming needs - SEE ATTACHED WW DESCRIPTION FOR B2 & I

3.7 Equipment type: ☐ Sprinklers ☐ Gated pipe ☑ Center pivot ☐ Traveling gun ☐ Other (describe) _____

Equipment Flow Capacity: SEE 3.6 Gallons per hour _____ Total hours of operation per year

3.8 **Public Use Areas.** Public access shall not be allowed to public use area irrigation sites when application is occurring. Method of Public Access Restriction:

☐ Site is Fenced ☐ Wastewater disinfection prior to irrigation ☑ Site is not for public use

☐ Other (describe): _____

3.9 Separation distance (in feet) from the outside edge of the wetted irrigation area to nearby down gradient features:

N/A Permanent flowing stream N/A Losing Stream 2K Intermittent (wet weather) stream NA Lake or pond

100 Property boundary 2K Dwellings 2K Water supply well ____ Other (describe) _____

3.10 The facility must develop and retain an Operation and Maintenance (O&M) Plan for the irrigation system.

Date of O&M Plan: 06/17/202(

4. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment.

OWNER OR AUTHORIZED REPRESENTATIVE	OFFICIAL TITLE
Fred Turner	Manager
EMAIL ADDRESS	**TELEPHONE NUMBER WITH AREA CODE**
sjipl@sjipb.com	(573) 643-2784
SIGNATURE	**DATE SIGNED**
Fred Turner	08/21/2020

780-1686 (08-14)

Facility Name	ST. JUDE INDUSTRIAL PARK
Permit Number	MO0098418
County	NEW MADRID
	DUE BY JANUARY 28TH

This report covers the period of:
1/1/2019 to 12/31/2019
Page 2 of 2

LAND APPLICATION ANNUAL OPERATING REPORT (continued)

A summary of the irrigation operations including all information on the chart below and summary of testing results.

Month	Freeboard	Number of Days Irrigated	Total Gallons Irrigated	Acres Used	Crops Grown	Crop Yields per Acre	Application Rate Inches/Acre/Day	Monthly Precipitation
January	2.55	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	5.65
February	1.17	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	12.44
March	2.58	2.00	2,354,700	241.00	Cotton	Cotton: 1,300 #/A	0.18	6.39
April	2.58	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	6.51
May	1.58	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	11.89
June	3.25	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	4.33
July	3.25	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	7.47
August	3.00	4.40	12,840,000	355.28	Cotton	Cotton: 1,300 #/A	0.35	5.38
September	3.13	2.80	8,900,100	970.30	Cotton	Cotton: 1,300 #/A	0.35	0.47
October	2.83	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	8.37
November	4.50	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	6.30
December	7.42	0.00	0.00	0.00	Cotton	Cotton: 1,300 #/A	0.00	3.19
Annual Total		9.2	24,094,800				0.88	78.39

SIGNATURE AND TITLE OF AUTHORIZED INDIVIDUAL, IN ACCORDANCE WITH 10 CSR 20-6.010(2)(C)	DATE
Fred Turner - Manager	1/22/2020
PHONE NUMBER	E-MAIL ADDRESS (Optional)
(573) 643-2784	sjip1@sjipb.com

ST. JUDE INDUSTRIAL PARK MONTHLY IRRIGATOR DAILY CALCULATIONS

MONTH: MARCH, 2019

	#2 IRRIGATOR				#3 IRRIGATOR				#4 IRRIGATOR			
DATE	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY
1	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
2	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
3	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
4	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
5	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
6	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
7	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
8	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
9	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
10	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
11	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
12	10.3	16.31	169,950	0.38	10.3	58.01	556,200	0.35	0.0	0.00	-	0.00
13	23.1	36.58	381,150	0.38	23.1	130.10	1,247,400	0.35	0.0	0.00	-	0.00
14	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
15	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
16	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
17	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
18	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
19	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
20	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
21	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
22	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
23	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
24	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
25	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
26	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
27	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
28	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
29	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
30	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
31	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
	33.40	52.90	551,100	0.77	33.4	188.11	1,803,600	0.71	0.0	0.00	0.00	0.00

