

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

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

Permit No. MO-0098418

Owner: City of New Madrid  
Address: 560 Mott Street, New Madrid, MO 63869

Continuing Authority: Noranda Aluminum, Inc.  
Address: P.O. Box 70, New Madrid, MO 63869

Facility Name: St. Jude Industrial Park  
Facility Address: 23 St. Jude Road, Marston, MO 62866

Legal Description: See Pages 2 & 3  
UTM Coordinates: See Pages 2 & 3

Receiving Stream: See Pages 2 & 3  
First Classified Stream and ID: See Pages 2 & 3  
USGS Basin & Sub-watershed No.: See Pages 2 & 3

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 Pages 2 & 3

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

February 1, 2014  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

December 31, 2015  
Expiration Date

John Madras, Director, Water Protection Program

**FACILITY DESCRIPTION** (continued)

Permitted Feature #002 – Industrial Park – SIC #6512

Four-cell lagoon / partial wastewater irrigation / sludge is retained in lagoon.

Design population equivalent is 8,750.

Design flow is 875,000 gallons per day.

Actual flow is 222,793 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:	Unnamed tributary to Portage Open Bay (U)
First Classified Stream and ID:	Old Channel Little River (C) (3037)
USGS Basin & Sub-watershed No.:	(08020204-0608)

**Receiving Stream Watershed:** a gaining stream setting that flows to the Mississippi River.

**Facility Type:**

No-discharge Storage and Irrigation System

**Design Basis:**

Design dry weather flows:

**Avg. Annual**

875,000 gpd

Design PE: 8,750

**Storage Basins:**

Freeboard for basins: 2.0 feet

Storage volume (minimum to maximum water levels): 69,385,078 gallons

**Storage Capacity (in Days):**

Design with 1-in 10 year flows: 173.4 days

**Land Application:**

Irrigation Volume/year: 105,140,581 gallons at design loading (including 1-in-10 year flows)

Irrigation areas: 355.28 acres at design loading

Application rates: 0.2 inch/hour; 1.0 inch/day; 3 inches/week; 24 inches/year

Field slopes: less than 2 percent

Equipment type: 3 – center pivot irrigators

Vegetation: soybeans, corn, and cotton

Application rate is based on: hydraulic loading rate

**FACILITY DESCRIPTION** (continued)

Outfall #003 – Industrial Park - SIC #4952/6512

Water treatment / settling basins/lime sludge is land applied  
Design flow is 86,400 gallons per day.  
Actual flow is 43,200 gallons per day.

Legal Description: NE ¼, NE ¼, SE ¼, Sec. 30, T22N, R14E, New Madrid County  
UTM Coordinates: X=806801, Y=4046950  
Receiving Stream: Unnamed tributary to Portage Open Bay (U)  
First Classified Stream and ID: Old Channel Little River (C) (3037)  
USGS Basin & Sub-watershed No.: (08020204-0608)

Outfall #005 – Industrial Park - SIC #4952/6512

Water Treatment Plant lime sludge storage  
Stormwater runoff  
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=806564, Y=4047254  
Receiving Stream: Unnamed tributary to Portage Open Bay (U)  
First Classified Stream and ID: Old Channel Little River (C) (3037)  
USGS Basin & Sub-watershed No.: (08020204-0608)

Permitted Feature #006– Center Pivot Land Application Field

Legal Description: SE ¼, NW ¼, Sec. 31, T22N, R14E, New Madrid County  
UTM Coordinates: X=805972, Y=4045545  
Receiving Stream: Unnamed tributary to Portage Open Bay (U)  
First Classified Stream and ID: Old Channel Little River (C) (3037)  
USGS Basin & Sub-watershed No.: (08020204-0608)

Permitted Feature #007– Center Pivot Land Application Field

Legal Description: NE ¼, SW ¼, Sec. 31, T22N, R14E, New Madrid County  
UTM Coordinates: X=805797, Y=4044944  
Receiving Stream: Unnamed tributary to Portage Open Bay (U)  
First Classified Stream and ID: Old Channel Little River (C) (3037)  
USGS Basin & Sub-watershed No.: (08020204-0608)

Permitted Feature #008– Center Pivot Land Application Field

Legal Description: Landgrant 00172, New Madrid County  
UTM Coordinates: X=806665, Y=4045021  
Receiving Stream: Unnamed tributary to Portage Open Bay (U)  
First Classified Stream and ID: Old Channel Little River (C) (3037)  
USGS Basin & Sub-watershed No.: (08020204-0608)

PERMITTED FEATURE #002	TABLE A-1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS			PAGE NUMBER 4 of 13		
				PERMIT NUMBER MO-0098418		
The permittee is authorized to conduct land application of wastewater as specified in the application for this permit. The final limitations shall become effective upon issuance and remain in effect until expiration of the permit. The land application of wastewater shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (Note 1, Page 7)	MGD	*		*	once/week	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub> (Note 1, Page 7)	mg/L		65	45	twice/month	grab
Total Suspended Solids (Note 1, Page 7)	mg/L		110	70	twice/month	grab
pH – Units (Note 1, Page 7)	SU	**		**	twice/month	grab
Ammonia as N (Note 1, Page 7) (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.6 7.5		1.4 2.9	twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>MARCH 28, 2014</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #30		once/permit cycle	grab	
<u>WET TEST</u> REPORTS SHALL BE SUBMITTED <u>ONCE / PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>BY JANUARY 28, 2016</u> .						

PERMITTED FEATURE #002	TABLE A-2. IRRIGATION SYSTEM LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to conduct land application of wastewater as specified in the application for this permit. The final limitations shall become effective upon issuance and remain in effect until expiration of the permit. The land application of wastewater shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Storage Basin Operational Monitoring (Notes 2& 3, Page 7)						
Storage Basin Freeboard (Note 4, Page 7)	feet	*			once/month	measured
Precipitation	inches	*			daily	total
Irrigated Wastewater (Notes 3 & 5)						
Total Kjeldahl Nitrogen as N (Note 6, Page 7)	mg/L	*			once/year	grab
Nitrate Nitrogen as N (Note 6, Page 7)	mg/L	*			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2015</u> .						

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

OUTFALL #003	TABLE A-3. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS			PAGE NUMBER 5 of 13		
				PERMIT NUMBER MO-0098418		
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through <b>January 31, 2015</b> . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L/hr.	1.5		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Total Residual Chlorine (Note 7, Page 7)	µg/L	*		*	once/month	grab
Iron, Total Recoverable	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE <b>MARCH 28, 2014</b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

OUTFALL #003	TABLE A-4. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <b>February 1, 2015</b> , and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L/hr.	1.0		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Total Residual Chlorine (Note 7, Page 7)	µg/L	17 (130ML)		8 (130ML)	once/month	grab
Iron, Total Recoverable	µg/L	1643		819	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE <b>MARCH 28, 2015</b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

OUTFALL #005	TABLE A-5. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 6 of 13	
					PERMIT NUMBER MO-0098418	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through <b>January 31, 2015</b> . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L/hr.	1.5		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Iron, Total Recoverable	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>MARCH 28, 2014</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

OUTFALL #005	TABLE A-6. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <b>February 1, 2015</b> , and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L/hr.	1.0		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Iron, Total Recoverable	µg/L	1643		819	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>MARCH 28, 2015</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

<b>PERMITTED FEATURES #006, #007, &amp; #008</b>	<b>TABLE A-2. IRRIGATION SYSTEM LIMITATIONS AND MONITORING REQUIREMENTS</b>				PAGE NUMBER 7 of 13	
					PERMIT NUMBER MO-0098418	
The permittee is authorized to conduct land application of wastewater as specified in the application for this permit. The final limitations shall become effective upon issuance and remain in effect until expiration of the permit. The land application of wastewater shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Land Application Operational Monitoring (Note 3)						
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2015</u> .						

\* Monitoring requirement only.

Note 1 - There shall be no discharge during June through October. During the remainder of the year, discharge may occur when excess wastewater has accumulated above irrigation needs.

Note 2 - **Partial Discharge facility requirements.** Wastewater shall be stored and land applied during suitable conditions so that there is no discharge from the storage basin or irrigation site except as permitted in Note 1. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10-year, 365-day rainfall or the 25-year, 24-hour storm event.