ST. JUDE INDUSTRIAL PARK MONTHLY IRRIGATOR DAILY CALCULATIONS

MONTH: AUGUST, 2019

	#2 IRRIGATOR				#3 IRRIGATOR				#4 IRRIGATOR			
DATE	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY
1	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
2	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
3	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
4	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
5	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
6	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
7	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
8	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
9	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
10	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
11	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
12	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
13	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
14	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
15	0	0.00	-	0.00	7.2	40.55	388,800	0.35	7.2	54.63	475,200	0.32
16	13.25	20.98	218,625	0.38	24	135.17	1,296,000	0.35	24.0	182.10	1,584,000	0.32
17	24.00	38.01	396,000	0.38	24	135.17	1,296,000	0.35	24.0	182.10	1,584,000	0.32
18	24.00	38.01	396,000	0.38	24	135.17	1,296,000	0.35	24.0	182.10	1,584,000	0.32
19	8.35	13.22	137,775	0.38	8	45.06	432,000	0.35	8.0	60.70	528,000	0.32
20	0	0.00	-	0.00	0	0.00	-	0.00	9.3	70.56	613,800	0.32
21	0	0.00	-	0.00	0	0.00	-	0.00	9.3	70.56	613,800	0.32
22	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
23	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
24	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
25	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
26	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
27	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
28	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
29	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
30	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
31	0	0.00	-	0.00	0	0.00	-	0.00	0.0	0.00	-	0.00
	69.60	110.23	1,148,400	1.53	87.2	491.12	4,708,800	1.77	105.8	802.76	6,982,800	2.24
							12,840,000					

ST. JUDE INDUSTRIAL PARK MONTHLY IRRIGATOR DAILY CALCULATIONS

MONTH: SEPTEMBER, 2019

	#2 IRRIGATOR				#3 IRRIGATOR				#4 IRRIGATOR			
DATE	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY	HOURS	ACRES	GALLONS	IN/A/DAY
1	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
2	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
3	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
4	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
5	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
6	0	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0.00	0.00
7	9.40	14.89	155,100	0.38	9.20	51.82	496,800	0.35	9.20	69.81	607,200	0.32
8	24.00	38.01	396,000	0.38	24.00	135.17	1,296,000	0.35	24.00	182.10	1,584,000	0.32
9	10.00	15.84	165,000	0.38	24.00	135.17	1,296,000	0.35	24.00	182.10	1,584,000	0.32
10	0	0.00	-	0.00	11.00	61.95	594,000	0.35	11.00	83.46	726,000	0.32
11	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0	0.00	-	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
26	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
27	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
28	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
29	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
30	0	0.00	-	0.00	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00
31	0	0.00	-	0.00	0	0.00	0.00	0.00	0	0.00	0.00	0.00
	43.40	68.73	716,100	0.38	68.2	384.11	3,682,800	0.35	68.2	517.47	4,501,200	0.32
	179.8	970.3	8,900,100	0.338								

2019 RAINFALL DATA - ST. JUDE INDUSTRIAL PARK

NPDES PERMIT # MO-0098418

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					0.17							
2					2.38							
3	0.95					0.02						
4	0.24	0.08		0.26		0.10	**2.15**					
5		0.26					0.19			0.05		
6		1.37				0.11		0.58		0.57	1.75	
7	0.07	1.23	0.12	0.05		0.10		0.77			0.67	
8					0.3							
9		0.10	1.35									
10		2.30					0.43					0.25
11		**2.51**		0.9	0.21					1.33		
12	0.25				0.18						0.45	
13	0.47		**3.45**	**2.35**								
14			0.80	0.07			0.54					
15		0.67					1.34			1.03		0.11
16	0.13	0.25					0.19					0.97
17	0.10			1.02			1.05					
18	**1.20**			1.11	0.5	**1.15**					0.02	
19	0.81	2.25		0.05	0.88	0.64						
20			0.25		0.02	0.02		0.34		0.13		
21		0.15			0.75	0.71		0.72		0.98		
22	0.88	0.28			0.17	0.12	1.23	**2.31**	0.02		**2.31**	
23		0.95				0.54						
24			0.02									
25				0.54				0.20		1.39		
26						0.82		0.46	**0.40**	**1.80**	0.26	
27							0.35		0.05			
28	0.40	0.04									0.32	**1.33**
29					**5.58**						0.09	0.53
30			0.40	0.16	0.75					1.09	0.43	
31	0.15											
	5.65	**12.44**	**6.39**	**6.51**	**11.89**	**4.33**	**7.47**	**5.38**	**0.47**	**8.37**	**6.30**	**3.19**

78.39

ST. JUDE INDUSTRIAL PARK
WASTEWATER TREATMENT OPERATIONS AND MAINTENANCE

Updated June, 2020

NOTE: THIS MANUAL IS TO BE KEPT WITH THE WASTEWATER MAINTENANCE AND REPAIR SPECIFICATION MANUAL LOCATED IN THE WASTEWATER FORMAN'S OFFICE AND THE MAIN MANAGEMENT OFFICE AND MADE AVAILABLE TO THE WASTEWATER OPERATORS AT ALL TIMES

I. DESCRIPTION:

Effluent from the Wastewater Treatment Lagoon is distributed onto 355.3 acres of farmland by three (3) center pivot irrigators. There are four (4) pumps, each rated at 550 gallons per minute at 45 feet of head, that supplies the treated wastewater from the wet well to the irrigators via underground piping. Each irrigator can be isolated to operate independently or with others by opening or closing valves in the piping system. Each pump can be operated independently or with others where pressure and flow are controlled by a discharge valve on each unit. The wastewater system is under the direct responsibility of the St. Jude Industrial Park.

II. INSPECTIONS, MAINTENANCE AND SERVICE:

A. During periods of operation, all facilities shall be regularly inspected for proper operation and to insure there is no run-off from the fields into the ditches. A minimum of three (3) inspections shall be performed during daylight operation and a minimum of one (1) inspection shall be performed during night time operation.
B. All preventive and other maintenance is performed by St. Jude Industrial Park personnel as needed. When repairs are beyond the scope of Park personnel, an outside contractor will be employed to perform such repairs.
C. All manuals, drawings and instructions for maintenance, troubleshooting, operations and service are kept in the Wastewater Foreman's office and Main Park office.
D. All services and operations to be performed per manufacturer's instructions and this plan.
E. A copy of St. Jude Industrial Park's NPDES permit is kept in the Wastewater Foreman's office and Main Park Office.

III. SYSTEM OPERATION AND LAND APPLICATION:

A. Irrigation of wastewater effluent is performed based on the following priorities:

1. Needs of the treatment facility including lagoon water level and predicted future influent.
2. Weather conditions.
3. Farming needs
4. Generally, system and farming needs coincide.

B. General Operating Guidelines:

1. Irrigator(s) shall not be operated during rainfall events or if land is muddy enough to cause rutting by the tires.
2. Irrigator(s) shall not be operated when soil is saturated to the point where run-off occurs.
3. Wastewater flows from cell #3 to #1 to #2 to #4. Water levels in cells 1,2 & 3 shall not be lower than 3 feet. Water level in lagoon cell #4 shall not be less than two (2) feet during an operating cycle. Maximum water level in lagoon is 8 feet.
4. Water quality that could cause damage to crops or cause soil instability (extremely acid or alkaline) shall not be land applied. If such conditions exist, remedies shall be applied prior to land application.
5. During growing season, consult with farmer prior to land application.
6. Normal irrigation cycle is dependent on weather conditions and farmer's needs. It is normally from the first of March through the last of November of each year. Systems are "winterized" prior to freezing weather. The system is not to be operated when the ambient temperature is below 40 degrees F.
7. There shall be no discharge through NPDES Outfall #002 to the ditch from June 1through October 31 unless there's an emergency due to precipitation exceeding a 1-in-10-year, 365 day rainfall or a 25-year, 24-hour storm event. Discharge to the ditch must be approved by the Park Manager prior to initiation.

C. Irrigator Design Application Rates:

Irrigator #2: 288 gpm @ 55 psi with travel timer at 100% = 0.018 in/acre/hr
Irrigator #3: 944 gpm @ 55 psi with travel timer at 100% = 0.016 in/acre/hr
Irrigator #4: 1,154 gpm @ 55 psi with travel timer at 100% = 0.014 in/acre/hr
Application rates must not exceed 1.0 in/acre/day or 3.0 in/acre/week or 60.0 in/acre/yr.

IV. Operating Procedures:

A. Start-up Procedure:

1. Determine which irrigator(s) will be operated. This is to be determined mutually by the Wastewater Foreman and the farmer.
2. Open the associated valve(s) in the main line to each irrigator selected.
3. Access the power panel at the center pivot of each irrigator selected for operation.
   a. Move MAIN ELECTRICAL DISCONNECT SWITCH to the "ON" position – "SYSTEM ON" indicator lamp will light and Voltmeter should indicate approximately 480 volts.
   b. Place the STOP/DIRECTION SWITCH in either the "FORWARD" or "REVERSE" position.
   c. Place the BY-PASS SWITCH in the "NORMAL" position.
   d. Set the PERCENTAGE TIMER to 100%.
   e. Press the "START" button.
   f. Close and latch the panel door.
4. Check lagoon cell #4 water level and record.
5. Enter the pump house and turn on the exhaust fan.
6. Turn the IRRIGATOR SELECTOR SWITCH on the control panel to the "ON" position.
7. Determine which pump motors will be used based on which irrigator(s) will be operated.
8. Close the MOTOR STARTER SWITCH of pump(s) selected to be operated.
9. Activate the control circuits by placing mini-power center CIRCUIT BREAKERS #1 and #2 to the "ON" position.
10. Push the "START" button on the front of the motor starter cabinet for each pump selected. The "RED" warning light above the irrigator selector switch will be on until system operating pressure is obtained. DO NOT LEAVE PUMP HOUSE UNTIL THIS LIGHT GOES OFF.
11. Record DATE, TIME and HOURMETER readings for each irrigator in operation on log sheet. HOURMETERS are on main panel on west wall of well house.
12. After system pressure becomes stable, adjust each pump EFFLUENT VALVE so main pressure is 72 psi. This should insure 55 psi at each irrigator being operated.
13. Go to each operating irrigator center pivot to insure it is running properly and record the WATER PRESSURE.
14. The number of irrigators in operation may be increased as needed. Follow this START-UP PROCEDURES for each one. Additional pumps may need to be used or output valves adjusted to meet the irrigator requirements.