Note 3 - 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 using report forms approved by the Department. 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 has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed; and
- c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days of irrigation for each month, the total gallons irrigated, the total acres used, crops grown, crop yields per acre, the application rate in inches/acre per day and for the year, the monthly and annual precipitation received at the facility, and a summary of testing results for wastewater and soils.

Note 4 - Storage Basin freeboard shall be reported as Storage Basin water level for Cell #4, in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

Note 5 - Wastewater that is irrigated shall be sampled at the irrigation pump. If irrigation did not occur during the report period, report as "No Irrigation".

Note 6 - Monitor once per year during the months of March through November. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year, and the applied wastewater shall not exceed ten (10) mg/l of nitrate nitrogen as N.

Note 7 - This permit contains a Total Residual Chlorine (TRC) limit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. **Do not chemically de-chlorinate if it is not needed to meet the limits in your permit.**

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated November 1, 2013 and August 15, 1994, and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri’s current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA’s guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state’s water quality standards. States must adopt new ammonia criteria consistent with EPA’s published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources intends to adopt the new ammonia criteria during the next water quality standards triennial review. Also, refer to Section VI of this permit’s factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department’s 2013 EPA criteria Factsheet located at <http://dnr.mo.gov/pubs/pub2481.pdf>.
2. Emergency Discharge. An emergency discharge from wastewater storage structures may only occur during the months of June through October if rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) or the 24 hour, 25 year (Data taken from NRCS Urban Hydrology for Small Watersheds) rainfall events. **Discharge for any other reason shall constitute a permit violation and shall be reported in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per week while discharging. Test results are due on the 28<sup>th</sup> day of the month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Biochemical Oxygen Demand <sub>5</sub>	mg/L
Total Suspended Solids	mg/l
Ammonia as N	mg/L
pH – Units	SU

3. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri’s Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri’s list of waters of the state not fully achieving the state’s water quality standards, also called the 303(d) list.
  - (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

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

D. SPECIAL CONDITIONS (continued)

4. Water Quality Standards

- (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
- (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
  - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
  - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
  - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
  - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
  - (5) There shall be no significant human health hazard from incidental contact with the water;
  - (6) There shall be no acute toxicity to livestock or wildlife watering;
  - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
  - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

5. All permitted features must be clearly marked in the field. The permitted features and land application fields shall also be marked on the aerial or topographic site map included with the Operation and Maintenance manual.
6. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
7. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge 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; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    - (4) The level established by the Director in accordance with 40 CFR 122.44(f).
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
8. Report as no-discharge when a discharge does not occur during the report period.
  9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
  10. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.
  11. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Southeast Regional Office.
  12. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

D. SPECIAL CONDITIONS (continued)

13. A least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.
14. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
15. 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 land application systems, including key operating procedures, an aerial or topographic site map with the permitted features, land application 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. Copies of subsequent revisions shall be submitted to the Southeast Regional Office within 30 days of revision. The O&M Manual shall be reviewed and updated at least every five years.
16. An all-weather access road shall be provided to the treatment facility.
17. 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 to the berms.
18. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the storage basin(s) and to divert stormwater runoff around the storage basin(s) and protect embankments from erosion.
19. Wastewater Irrigation System.
  - (a) Discharge Reporting. Any unauthorized discharge from the storage basin(s) or irrigation system shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description, Effluent Limitations, and Special Conditions sections of this permit.
  - (b) Storage Basin Operating Levels. The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked. Each storage basin shall be operated so that the maximum water elevation does not exceed two feet below the top of the berms except due to exceedances of the 1-in-10 year, 365-day or 25-year, 24-hour storm events according to National Weather Service data. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements.
  - (c) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. Irrigation may occur during nighttime hours, provided that an operator is present to monitor the irrigation system at all times. Nighttime application includes any time between one half hour after sunset and one half hour before sunrise. The operator is to check for equipment malfunctions and runoff from the irrigation site at least once per night during the irrigation period.
  - (d) Saturated/Frozen Conditions. There shall be no irrigation during ground frost, frozen, snow covered, or saturated soil conditions, or when precipitation is imminent or occurring.
  - (e) Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling or public use areas; or 50 feet of the property line.
  - (f) Public Access Restrictions. Public access shall not be allowed to public use area irrigation sites when application is occurring.
  - (g) Irrigated Wastewater Disinfection. Wastewater shall be disinfected prior to land application (not storage) to public use areas.
  - (h) Nitrogen Loading Rates. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year, and the applied wastewater shall not exceed ten (10) mg/l of nitrate nitrogen as N. The calculation procedures are as follows:  $(\text{Total N}) \times (0.226) \times (\text{inches per acre irrigated}) = \text{pounds total N per acre}$ . Where  $\text{Total N} = [\text{Total Kjeldahl Nitrogen (TKN) as N}] + [\text{Nitrate Nitrogen as N}]$ .
  - (i) Equipment Checks during Irrigation. The irrigation system and application site shall be visually inspected at least three times per day during daytime wastewater irrigation and at least once per night during the nighttime wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.

D. SPECIAL CONDITIONS (continued)

20. Land Application Sites. To add additional land application sites or convert any of the land to public use areas, a construction permit and permit modification may be required. The facility shall contact the Department for a written determination. Additionally, the O&M Manual shall be updated to include the additional land application site(s) and a copy of the updated sections of the O&M Manual shall be submitted to the Southeast Regional Office in accordance with Special Condition #15.
21. Land application of sludge shall not exceed the most restrictive of the following criteria:
  - (a) Crop nitrogen fertilizer requirements.
  - (b) Effective Neutralizing Material (ENM) amount to raise soil pH per soil test recommendations for crop needs.
  - (c) Metal limitations in University Extension publication WQ 425, Tables 3 & 4.
  - (d) Pesticide amounts not to exceed 10 percent of the application rate on the pesticide label.
22. If the facility determines that the use of lime only chemical treatment is no longer adequate at the drinking water plant and that it needs to add a or switch to a different chemical, (aluminum sulfate, etc.) the facility shall contact the Water Protection Program for a written determination if a permit modification is needed.
23. Water treatment plant sludge land applied shall be tested at least once per year during land application periods for Total Kjeldahl Nitrogen, Arsenic, Aluminum, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, and Zinc. Also, test for any pesticides or other significant contaminants present in the raw water supply. Report all results as mg/Kg on dry weight basis.
24. Lime sludge that is land applied shall be tested at least once per year for Effective Neutralizing Material (ENM) per MU Guide G9102, Liming Missouri Soils and G9107, MO Limestone Quality: What is ENM?, published by the University of Missouri Extension Service.
25. Soil tests shall be conducted at least once per year before water treatment plant sludge application, during each year when water treatment plant sludge is to be land applied. Recommended guidance for soil testing may be found in the MU Guides G9215, Soil Sampling Pastures and G9217, Soil Sampling Hayfields and Row Crops, published by the University of Missouri Extension Service.
26. Sludge tests and soil tests shall be maintained by the permittee for at least five years.
27. Lime sludge shall not be land applied if the soil pH exceeds pH 7.5 (salt based test) or pH 8.0 (water based test).
28. Land application shall not occur within 300 feet of a well, sinkhole, or losing stream; 150 feet of dwellings; and 50 feet of the property line, drainage ditch, watercourse, or stream bank, including intermittently flowing streams.
29. An annual report shall be submitted by January 28<sup>th</sup>, and shall be for the reporting period of January 1<sup>st</sup> to December 31<sup>st</sup>. The annual report shall also contain a summary of water treatment plant sludge disposal activities, including amount of sludge generated, amount stored, amount disposed and disposal method. If water treatment plant sludge is land applied, indicate the number of acres used the application rate in dry tons/acre, the soil pH, and the pounds of ENM per ton of sludge, and sludge testing results.
30. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
002	100%	ONCE PER PERMIT CYCLE	grab	Any

Dilution Series						
100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

- (a) Test Schedule and Follow-Up Requirements
  - (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

D. SPECIAL CONDITIONS (continued)

- (i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
- (ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
- (iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
- (2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.
- (3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (4) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
  - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
  - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (5) Follow-up tests do not negate an initial failed test.
- (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the third failed test.
- (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
- (11) Submit a concise summary in tabular format of all WET test results with the report.

(b) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
- (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

D. SPECIAL CONDITIONS (continued)

- (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
- (9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

E. SCHEDULE OF COMPLIANCE

Outfall #003

The facility shall attain compliance with final effluent limitations for Settleable Solids, Total Residual Chlorine, and Total Recoverable Iron as soon as reasonably achievable or no later than **1 year** of the effective date of this permit.

1. Within **1 year** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Settleable Solids, Total Residual Chlorine, and Total Recoverable Iron.

Outfall #005

The facility shall attain compliance with final effluent limitations for Settleable Solids and Total Recoverable Iron as soon as reasonably achievable or no later than **1 year** of the effective date of this permit.

1. Within **1 year** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Settleable Solids and Total Recoverable Iron.

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

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

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

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

This Factsheet is for a Minor

**Part I – Facility Information**

Facility Type: Industrial Park – SIC #6512

Facility Description:

Four-cell storage lagoon/wastewater irrigation/sludge is retained in lagoon. Water treatment/settling basins/lime sludge is land applied. Water Treatment Plant lime sludge storage

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

- No.

Application Date: 01/13/2012

Expiration Date: 05/17/2012

**PERMITTED FEATURE(S) TABLE:**

PERMITTED FEATURE	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#002	1.4	Land Application	Domestic
#003	0.1	Storage Basin	Industrial
#005	0.9	BMPs	Industrial Stormwater

Facility Performance History:

The facility failed to submit Oil & Grease on the 2<sup>nd</sup> Quarter 2008 Discharge Monitoring Report. This facility was last inspected on December 22, 2009. The conditions of the facility at the time of inspection were found to be satisfactory.

**Part II – Operator Certification Requirements**

Not Applicable ; This facility is not required to have a certified operator.

**Part III– Operational Monitoring**

As per [10 CSR 20-9.010(4)], the facility is not required to conduct operational monitoring.

**Part IV – Receiving Stream Information**

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1<sup>st</sup> classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

**RECEIVING STREAM(S) TABLE:**

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Unnamed tributary to Portage Open Bay	U	NA	General Criteria	08020204-0608	~15
Old Channel Little River	C	3037	LWW, AQL, WBC-B		

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

\*\* - Ecological Drainage Unit

**RECEIVING STREAM(S) LOW-FLOW VALUES:**

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to Portage Open Bay	-	-	-

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

\*\* - Ecological Drainage Unit

**RECEIVING STREAM MONITORING REQUIREMENTS:**

No receiving water monitoring requirements recommended at this time.

Receiving Water Body's Water Quality

A stream survey was conducted on the Old Channel Litter River in June 2010 and no impacts were observed.

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

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

Not Applicable ; The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

**ANTI-BACKSLIDING:**

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

- All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

**ANTIDEGRADATION:**

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

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

**AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**

As per [10 CSR 20-6.010(3)(B)], ... An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

**BIOSOLIDS & SEWAGE SLUDGE:**

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

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Permittee is not authorized to land apply biosolids. Sludge/biosolids are removed by contract hauler, incinerated, stored in the lagoon, etc. The permittee must submit a sludge management plan for approval that details removal and disposal plans when sludge is to be removed from the lagoon basins.

**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 permittee/facility is not currently under Water Protection Program enforcement action.

**PRETREATMENT PROGRAM:**

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

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

**REASONABLE POTENTIAL ANALYSIS (RPA):**

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

Not Applicable ; A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**

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

Not Applicable ; Influent monitoring is not being required to determine percent removal.

**SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):**

Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

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

Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- Not applicable. This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable ; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The facility has been given a schedule of compliance to meet final effluent limits. The facility was given a one (1) year schedule of compliance to meet final effluent limitations at Outfall #003 for Settleable Solids, Total Residual Chlorine, and Total Recoverable Iron and at Outfall #005 for Settleable Solids and Total Recoverable Iron.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water 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.

Not Applicable ; At this time, the permittee is not required to develop and implement a SWPPP.

**VARIANCE:**

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

Not Applicable ; This operating permit is not drafted under premises of a petition for variance.

**WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:**

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Not Applicable ; Wasteload allocations were not calculated.

**WLA MODELING:**

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

Not Applicable ; A WLA study was either not submitted or determined not applicable by Department staff.

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

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

Applicable ; Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- Facility is a municipality or domestic discharger with a Design Flow  $\geq$  22,500 gpd.
- Other – please justify.

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Not Applicable ; This facility does not anticipate bypassing.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

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

Not Applicable ; This facility does not discharge to a 303(d) listed stream.

## Part VI – Permit Limits Determination

### APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Losing [10 CSR 20-7.015(4)]:
- Metropolitan No-Discharge [10 CSR 20-7.015(5)]:
- Special Stream [10 CSR 20-7.015(6)]:
- Subsurface Water [10 CSR 20-7.015(7)]:
- All Other Waters [10 CSR 20-7.015(8)]:

### PERMITTED FEATURE #002 – MAIN FACILITY OUTFALL

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

### EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*		*	NO	*/*
BOD <sub>5</sub>	mg/L	1, 4		65	45	NO	65/45
TSS	mg/L	1, 4		110	70	NO	110/70
pH	SU	1, 4	6.5 – 9.0			YES	6.0 – 9.0
Ammonia as N (April 1 – Sept 30)	mg/L	2, 3, 5	3.6		1.4	YES	*/*
Ammonia as N (Oct 1 – March 31)	mg/L	2, 3, 5	7.5		2.9	YES	*/*
Whole Effluent Toxicity (WET) Test	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				

\* - Monitoring requirement only

#### Basis for Limitations Codes:

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 7. Antidegradation Policy          |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgment      |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET test Policy                |
| 6. Dissolved Oxygen Policy               |                                    |

### PERMITTED FEATURE #002 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD<sub>5</sub>).**

- Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

- **Total Suspended Solids (TSS).**

- Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

- **pH.** Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

Summer: April 1 – September 30

Chronic WLA:  $C_e = ((1.35 + 0.0)1.5 - (0.0 * 0.01))/1.35$   
 $C_e = 1.5 \text{ mg/L}$

Acute WLA:  $C_e = ((1.35 + 0.0)12.1 - (0.0 * 0.01))/1.35$   
 $C_e = 12.1 \text{ mg/L}$

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

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 1.17 mg/L (3.11) = 3.6 mg/L  
 AML = 1.17 mg/L (1.19) = 1.4 mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 95<sup>th</sup> Percentile, n=30]

Winter: October 1 – March 31

Chronic WLA:  $C_e = ((1.35 + 0.0)3.1 - (0.0 * 0.01))/1.35$   
 $C_e = 3.1 \text{ mg/L}$

Acute WLA:  $C_e = ((1.35 + 0.0)12.1 - (0.0 * 0.01))/1.35$   
 $C_e = 12.1 \text{ mg/L}$

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

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 2.42 mg/L (3.11) = 7.5 mg/L  
 AML = 2.42 mg/L (1.19) = 2.9 mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 95<sup>th</sup> Percentile, n=30]

- **Temperature.** This parameter was removed as it did no show a reasonable potential to violate WQS.
- **Oil & Grease.** This parameter was removed as it did no show a reasonable potential to violate WQS.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the Department’s Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.
  - Acute
  - No less than ONCE/PERMIT CYCLE:
    - Municipality or domestic facility with a design flow  $\geq 22,500$  gpd, but less than 1.0 MGD.
    - Other, please justify.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/week	once/month
BOD <sub>5</sub>	twice/month	once/month
TSS	twice/month	once/month
pH	twice/month	once/month
Ammonia as N	twice/month	once/month

**Sampling Frequency Justification:**

The Reporting Frequency was retained from previous permit. The sampling frequency was changed to once per week for flow as the facility is only allowed to discharge during the months of November to May. The BOD, TSS, pH, and Ammonia frequencies were increased to twice per month as per 10 CSR 20-7.015(8)(B)1. which requires at a minimum one (1) wastewater sample per year for each 50,000 gpd of effluent ( $875000/50,000=17.5$ ,  $17.5/12=1.5$  per month, therefore twice per month meets the requirements of the regulation).