B. Shut-down Procedure:

1. Enter the pump house and stop pumps by pushing on the "STOP" button on the front of the MOTOR STARTER SWITCH for each unit.
2. De-energize CONTROL CABINET by moving the MOTOR STARTER lever to "OFF".
3. Turn the IRRIGATOR CONTROL SWITCH to "OFF".
4. Turn CONTROL CIRCUIT BREAKERS 1 & 2 (located in the minipower center) to "OFF".
5. Record the DATE, TIME and HOURMETER readings of each irrigator that was in use.
6. Turn off exhaust fan and lights. Secure pump room door as you leave the building.
7. Close the main line valve(s) that feed each irrigator in use.
8. Gain access the main control panel at the center pivot of each irrigator in use.
   a. Turn the STOP/DIRECTION SWITCH to "STOP" position.
   b. Turn the MAIN DISCONNECT SWITCH to the "OFF" position.
   c. Close and secure the control panel door.

Shutdown Procedure (continued)

9. The number of irrigators in operation may be decreased as needed. Follow the SHUT-DOWN PROCEDURE for each unit. Pump(s) may need to be shut off or output valves adjusted to meet the irrigator requirements.

C. Automatic Shut-down:

1. All irrigators are designed to automatically shut down the pumps and activate a blue, flashing warning light outside of the pump building when the OVERWATERING SHUT- OFF TIMER activates due to no movement of the last tower or there is a loss of electrical power.
2. A pump failure that results in low pressure at the irrigators will automatically shut down all pumps and activate the blue, flashing warning light outside the pump building.

V. Monitoring:

Wastewater quality monitoring and analysis shall be performed and reported per the latest National Pollutant Discharge Elimination (NPDES) permit. A copy of this permit is included with the Wastewater Treatment Operations and Maintenance manual..

VII. Safety:

Personal safety is the #1 priority at St. Jude Industrial Park. All established Safe Work Practice rules in the Park's Employee Operations Manual shall be observed. The most common safety issues inherent with the wastewater system are electrical safety, water-borne pathogen safety and safety when working on mechanical moving parts.

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

FORM C – APPLICATION FOR DISCHARGE PERMIT – MANUFACTURING, COMMERCIAL, MINING, SILVICULTURE OPERATIONS, AND STORMWATER

GENERAL INFORMATION (PLEASE SEE INSTRUCTIONS)

1.0 NAME OF FACILITY

St. Jude Industrial Park - Drinking Water Treatment Plant

1.1 THIS FACILITY IS OPERATING UNDER MISSOURI STATE OPERATING PERMIT (MSOP) NUMBER:

MO - 0098418

1.2 IS THIS A NEW FACILITY? PROVIDE CONSTRUCTION PERMIT (CP) NUMBER IF APPLICABLE.

NO

1.3 Describe the nature of the business, in detail. Identify the goods and services provided by the business. Include descriptions of all raw, intermediate, final products, byproducts, or waste products used in the production or manufacturing process, stored outdoors, loaded or transferred and any other pertinent information for potential sources of wastewater or stormwater discharges.

Lime softening, iron removal ground water treatment facility to furnish potable water to industrial park tenants. Process uses pumped ground water, pebble lime, coagulant aid, CO2 and bleach. Produces a lime "sludge" that is stored in settling ponds. Pond effluent after settling is discharged to industrial park storm water ditches via NPDES Outfall #003. "Sludge" is periodically removed and stockpiled in a drying area. "Sludge" is suitable for use as a lime substitute onto farmland or as a clean fill (MO DNR Solid Waste Management Program has deemed the material satisfactory for clean fill).

FLOWS, TYPE, AND FREQUENCY

2.0 Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in item B. Construct a water balance on the line drawing by showing average and maximum flows between intakes, operations, treatment units, evaporation, public sewers, and outfalls. If a water balance cannot by determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

2.1 For each outfall (1) below, provide: (2) a description of all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, stormwater runoff, and any other process or non-process wastewater, (3) the average flow and maximum flow (put max in parentheses) contributed by each operation and the sum of those operations, (4) the treatment received by the wastewater, and (5) the treatment type code. Continue on additional sheets if necessary.

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW; INCLUDE ALL PROCESSES AND SUB PROCESSES AT EACH OUTFALL	3. AVERAGE FLOW AND (MAXIMUM FLOW), INCLUDE UNITS.	4. TREATMENT DESCRIPTION	5. TREATMENT CODES FROM TABLE A
003	Ground Water Treatment - lime softening	2019 Avg. 0.0432	Settling Ponds (series of 4)	1-U
		2019 Max. 0.1728		
Attach additional pages if necessary.				

2.2 INTERMITTENT DISCHARGES

Except for stormwater runoff, leaks, or spills, are any of the discharges described in items 2.0 or 2.1 intermittent or seasonal?

☐ Yes *(complete the following table)* ☑ No *(go to section 2.3)*

1. OUTFALL NUMBER	2. OPERATION(S) CONTRIBUTING FLOW	3. FREQUENCY		4. FLOW				C. DURATION *(in days)*
				A. FLOW RATE *(in mgd)*		B. TOTAL VOLUME (specify with units)		
		A. DAYS PER WEEK *(specify average)*	B. MONTHS PER YEAR *(specify average)*	1. MAXIMUM DAILY	2. LONG TERM AVERAGE	4. LONG TERM DAILY	3. MAXIMUM AVERAGE	

2.3 PRODUCTION

A. Does an effluent limitation guideline (ELG) promulgated by EPA under section 304 of the Clean Water Act apply to your facility? Indicate the part and subparts applicable.

☐ Yes 40 CFR_____ Subpart(s) _____ ☑ No *(go to section 2.5)*

B. Are the limitations in the effluent guideline(s) expressed in terms of production (or other measure of operation)? Describe in C below.

☐ Yes *(complete C.)* ☑ No *(go to section 2.5)*

C. If you answered "yes" to B, list the quantity representing an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline and indicate the affected outfalls.

A. OUTFALL(S)	B. QUANTITY PER DAY	C. UNITS OF MEASURE	D. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*

2.4 IMPROVEMENTS

A. Are you required by any federal, state, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ Yes *(complete the following table)* ☑ No *(go to 2.6)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
			A. REQUIRED	B. PROJECTED

B. Optional: provide below or attach additional sheets describing water pollution control programs or other environmental projects which may affect discharges. Indicate whether each program is underway or planned, and indicate actual or planned schedules for construction. This may include proposed bmp projects for stormwater.

2.5 SLUDGE MANAGEMENT

Describe the removal of any industrial or domestic biosolids or sludges generated at your facility. Include names and contact information for any haulers used. Note the frequency, volume, and methods (incineration, landfilling, composting, etc) used. See Form A for additional forms which may need to be completed.

Water treatment lime "sludge" is disposed into a series of settling ponds - is removed by St. Jude Park personnel and placed onto a drying area annually or as needed - volume varies dependent on water treated during the year - estimated 3,000 to 4,000 cubic yards of wet slurry. Dried material is available for distribution onto farmland as a lime substitute or as clean fill.

DATA COLLECTION AND REPORTING REQUIREMENTS FOR APPLICANTS

3.0 EFFLUENT (AND INTAKE) CHARACTERISTICS (SEE INSTRUCTIONS)

A. & B. See instructions before continuing – complete one Table 1 for **each outfall** (and intake) – annotate the outfall (intake) number or designation in the space provided. The facility is not required to complete intake data unless required by the department or rule.

C. Use the space below to list any pollutants listed in the instructions section 3.0 C. Table B which you know or have reason to believe is discharged or may be discharged from any outfall not listed in parts 3.0 A or B on Table 1. For every pollutant listed, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	3. OUTFALL(S)	4. ANALYTICAL RESULTS (INCLUDE UNITS)

3.1 Whole Effluent Toxicity Testing

A. To your knowledge, have any Whole Effluent Toxicity (WET) tests been performed on the facility discharges (or on receiving waters in relation to your discharge) within the last three years?

☐ Yes (go to 3.1 B) ☑ No (go to 3.2)

3.1 B

Disclose wet testing conditions, including test duration (chronic or acute), the organisms tested, and the testing results. Provide any results of toxicity identification evaluations (TIE) or toxicity reduction evaluations (TRE) if applicable. Please indicate the conclusions of the test(s) including any pollutants identified as causing toxicity and steps the facility is taking to remedy the toxicity.

3.2 CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported herein, above, or on Table 1 performed by a contract laboratory or consulting firm?

☑ Yes (list the name, address, telephone number, and pollutants analyzed by each laboratory or firm.) ☐ No *(go to 4.0)*

A. LAB NAME	B. ADDRESS	C. TELEPHONE *(area code and number)*	D. POLLUTANTS ANALYZED *(list or group)*
Environmental Analysis South	4000 East Jackson Blvd., Jackson, MO 63755	(573) 204-8817	Ammonia, TOC, COD, Magnesium, Iron, E-Coli, sulfates, chlorides and others as needed.

4.0 STORMWATER

4.1
Do you have industrial stormwater discharges from the site? If so, attach a site map outlining drainage areas served by each outfall. Indicate the following attributes within each drainage area: pavement or other impervious surfaces; buildings; outdoor storage areas; material loading and unloading areas; outdoor industrial activities; structural stormwater control measures; hazardous waste treatment, storage, and disposal units; and wells or springs in the area.