**Sampling Type Justification**

As per 10 CSR 20-7.015, BOD<sub>5</sub>, TSS and WET test samples collected for lagoons may be grab samples. Grab samples must be collected for pH and Ammonia as N. This is due to the volatility of Ammonia and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia samples must be immediately preserved with acid, therefore these samples are to be collected as a grab. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(A) 2.

**PERMITTED FEATURE #002 – STORAGE BASIN**

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

**OPERATIONAL MONITORING TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Freeboard	feet	1	*			No	*
Precipitation	inches	1	*			No	*
Total Kjeldahl Nitrogen	mg/L	1	*			Yes	**
Nitrate Nitrogen as N	mg/L	1	*			Yes	**
Monitoring Frequency	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

**PERMITTED FEATURE #002 – DERIVATION AND DISCUSSION OF LIMITS:**

- **Freeboard.** Monitoring requirement only.
- **Precipitation.** Monitoring requirement only.
- **Total Kjeldahl Nitrogen.** Monitoring requirement only. Monitoring for Total Kjeldahl Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Nitrate Nitrogen as N.** Monitoring requirement only. Monitoring for Nitrate Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]

**Sampling Frequency Justification:**

The Sampling and Reporting Frequency was retained from previous permit.

**PERMITTED FEATURES #006, #007, & #008 – IRRIGATION FIELDS**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Irrigation Period	hours	1	*			No	*
Volume Irrigated	gallons	1	*			No	*
Application Area	acres	1	*			No	*
Application Rate	inches	1	*			No	*
Total Kjeldahl Nitrogen	mg/L	1	*			Yes	**
Nitrate Nitrogen as N	mg/L	1	*			Yes	**
Monitoring Frequency	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

\* - Monitoring requirement only.

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

**Basis for Limitations Codes:**

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 7. Antidegradation Policy          |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgment      |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET Test Policy                |
| 6. Antidegradation Review                |                                    |

- **Irrigation Period.** Monitoring requirement only. Monitoring for the Irrigation Period is included to determine if proper application is occurring on the land application fields.
- **Volume Irrigated.** Monitoring requirement only. Monitoring for the Volume Irrigated is included to determine if proper application is occurring on the land application fields.
- **Application Area.** Monitoring requirement only. Monitoring for the Application Area is included to determine if proper application is occurring on the land application fields.
- **Application Rate.** Monitoring requirement only. Monitoring for the Application Rate is included to determine if proper application is occurring on the land application fields.

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Irrigation Period	once/day	once/year
Volume Irrigated	once/day	once/year
Application Area	once/day	once/year
Application Rate	once/day	once/year
Total Kjeldahl Nitrogen	once/year	once/year
Nitrate Nitrogen as N	once/year	once/year

**Sampling Frequency Justification:**

The Sampling and Reporting Frequency was retained from previous permit except for TKN and Nitrate which were set at annually to provide information regarding nitrogen application to the fields.

**PERMITTED FEATURE #003 – WATER TREATMENT PLANT SETTLING BASIN**

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

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*		*	NO	*/*
Settleable Solid (Interim)	mL/L/hr.	9	1.5		1.0	NO	1.5/1.0
Settleable Solid (Final)	mL/L/hr.	9	1.0		1.0	YES	1.5/1.0
pH	SU	1	6.5 – 9.0			YES	≥ 6.0
TRC (Interim)	µg/L	2, 3, 5	*		*	YES	**
TRC (Final)	µg/L	2, 3, 5	17		8	YES	*/*
Iron, TR (Interim)	µg/L	2, 3, 5	*		*	YES	*/*
Iron, TR (Final)	µg/L	2, 3, 5	1643		819	YES	*/*

\* - Monitoring requirement only

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

**Basis for Limitations Codes:**

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law     | 7. Antidegradation Policy          |
| 2. Water Quality Standard              | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment      |
| 4. Lagoon Policy                       | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                      | 11. WET test Policy                |
| 6. Dissolved Oxygen Policy             |                                    |

**PERMITTED FEATURE #003 – DERIVATION AND DISCUSSION OF LIMITS:**

- Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- Settleable Solids (SS).**  
 – Effluent limitations were obtained from the MO-G64 Master General Template for Water Treatment Plants.
- pH.** Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA:  $C_c = ((0.13 + 0.0)10 - (0.0 * 0.0))/0.13$   
 $C_c = 10 \mu\text{g/L}$

Acute WLA:  $C_c = ((0.13 + 0.0)19 - (0.0 * 0.0))/0.13$   
 $C_c = 19 \mu\text{g/L}$

$LTA_c = 10 (0.527) = 5.3 \mu\text{g/L}$   
 $LTA_a = 19 (0.321) = 6.1 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 5.3 (3.11) = 17 µg/L  
 AML = 5.3 (1.55) = 8 µg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

- **Iron, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 1,000 µg/L.

Chronic WLA:  $C_e = ((0.13 + 0.0)1000 - (0.0 * 0.0))/0.13$   
 $C_e = 1000 \mu\text{g/L}$

$LTA_c = 1000 (0.52743) = 527.43 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]

$MDL = 527.43 (3.1145) = 1642.7 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]

$AML = 527.43 (1.5524) = 818.8 \mu\text{g/L}$

[CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/month	once/month
SS	once/month	once/month
pH	once/month	once/month
TRC	once/month	once/month
Iron, TR	once/month	once/month

**Sampling Frequency Justification:**

The sampling and reporting frequency was increased to monthly. The more frequent sampling will provide the Department adequate data to determine if violations of the Missouri Water Quality Standards exist.

**Sampling Type Justification**

Grab samples must be collected for pH and TRC. This is due to the fact that pH and TRC cannot be preserved and must be sampled in the field. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(A) 2.

**PERMITTED FEATURE #005 – WATER TREATMENT PLANT LIME SLUDGE STORAGE**

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

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*		*	NO	*/*
Settleable Solid (Interim)	mL/L/hr.	9	1.5		1.0	NO	1.5/1.0
Settleable Solid (Final)	mL/L/hr.	9	1.0		1.0	YES	1.5/1.0
pH	SU	1	6.5 – 9.0			YES	≥ 6.0
Iron, TR (Interim)	µg/L	2, 3, 5	*		*	YES	*/*
Iron, TR (Final)	µg/L	2, 3, 5	1643		819	YES	*/*

\* - Monitoring requirement only

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

**Basis for Limitations Codes:**

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law     | 7. Antidegradation Policy          |
| 2. Water Quality Standard              | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment      |
| 4. Lagoon Policy                       | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                      | 11. WET test Policy                |
| 6. Dissolved Oxygen Policy             |                                    |

**PERMITTED FEATURE #005 – DERIVATION AND DISCUSSION OF LIMITS:**

- Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- Settleable Solids (SS).**
  - Effluent limitations were obtained from the MO-G64 Master General Template for Water Treatment Plants.
- pH.** Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- Iron, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 1,000 µg/L.

Chronic WLA:  $C_e = ((0.13 + 0.0)1000 - (0.0 * 0.0))/0.13$   
 $C_e = 1000 \mu\text{g/L}$

$LTA_c = 1000 (0.52743) = 527.43 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]

$MDL = 527.43 (3.1145) = 1642.7 \mu\text{g/L}$

[CV = 0.6, 99<sup>th</sup> Percentile]

$AML = 527.43 (1.5524) = 818.8 \mu\text{g/L}$

[CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

**Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/month	once/month
SS	once/month	once/month
pH	once/month	once/month
Iron, TR	once/month	once/month

**Sampling Frequency Justification:**

The sampling and reporting frequency was increased to monthly. The more frequent sampling will provide the Department adequate data to determine if violations of the Missouri Water Quality Standards exist.

**Sampling Type Justification**

Grab samples must be collected for pH. This is due to the fact that pH cannot be preserved and must be sampled in the field. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(A) 2.

## **Part VII –2013 Water Quality Criteria for Ammonia**

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

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels. Missouri is home to 65 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective if young mussels may be present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the standards. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.), as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

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

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

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Typical effluent limits for ammonia for a facility in a location such as this, under current regulations, with no mixing available, would be:

Summer – 3.6 mg/L daily maximum, 1.4 mg/L monthly average.

Winter – 7.5 mg/L daily maximum, 2.9 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, your estimated effluent limitations will be:

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

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

Actual effluent limits will depend in part on the actual performance of the facility.