OUTFALL NUMBER	TOTAL AREA DRAINED (PROVIDE UNITS)	TYPES OF SURFACES (VEGETATED, STONE , PAVED, ETC)	BEST MANAGEMENT PRACTICES EMPLOYED; INCLUDE STRUCTURAL BMPS AND TREATMENT DESIGN FLOW FOR BMPS DESCRIBE HOW FLOW IS MEASURED

4.2 STORMWATER FLOWS
Provide the date of sampling with the flows, and how the flows were estimated.

SIGNATORY REQUIREMENTS

5.0 CERTIFICATION

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

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Fred Turner - Manager	(573) 643-2784
SIGNATURE (SEE INSTRUCTIONS) Fred Turner	DATE SIGNED 8/21/2020

SEE INSTRUCTIONS; PLEASE PRINT OR TYPE.
You may report some or all of this information on separate sheet *(use similar format)* instead of completing these pages.

FORM C TABLE 1 FOR 3.0 - ITEMS A AND B

EFFLUENT (AND INTAKE) CHARACTERISTICS — THIS OUTFALL IS: Water Treatment Plant — OUTFALL NO. 003

3.0 PART A – You must provide the results of at least one analysis for every pollutant in Part A. Complete one table for each outfall or proposed outfall. See instructions.

1. POLLUTANT	2. VALUES						3. UNITS *(specify if blank)*	
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
A. Biochemical Oxygen Demand, 5-day (BOD_5)	<2.0						1	mg/l	
B. Chemical Oxygen Demand (COD)	<5.0						1	mg/l	
C. Total Organic Carbon (TOC)	1.6						1	mg/l	
D. Total Suspended Solids (TSS)	13.5						1	mg/l	
E. Ammonia as N	<0.030						1	mg/l	
F. Flow	VALUE Est. Avg. >0.043 MGD		VALUE		VALUE			MILLIONS OF GALLONS PER DAY (MGD)	
G. Temperature *(winter)*	VALUE Low: 7.9 C		VALUE		VALUE		12	°F	
H. Temperature *(summer)*	VALUE High: 30.2 C		VALUE		VALUE		12	°F	
I. pH	MINIMUM 6.9		MAXIMUM 8.9		AVERAGE 8.3		12	STANDARD UNITS (SU)	

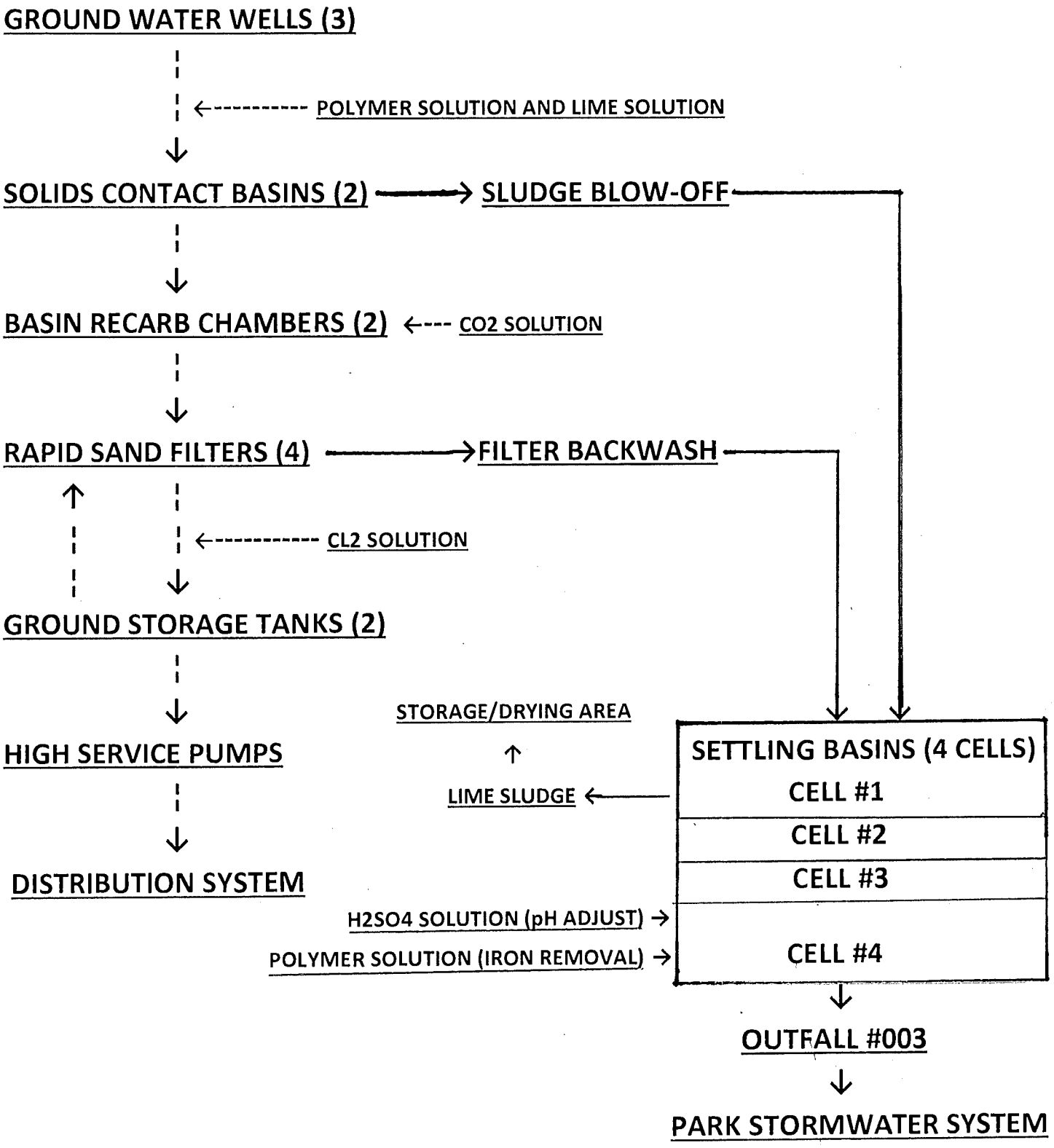
3.0 PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark Column 2A for any pollutant, you must provide the results for at least one analysis for the pollutant. Complete one table for each outfall (intake). Provide results for additional parameters not listed here in Part 3.0 C.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants											
A. Alkalinity ($CaCO_3$)		X	MINIMUM		MINIMUM		MINIMUM				
B. Bromide (24959-67-9)		X									
C. Chloride (16887-00-6)	X		23.2				16.1		12	mg/l	
D. Chlorine, Total Residual	X		20.0				10.0		12	ug/l	
E. Color		X									
F. Conductivity		X									
F. Cyanide, Amenable to Chlorination		X									

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants (Continued)											
G. *E. coli*		X									
H. Fluoride (16984-48-8)		X									
I. Nitrate plus Nitrate *(as N)*		X									
J. Kjeldahl, Total (as N)		X									
K. Nitrogen, Total Organic *(as N)*		X									
L. Oil and Grease		X									
M. Phenols, Total		X									
N. Phosphorus *(as P)*, Total (7723-14-0)		X									
O. Sulfate *(as SO^4)* (14808-79-8)	X		78				63.75		12	mg/l	
P. Sulfide *(as S)*		X									
Q. Sulfite (as SO^3) (14265-45-3)		X									
R. Surfactants		X									
S. Trihalomethanes, Total		X									
Subpart 2 – Metals											
1M. Aluminum, Total Recoverable (7429-90-5)	X		260.0				149.8		12	ug/l	
2M. Antimony, Total Recoverable (7440-36-9)		X									
3M. Arsenic, Total Recoverable (7440-38-2)		X									
4M. Barium, Total Recoverable (7440-39-3)		X									
5M. Beryllium, Total Recoverable (7440-41-7)		X									
6M. Boron, Total Recoverable (7440-42-8)		X									
7M. Cadmium, Total Recoverable (7440-43-9)		X									
8M. Chromium III Total Recoverable (16065-83-1)		X									
9M. Chromium VI, Dissolved (18540-29-9)		X									
10M. Cobalt, Total Recoverable (7440-48-4)		X									

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 2 – Metals (Continued)											
11M. Copper, Total Recoverable (7440-50-8)		X									
12M. Iron, Total Recoverable (7439-89-6)	X		775.0				543.8		12	ug/l	
13M. Lead, Total Recoverable (7439-92-1)		X									
14M. Magnesium, Total Recoverable (7439-95-4)		X									
15M. Manganese, Total Recoverable (7439-96-5)		X									
16M. Mercury, Total Recoverable (7439-97-6)		X									
17M. Methylmercury (22967926)		X									
18M. Molybdenum, Total Recoverable (7439-98-7)		X									
19M. Nickel, Total Recoverable (7440-02-0)		X									
20M. Selenium, Total Recoverable (7782-49-2)		X									
21M. Silver, Total Recoverable (7440-22-4)		X									
22M. Thallium, Total Recoverable (7440-28-0)		X									
23M. Tin, Total Recoverable (7440-31-5)		X									
24M. Titanium, Total Recoverable (7440-32-6)		X									
25M. Zinc, Total Recoverable (7440-66-6)		X									
Subpart 3 – Radioactivity											
1R. Alpha Total		X									
2R. Beta Total		X									
3R. Radium Total		X									
4R. Radium 226 plus 228 Total		X									

St. Jude Industrial Park
N.P.D.E.S. Permit MO-0098418
Flow Diagram for Outfall # 003 (Water Treatment Plant Effluent)



ST. JUDE INDUSTRIAL PARK NPDES PERMIT MO-0098418
OUTFALL #003 - WATER TREATMENT PLANT - 2019 TEST RESULTS
(AS REPORTED ON MONTHLY E-DMR REPORTS)