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

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

## **Part VIII – Finding of Affordability**

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

Not Applicable; The Department is not required to determine findings of affordability because the facility is not a **combined or separate sanitary sewer system for a publically-owned treatment works.**

## **Part IX – Administrative Requirements**

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

### **PERMIT SYNCHRONIZATION:**

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

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

The Public Notice period for this operating permit was from October 11<sup>th</sup> to November 11<sup>th</sup>, 2013. No comments were received.

**DATE OF FACT SHEET:** OCTOBER 7, 2013

### **COMPLETED BY:**

**BRANT FARRIS, ENVIRONMENTAL SPECIALIST III**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT**  
**(660) 385-8061**  
**[brant.farris@dnr.mo.gov](mailto:brant.farris@dnr.mo.gov)**

### Map of Facility





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

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(a)(1);
    - 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. **Twenty-Four Hour Reporting.**
  - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
    - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
    - ii. Any upset which exceeds any effluent limitation in the permit.
    - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
  - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
- a. **Twenty-Four Hour (24-Hour) Reporting.** The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. 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 incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
  - b. **Incidents Reported via Discharge Monitoring Reports (DMRs).** The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.
4. **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.
5. **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.
6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
7. **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.
8. **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 28<sup>th</sup> 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.
  - 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.



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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.



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

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**PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES**

**SECTION A – GENERAL REQUIREMENTS**

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation and incorporates applicable federal sludge disposal requirements under 40 CFR 503. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFS 503 until such time as Missouri is delegated the new EPA sludge program. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Sludge and Biosolids Use and Disposal Practices.
  - a. Permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
  - b. Permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
  - c. Permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
  - d. A separate operating permit is required for each operating location where sludge or biosolids are generated, stored, treated, or disposed, unless specifically exempted in this permit or in 10 CSR 20, Chapter 6 regulations. For land application, see section H, subsection 3 of these standard conditions.
4. Sludge Received From Other Facilities
  - a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
  - b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge.
  - c. Sludge received from out-of-state generators shall receive prior approval of the permitting authority and shall be listed in the facility description or special conditions section of the permit.
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after du process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RsMo.
8. In addition to the STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of this permit.
9. Alternate Limits in Site Specific Permit.

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

  - a. An individual permit must be obtained for each operating location, including application sites.
  - b. To request a site specific permit, an individual permit application, permit fees, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the department, as follows:
  - a. The department will prepare a permit modification and follow permit public notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owners of property located adjacent to each land application site, where appropriate.
  - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.
11. Compliance Period  
Compliance shall be achieved as expeditiously as possible but no later than the compliance dates under 40 CFR 503.2.

## **SECTION B – DEFINITIONS**

1. Biosolids means an organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge. Untreated sludge or sludge that does not conform to the pollutants and pathogen treatment requirements in this permit is not considered biosolids.
2. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
3. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
4. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. 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 public owned treatment works (POTW) or privately owned facility.
6. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include unaerated wastewater treatment lagoons and constructed wetlands for wastewater treatment.
7. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
8. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the next growing season after biosolids application.
9. Sinkhole is a depression in the land surface into which surface water flows to join an underground drainage system.
10. Site Specific Permit is a permit that has alternate limits developed to address specific site conditions for each land application site or storage site.
11. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks.
12. Sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
13. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas. Wetlands do not include constructed wetlands used for wastewater treatment.

## **SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES**

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

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

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the department; or the hauler transports the sludge to another permitted treatment facility.
3. The permittee shall require documentation from the contractor of the disposal methods used and permits obtained by the contractor.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility.

## **SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS**

1. Sludge that is retained within a wastewater treatment lagoon is subject to sludge disposal requirements when the sludge is removed from the lagoon or when the lagoon ceases to receive and treat wastewater.
2. If sludge is removed during the year, an annual sludge report must be submitted.
3. Storm water retention basins or other earthen basins, which have been used as sludge storage for a mechanical treatment system is considered a sludge lagoon and must comply with Section G of this permit.

## **SECTION F – INCINERATION OF SLUDGE**

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

## **SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS**

1. Surface disposal sites shall comply with the requirements in 40 CFR 503 Subpart C, and solid waste disposal regulations under 10 CSR 80.
2. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions section of this permit.
3. Effective February 19, 1995, a sludge lagoon that has been in use for more than two years without removal of accumulated sludge, or that has not been properly closed shall comply with one of the following options:
  - a. Permittee shall obtain a site specific permit to address surface disposal requirements under 40 CFR 503, ground water quality regulations under 10 CSR 20, Chapter 7 and 8, and solid waste management regulations under 10 CSR 80;
  - b. Permittee shall clean out the sludge lagoon to remove any sludge over two years old and shall continue to remove accumulated sludge at least every two years or an alternate schedule approved under 40 CFR 503.20(b). In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of sludge on the bottom of the lagoon, upon prior approval of the department; or
  - c. Permittee shall close the lagoon in accordance with Section 1.

## **SECTION H – LAND APPLICATION**

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the Facility Description or special conditions section of the permit.
2. This permit replaces and terminates all previous sludge management plan approvals by the department for land application of sludge or biosolids.
3. Land application sites within a 20 mile radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless a site specific permit is required under Section A, Subsection 9.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
  - a. This permit does not authorize the land application of sludge except when sludge meets the definition of biosolids.
  - b. This permit authorizes “Class A or B” biosolids derived from domestic wastewater sludges to be land applied onto grass land, crop land, timber land or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
5. Public Contact Sites.  
Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the department. Applications for approval shall be in the form of an engineering report and shall address priority pollutants and dioxin concentrations. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site-specific permit.

6. Agricultural and Silvicultural Sites.

In addition to specified conditions herein, this permit is subject to the attached Water Quality Guides numbers WQ 422 through 426 published by the University of Missouri, and hereby incorporated as though fully set forth herein. The guide topics are as follows:

WQ 422	Land Application of Septage
WQ 423	Monitoring Requirements for Biosolids Land Application
WQ 424	Biosolids Standards for Pathogens and Vectors
WQ 425	Biosolids Standards for Metals and Other Trace Substances
WQ 426	Best Management Practices for Biosolids Land Applications

### SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids, and ash. Permittee must maintain this permit until the facility is properly closed per 10 CSR 20-6.010 and 10 CSR 20-6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure shall not exceed the agricultural loading rates as follows:
  - a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
  - b. If a wastewater treatment lagoon has been in operation for 15 years or more, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. See WQ 423 and 424.
  - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works” definition. See WQ 422. 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 the 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 more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

### SECTION J – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed.
2. Testing for land application is listed under Section H, Subsection 6 of these standard conditions (see WQ 423). Once per year is the minimum test frequency. Additional testing shall be performed for each 100 dry tons of sludge generated or stored during the year.
3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the department.
4. Monitoring requirements shall be performed in accordance with, “POTW Sludge Sampling and Analysis Guidance Document”, United States Environmental Protection Agency, August 1989, and subsequent revisions.

## 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 these Standard Conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting Period
  - a. By January 28<sup>th</sup> of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
  - b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. Report shall be submitted as follows:  
Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the department and EPA. Other facilities need to report only to the department. Reports shall be submitted to the addresses listed as follows:

DNR regional office listed in your permit  
(See cover letter of permit)

EPA Region VII  
Water Compliance Branch (WACM)  
Sludge Coordinator  
901 N 5<sup>th</sup> Street  
Kansas City, KS 66101

5. Annual Report Contents. The annual report shall include the following:
  - a. Sludge/biosolids testing performed. Include a copy or summary of all test results, even if not required by this permit.
  - b. Sludge or Biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at end of year, and the quantity used or disposed.
  - c. Gallons and % solids data used to calculate the dry ton amounts.
  - d. Description of any unusual operating conditions.
  - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
    - (1) This must include the name, address and permit number for the hauler and the sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name and permit number of that facility.
    - (2) Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
  - f. Contract Hauler Activities.  
If contract hauler, provide a copy of a signed contract or billing receipts from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge disposal or biosolids use permit.
  - g. Land Application Sites.
    - (1) 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 legal description for nearest ¼, ¼, Section, Township, Range, and County, or as latitude and longitude.
    - (2) If biosolids application exceeds 2 dry tons/acre/year, report biosolids nitrogen results. Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement, available nitrogen in the soil prior to biosolids application, and PAN calculations for each site.
    - (3) If the “Low Metals” criteria is exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative loading which has been reached at each site.
    - (4) Report the method used for compliance with pathogen and vector attraction requirements.
    - (5) Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

**ST. JUDE INDUSTRIAL PARK BOARD**

**Mailing Address:**

P.O. Box 441  
New Madrid, MO 63869

**Shipping Address:**

23 St. Jude Industrial Hwy.  
Marston, MO 63866

**Phone: (573) 643-2784**

**E-Mail: [turnerf@noralm.com](mailto:turnerf@noralm.com)**

**FAX: (573) 643-2734**

May 22, 2013

Mr. Brant J. Farris  
Missouri Department of Natural Resources  
Water Protection Program  
Operating Permits Section – Domestic Wastewater Unit  
P.O. Box 176  
Jefferson City, MO 65102

Mr. Farris,

Please find attached St. Jude Industrial Park's revised NPDES Permit (#MO-0098418) renewal request that includes a statement from Noranda Aluminum, Inc. accepting the responsibility as Continuing Authority for said permit.