MONTH	TEMP (°C)	IRON (ug/l) TOTAL RECOV	CHLORIDE (mg/l) AS CL	CHLORINE (ug/l) TOTAL RESIDUAL	SULFATE (mg/l) SO4 AS S	Ph	ALUMINUM (ug/l) TOTAL RECOVERABLE	SETTLEABLE SOLIDS (ml/l)
JAN	10.2	700.0	14.0	0.0	62.0	8.51	99.0	0.1
FEB	7.9	775.0	15.2	10.0	53.0	8.53	95.0	0.1
MAR	17.1	675.0	16.0	0.0	54.0	8.90	260.0	0.1
APR	20.0	500.0	23.2	10.0	67.0	8.00	59.0	0.1
MAY	25.7	500.0	9.6	10.0	78.0	8.23	130.0	0.1
JUN	25.0	400.0	22.4	10.0	73.0	8.02	130.0	0.1
JUL	25.4	400.0	16.8	20.0	72.0	7.82	250.0	0.1
AUG	30.2	250.0	20.0	20.0	72.0	6.90	200.0	0.1
SEP	27.4	575.0	10.8	10.0	64.0	8.92	190.0	0.1
OCT	25.1	450.0	22.0	10.0	60.0	8.84	74.0	0.1
NOV	13.5	700.0	13.6	10.0	53.0	8.84	150.0	0.1
DEC	12.6	600.0	9.6	10.0	59.0	8.26	160.0	0.1
AVG	20.0	543.8	16.1	10.0	63.9	8.3	149.8	0.1
MAX	30.2	775.0	23.2	20.0	78.0	8.9	260.0	0.1
MIN	7.9	250.0	9.6	0.0	53.0	6.9	74.0	0.1

Environmental Analysis South, Inc

4000 East Jackson Blvd. - Jackson MO 63755 - 573-204-8817 - Fax 573-204-8818

Report Number: 156694

St Jude Industrial Park
P.O. Box 441
New Madrid, MO 63869

Report of Analysis

Reference: **The analysis of wastewater is conducted in accordance US EPA approved methods listed in 40 CFR Part 136. All results expressed on an as received basis unless indicated by a footnote.**

Log Number: 2507121 | Sample Description: Outfall #003 | Sample Date: 6/18/2020 | Sample Received Date: 6/18/2020

Demands

Test Description		Result	Units	Method	Comment Code	Analysis Date	Analyst
B.O.D. (5-day)	<	2	mg/L	SM-5210 B-2011		06/19/20	114
Chemical Oxygen Demand	<	5	mg/L	HACH 8000		06/22/20	133

Miscellaneous

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total Organic Carbon	1.6	mg/L	SM-5310B,C,or D-2011	IDC-Peoria	06/23/20	

Nutrients

Test Description		Result	Units	Method	Comment Code	Analysis Date	Analyst
Ammonia as Nitrogen	<	0.030	mg/L	Lachat-10-107-06-1-K		06/19/20	102

Log Number: 2507122 | Sample Description: Outfall #005 | Sample Date: 6/18/2020 | Sample Received Date: 6/18/2020

Demands

Test Description		Result	Units	Method	Comment Code	Analysis Date	Analyst
B.O.D. (5-day)		3.02	mg/L	SM-5210 B-2011		06/19/20	114
Chemical Oxygen Demand	<	5	mg/L	HACH 8000		06/22/20	133

Miscellaneous

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total Organic Carbon	5.0	mg/L	SM-5310B,C,or D-2011	IDC-Peoria	06/23/20	

ST. JUDE INDUSTRIAL PARK
WATER TREATMENT PLANT
DAILY BENCH SHEET

DATE: 6/18/20

TIME	#003			RAW FLOW "Metered" - MGD
PARAMETERS	RAW	CONTRAFLOW	DISTRIBUTION	
TEMPERATURE				
pH UNITS				
WELL #				

	P	MO	M	P	MO	M	P	MO	M	WEATHER	
ALKALINITY										HI TEMP	
	CALCIUM	TOTAL		CALCIUM	TOTAL		CALCIUM	TOTAL		LO TEMP	
HARDNESS										HUMIDITY	%
IRON (mg/l)	0.625 = 625.0 mg/l									RAIN (in)	

				Chemical Feed, Lbs/Day "Calculate From Control Logs"
MANGANESE				
MAGNESIUM				
~~CO2~~ Chloride	10.0 mg/l			Lime (lb/day)
FREE CL2				Poly (lb/day)
TOTAL CL2				CO2 (lb/day)
TURBIDITY				CL2 (lb/day)
COLOR		S.M. 19th Edition		"Calculate Dosage rate: mg/l"
T S.S. (ml/l)	13.5	(2540D)		chemical feed, lbs/day (MGD x 8.34)

	Static Level	Pumping Level	Draw Down	Specific Capacity		
Well #1					LIME (mg/l)	
Well #2					POLY (mg/l)	
Well #3					CO2 (mg/l)	
NOTES:					CL2 (mg/l)	

DISTRIBUTION SAMPLE LOCATION: Outfall #003 OPERATOR: L. W.