All forms requiring signatures have been revised and signed by Mr. Frank R. Davis, Jr., Plant Manager, Noranda Aluminum, Inc.

Please contact me if you have any questions or if more information is required.

Respectfully,



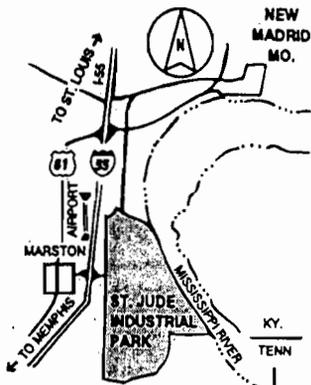
Fred Turner  
Manager, St. Jude Industrial Park Board

CC: Mr. Frank R. Davis  
Mr. Don Backfisch

RECEIVED

MAY 22 2013

WATER PROTECTION PROGRAM



# St. Jude Industrial Park

PARK SUPERINTENDENT

PHONE (573) 643-2784

FAX (573) 643-2734

E-MAIL: [turnerf@noralm.com](mailto:turnerf@noralm.com)

POST OFFICE BOX 70

NEW MADRID, MO 63869

January 12, 2012

Mr. Mike Hefner  
Missouri Department of Natural Resources  
Southeast Regional Office  
2155 North Westwood Blvd.  
Poplar Bluff, MO 63901

RE: RENEWAL OF NPDES PERMIT NUMBER: MO0098418

Dear Mr. Hefner

Attached are the NPDES Permit Number MO0098418 Renewal Application Forms and other required information for St. Jude Industrial Park.

## TABLE OF CONTENTS

### I. FORM "A" FOR OUTFALLS 002, 003 AND 005.

### II. OUTFALL 002 - WASTEWATER TREATMENT SYSTEM

- A. COMPLETED FORM "B2"
- B. COMPLETED FORM "I"
- C. WASTEWATER TREATMENT SYSTEM DESCRIPTION WITH FORM "I" INFORMATION
- D. ATTACHMENTS "A" FOR FORM "I"
- E. LAGOON DIMENSIONS DRAWING AND SOILS SURVEY MAP
- F. LAGOON AND IRRIGATOR OPERATIONS AND MAINTENANCE PLAN
- G. COPIES OF ANNUAL WASTEWATER REPORTS: 2001 THROUGH 2005
- H. SITE MAP SHOWING PERTENANT DETAILS
- I. TOPOGRAPHIC MAP OF AREA

### III. OUTFALL 003 - WATER TREATMENT SLUDGE SETTLING PONDS

- A. COMPLETED FORM "C" INCLUDING FLOW CHART
- B. SAMPLE ANALYSIS RESULTS

### IV. OUTFALL 005 - WATER TREATMENT SLUDGE DRYING BED

- A. COMPLETED FORM "C"
- B. FLOW DIAGRAM AND CALCULATIONS SHEET
- C. SAMPLE ANALYSIS RESULTS
- D. REQUEST FOR ADDITION OF OPTIONAL BENEFICIAL USES OF LIME SLUDGE

If there are any questions, please feel free to contact me at the numbers or address in this letterhead.

Sincerely,

Fred Turner

FT\MSWORD\NPDESRENEWALLETTER2006.DOC\1-11-12



Noranda Aluminum, Inc.

P.O. Box 70  
391 St. Jude Industrial Park  
New Madrid, Missouri 63869  
Tel (573) 800-325-8112  
Fax (573) 800-859-8961

May 22, 2013

Missouri Department of Natural Resources  
Water Protection Program  
Operating Permits Section - Domestic Wastewater Unit  
P.O. Box 176  
Jefferson City, MO 65102

To Whom it May Concern

Noranda Aluminum, Inc. (MO Charter #F00129750) accepts the mantle of continuing authority for the St. Jude Industrial Park ( NPDES Permit MO-0098418). Noranda is aware 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(3)(A).

If you have any questions or need additional information you can contact me or Mark Jones at (573) 643-2361.

Sincerely,

A handwritten signature in black ink, appearing to read 'Frank R. Davis, Jr.' with a stylized flourish at the end.

Frank R. Davis, Jr.  
Plant Manager



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM A – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT  
 UNDER MISSOURI CLEAN WATER LAW**

FOR AGENCY USE ONLY	
CHECK NUMBER	<i>No check received.</i>
DATE RECEIVED	<i>1-13-12</i>
FEE SUBMITTED	<i>0</i>

**Note** ▶ PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM.

1. This application is for:

- An operating permit and antidegradation review public notice
- A construction permit following an appropriate operating permit and antidegradation review public notice
- A construction permit and concurrent operating permit and antidegradation review public notice
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
- An operating permit for a new or unpermitted facility Construction Permit # \_\_\_\_\_
- An operating permit renewal: permit # MO- 0098418 Expiration Date May 17, 2012
- 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 WITH AREA CODE	
St. Jude Industrial Park		(573) 643-2784	
ADDRESS (PHYSICAL)		FAX (573) 643-2734	
23 St. Jude Industrial Road	CITY Marston	STATE MO	ZIP CODE 63866

**3. OWNER**

NAME		E-MAIL ADDRESS	TELEPHONE WITH AREA CODE	
City of New Madrid		turnerf@noralm.co	(573) 643-2784	
ADDRESS (MAILING)		FAX (573) 643-2734		
560 Mott St.	CITY New Madrid	STATE MO	ZIP CODE 63869	

3.1 Request review of draft permit prior to public notice?  YES  NO

**4. CONTINUING AUTHORITY**

NAME		TELEPHONE WITH AREA CODE	
St. Jude Industrial Park		(573) 643-2784	
ADDRESS (MAILING)		FAX (573) 643-2734	
P.O. Box 70	CITY New Madrid	STATE MO	ZIP CODE 63869

**5. OPERATOR**

NAME		CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE	
Larry Wilson		MO #083 (A)	(573) 643-2784	
ADDRESS (MAILING)		FAX (573) 643-2734		
P.O. Box 70	CITY New Madrid	STATE MO	ZIP CODE 63869	

**6. FACILITY CONTACT**

NAME		TITLE	TELEPHONE WITH AREA CODE	
Fred Turner		Manager, St. Jude Industrial Park	(573) 643-2784	
		FAX (573) 643-2734		

**7. ADDITIONAL FACILITY INFORMATION**

7.1 Legal Description of Outfalls. (Attach additional sheets if necessary.) All in New Madrid County

001 \_\_\_\_\_ ¼ \_\_\_\_\_ ¼ \_\_\_\_\_ Sec \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ \_\_\_\_\_ County

UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_

*For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)*

002 SE ¼ SW ¼ \_\_\_\_\_ Sec 30 \_\_\_\_\_ T 22N \_\_\_\_\_ R 14E \_\_\_\_\_ County

UTM Coordinates Easting (X): 268634.0214995 Northing (Y): 4043863.143446 Zone 16N

003 NE ¼ SE ¼ \_\_\_\_\_ Sec 30 \_\_\_\_\_ T 22N \_\_\_\_\_ R 14E \_\_\_\_\_ County

UTM Coordinates Easting (X): 269555.0613037 Northing (Y): 4044572.859595 Zone 16N

005 SE ¼ NE ¼ \_\_\_\_\_ Sec 30 \_\_\_\_\_ T 22N \_\_\_\_\_ R 14E \_\_\_\_\_ County

UTM Coordinates Easting (X): 269319.3738353 Northing (Y): 4044911.833314 Zone 16N

7.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.

001 – SIC \_\_\_\_\_ and NAICS \_\_\_\_\_      002 – SIC 4952 and NAICS 221320

003 – SIC 4941 and NAICS 221310      005 – SIC 4941 and NAICS 221310

*JAN 13 2012*

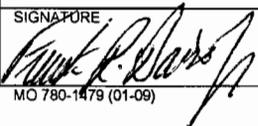
**8. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION**  
 (Complete all forms that are applicable.)

- A. Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? YES  NO   
 If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).
- B. Is your facility considered a "Primary Industry" under EPA guidelines: YES  NO   
 If yes, complete Forms C and D.
- C. Is application for storm water discharges only? YES  NO   
 If yes, complete EPA Form 2F.
- D. Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.
- E. Is wastewater land applied? If yes, complete Form I. YES  NO
- F. Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? YES  NO   
 If yes, complete Form R.

**9. DOWNSTREAM LANDOWNER(S)** Attach additional sheets as necessary. See Instructions.  
 (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE.)

NAME Missouri Delta Medical Center			
ADDRESS 1008 N. Main St.	CITY Sikeston	STATE MO	ZIP CODE 63801

10. I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law to the Missouri Clean Water Commission.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Frank R. Davis, Plant Manager, Noranda Aluminum / Fred Turner, Mgr, St. Jude Industrial Park	TELEPHONE WITH AREA CODE (573) 643-2784
SIGNATURE  MO 780-1479 (01-09)	DATE SIGNED 5-22-13

**BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.**

Submittal of an incomplete application may result in the application being returned.

HAVE YOU INCLUDED:

- Appropriate Fees? Re-issuance - N/A - billed annually
- Map at 1" = 2000' scale?
- Signature?
- Form C, if applicable?
- Form D, if applicable?
- Form 2F, if applicable?
- Form I (Irrigation), if applicable?
- Form R (Sludge), if applicable?



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

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

FACILITY NAME  
St. Jude Industrial Park (Domestic Wastewater Treatment)

PERMIT NO. MO 0098418	COUNTY 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**

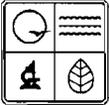
- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 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.
- 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**

MO 790-1906 (08-08)

JAN 13 2012

12/13/2011



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH 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

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

An operating permit and antidegradation review public notice.

A construction permit following an appropriate operating permit and antidegradation review public notice.

A construction permit, a concurrent operating permit and antidegradation review public notice.

A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).

An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_

An operating permit renewal: Permit #MO- 0098418 Expiration Date May 17, 2012

An operating permit modification: Permit #MO- \_\_\_\_\_ Reason: \_\_\_\_\_

1.1 Is this a Federal/State Funded Project?  Yes  No Funding Agency/Project #: \_\_\_\_\_

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)?  Yes  No

**2. FACILITY**

NAME St. Jude Industrial Park (Domestic Wastewater Treatment) Outfall #002		TELEPHONE NUMBER WITH AREA CODE (573) 643-2784	
ADDRESS (PHYSICAL) 23 St. Jude Industrial Highway	CITY Marston	STATE MO	ZIP 63866

2.1 **LEGAL DESCRIPTION** (Plant Site): SE ¼, SE ¼, SW ¼, Sec. , T , R 14E County N Madrid

2.2 Zone 16N  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_ X: 268633.8477241825 Y: 4043939.9413389806  
 For Universal Transverse Mercator (UTM), Zone 16 North referenced to North American Datum 1983 (NAD83)

**3. OWNER**

NAME City of New Madrid		TELEPHONE NUMBER WITH AREA CODE (573) 643-2784	
ADDRESS 560 Mott St.	CITY New Madrid	STATE MO	ZIP 63869

3.1 Request review of draft permit prior to Public Notice?  Yes  No

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

NAME Noranda Aluminum, Inc.		CITY New Madrid	
ADDRESS P.O. Box 70	CERTIFICATE NUMBER (IF APPLICABLE) Operator: MO # 83 (A)	STATE MO	ZIP 63869

**5. OPERATOR**

NAME Larry Wilson (St. Jude Ind. Park)		TELEPHONE NUMBER WITH AREA CODE (573) 643-2784	
TITLE Foreman			

**6. FACILITY CONTACT**

NAME Fred Turner		TITLE Manager, St. Jude Industrial Park - (573) 643-2784	
---------------------	--	---	--

MO 780-1805 (09-08)

FACILITY NAME St. Jude Industrial Park	PERMIT NO. MO- 0098418	OUTFALL NO. 002
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**PART A – BASIC APPLICATION INFORMATION**

**7. ADDITIONAL FACILITY INFORMATION**

**7.1 BRIEF DESCRIPTION OF FACILITIES**

A 4 cell lagoon system; treats only industrial park tenants' municipal wastewater (no process wastes or storm water runoff). The effluent is irrigated onto farmland via 3 center pivot units. No discharges except during emergencies; sludge is retained in the lagoons.

**7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.)**

- The area surrounding the treatment plant, including all unit processes.
- The location of the downstream landowner(s). (See Item 10.)
- 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.
- The actual point of discharge.
- 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.
- Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or 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 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.**

<b>7.4 FACILITY SIC CODE</b> 4952	<b>DISCHARGE SIC CODE:</b> 4952	<b>FACILITY NAICS CODE:</b> 221320	<b>DISCHARGE NAICS CODE:</b> 221320
--------------------------------------	------------------------------------	---------------------------------------	--

**7.5 NUMBER OF SEPARATE DISCHARGE POINTS**  
1

**7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT**      **DESIGN POPULATION EQUIVALENT**  
1,600      8,750

**NUMBER OF UNITS PRESENTLY CONNECTED**  
**HOMES** 0      **APARTMENTS** 0      **TRAILERS** 0      **OTHER** 4

**TOTAL DESIGN FLOW (ALL OUTFALLS)**      **ACTUAL FLOW**  
825,000 gpd      None except during emergency discharge

**7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?**  
Yes       No       (If Yes, attach an explanation.)

**7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES**  
4

**7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2?**      Yes       No

**7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR?**      Yes       No

<b>A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS</b> No discharge except in emergencies	<b>B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?</b> Only as needed during emergencies
--	--

<b>7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I)</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--

**7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?**  
Yes       No

**7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE.**      NONE

**8. LABORATORY CONTROL INFORMATION**

**8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL**

Lab work conducted outside of plant. ONLY DURING EMERGENCY DISCHARGES	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

MO 780-1805 (09-08)

FACILITY NAME St. Jude Industrial Park		PERMIT NO. MO- 0098418	OUTFALL NO. 002	
<b>PART A – BASIC APPLICATION INFORMATION</b>				
<b>9. SLUDGE HANDLING, USE AND DISPOSAL</b>				
9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS Design Dry Tons/Year Unknown Actual Dry Tons/Year Unknown				
9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES				
9.4 SLUDGE STORAGE PROVIDED Cubic Feet Days of Storage Average Percent Solids of Sludge <input type="checkbox"/> No Sludge Storage is Provided				
9.5 TYPE OF STORAGE <input type="checkbox"/> Holding Tank <input type="checkbox"/> Basin <input type="checkbox"/> Building <input type="checkbox"/> Concrete Pad <input type="checkbox"/> Other (Describe) _____				
9.6 SLUDGE TREATMENT <input type="checkbox"/> Anaerobic Digester <input type="checkbox"/> Storage Tank <input type="checkbox"/> Lime Stabilization <input checked="" type="checkbox"/> Lagoon <input type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying <input type="checkbox"/> Composting <input type="checkbox"/> Other (Attach Description)				
9.7 SLUDGE USE OR DISPOSAL <input type="checkbox"/> Land Application <input type="checkbox"/> Contract Hauler <input type="checkbox"/> Hauled to Another Treatment Facility <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) <input type="checkbox"/> Incineration <input checked="" type="checkbox"/> Other (Attach Explanation Sheet) _____ sludge is retained in lagoons				
9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY				
NAME				
ADDRESS		CITY	STATE	ZIP
CONTACT PERSON		TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-	
9.9 SLUDGE USE OR DISPOSAL FACILITY				
<input type="checkbox"/> By Applicant <input type="checkbox"/> By Others (Complete Below)				
NAME				
ADDRESS		CITY	STATE	ZIP
CONTACT PERSON		TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-	
9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503? <input type="checkbox"/> Yes <input type="checkbox"/> No (Attach Explanation)				
<b>10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)</b>				
NAME Missouri Delta Medical Center				
ADDRESS 1008 N. Main St.		CITY Sikeston	STATE MO	ZIP 63801
<b>11. DRINKING WATER SUPPLY INFORMATION</b>				
11.1 SOURCE OF YOUR DRINKING WATER SUPPLY				
A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY) St. Jude Industrial Park (Water Treatment Plant) - non-community, non-transient - 3 ground wells				
B. PRIVATE WELL				
C. SURFACE WATER (LAKE, POND OR STREAM)				
11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
<b>END OF PART A</b>				

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MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME St. Jude Industrial Park		PERMIT NO. MO- 0098418	OUTFALL NO. 002
PART B - ADDITIONAL APPLICATION INFORMATION			
20. INFLOW AND INFILTRATION			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day 250,000			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
20.1 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 A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
20.2 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. (IF NONE, GO TO QUESTION B-20.3.)			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
20.4 DESCRIPTION OF OUTFALL			
OUTFALL NUMBER 002			
A. LOCATION UTM ZONE 16N X:268633.8467241825 Y: 4043839.9413389806 ¼ SE ¼ SE ¼ SW Section 30 Township 22N Range 14 <input checked="" type="checkbox"/> E <input type="checkbox"/> W UTM Coordinates Easting (X): _____ Northing (Y): _____ For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) _____ ft.		C. Depth Below Surface (If Applicable) _____ ft.	D. Average Daily Flow Rate _____ mgd
E. Does this outfall have either an intermittent or periodic discharge? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: None except in emergency	Average Duration of Each Discharge: Varies with need	Average Flow Per Discharge: Varies w/need mgd	Months in Which Discharge Occurs: Nov - May as needed
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
20.5 DESCRIPTION OF RECEIVING WATER			
B. Name of Receiving Water Portage Bayou, Basin 69 - Diversion RR #08020204-006-002 (during emergency discharge only)			
B. Name of Watershed (If Known)		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known)		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)	
B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub>	

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FACILITY NAME St. Jude Industrial Park		PERMIT NO. MO- 0098418		OUTFALL NO. 002			
<b>PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)</b>							
20.6 DESCRIPTION OF TREATMENT							
A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply <input checked="" type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Advanced <input type="checkbox"/> Other (Describe)							
B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)							
Design BOD <sub>5</sub> Removal Or Design CBOD <sub>5</sub> Removal		85+ %		Design SS Removal			
Design P Removal		Unk %		Design N Removal			
		Unk %		Other			
C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe: None							
If disinfection is by chlorination, is dechlorination used for this outfall? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Does the treatment plant have post aeration? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. 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.							
OUTFALL NUMBER 002 – No discharge except during emergencies – see note below							
PARAMETER		MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE			
		VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES	
pH (Minimum)			S.U.		S.U.		
pH (Maximum)			S.U.		S.U.		
FLOW RATE			MGD		MGD		
TEMPERATURE (Winter)			°C		°C		
TEMPERATURE (Summer)			°C		°C		
*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		
Conventional and Nonconventional Compounds							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>		mg/L		mg/L		
	CBOD <sub>5</sub>		mg/L		mg/L		
FECAL COLIFORM			#/100 mL		#/100 mL		
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L		
AMMONIA (AS N)			mg/L		mg/L		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L		
DISSOLVED OXYGEN			mg/L		mg/L		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L		
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L		
OIL AND GREASE			mg/L		mg/L		
PHOSPHORUS (TOTAL)			mg/L		mg/L		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L		
OTHER			mg/L		mg/L		
<b>END OF PART B</b>							

MO 780-1805 (09-08)

NOTE: St. Jude Ind. Park tests influent and potential effluent for irrigation (#4 cell) for temp, pH, Alk(MO), Alk(M), DO, BOD, & SS per Standard Methods. See results by month for 2010 at tab marked "WW Tests 2010". Additional tests for O&G and Amonia as N are done by contract lab during emergency discharge.

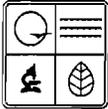




**ST. JUDE INDUSTRIAL PARK**  
**NPDES PERMIT MO-0098418**

**OUTFALL #002 EMERGENCY DISCHARGES - 2007 THROUGH 2011**

<b>PARAMETERS</b>	<b>2008 Q2</b>	<b>2009 Q2</b>	<b>2009 Q4</b>	<b>2011 Q2</b>
<b>pH (SU)</b>	<b>7.41</b>	<b>8.46</b>	<b>8.36</b>	<b>6.78</b>
<b>TSS (mg/l)</b>	<b>26.0</b>	<b>17.0</b>	<b>16.0</b>	<b>15.0</b>
<b>BOD5 (mg/l)</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>
<b>NH3 as N (mg/l)</b>	<b>0.133</b>	<b>0.18</b>	<b>&lt;0.05</b>	<b>&lt;0.05</b>
<b>Temp. (°C)</b>	<b>16.7</b>	<b>22.8</b>	<b>18.0</b>	<b>24.5</b>
<b>Oil &amp; Grease (mg/l)</b>	<b>N/A</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>
<b>Avg. Flow (MGD)- CALCULATED</b>	<b>1.3</b>	<b>1.5</b>	<b>1.32</b>	<b>1.3</b>



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH  
 (SEE MAP FOR APPROPRIATE REGIONAL OFFICE)  
**FORM I – PERMIT APPLICATION FOR CONSTRUCTION AND  
 OPERATION OF WASTEWATER IRRIGATION SYSTEMS**

<b>FOR AGENCY USE ONLY</b>	
PERMIT NUMBER	MO -
DATE RECEIVED	

**INSTRUCTIONS:** The following forms must be submitted with Form I: **FORM B** for domestic wastewater. **Submit FORMS E and G** for land disturbance permit if construction areas total one acre or more.

**1.00 FACILITY INFORMATION**

1.10 Facility Name  
 St. Jude Industrial Park Domestic Wastewater Treatment System Permit # MO-0098418

1.20 Application for:  Construction Permit (attach Engineering report, Plans and Specifications per 10 CSR 20-8)  
 Operating Permit (if no construction permit, attach engineering documents)  
 Date Irrigation System Began Operation: \_\_\_\_\_  
 Operating Permit Renewal

1.30 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

1.40 Months when the business or enterprise will operate or generate wastewater:  
 12 months per year  Part of year (list Months): \_\_\_\_\_

1.50 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) \_\_\_\_\_

1.60 List the Facility outfalls which will be applicable to the irrigation system from outfalls listed on Form B.  
 Outfall Nos. 002 \_ \_ \_ \_ \_

**2.00 STORAGE BASINS**

2.10 Number of storage basins: 1 Type of basin:  Steel  Concrete  Fiberglass  Earthen  
 Basin has 4 cells SEE SKETCH &  Earthen with membrane liner  
 "SYSTEM DESCRIPTION" DOCUMENTS ATTACHED

2.20 Storage basin dimensions at inside top of berm (feet): Report freeboard as feet from top of berm to emergency spillway or overflow pipe.  
 (Complete Attachment A: Profile Sketch) SEE ATTACHMENTS "A" AND SYSTEM DESCRIPTION DOCUMENTS  
 Basin #1: Length \_\_\_\_\_ Width \_\_\_\_\_ % Slope \_\_\_\_\_  
 Basin #2: Length \_\_\_\_\_ Width \_\_\_\_\_ % Slope \_\_\_\_\_

2.30 Storage Basin operating levels (report as feet below emergency overflow level)  
 Basin #1: Maximum water level 2 ft. Minimum operating water level 8 ft.  
 Basin #2: Maximum water level \_\_\_\_\_ ft. Minimum operating water level \_\_\_\_\_ ft.

2.40 Depth of sludge in lagoons and storage basins 1 ft.  
 Total sludge stored \_\_\_\_\_ dry tons \_\_\_\_\_ cu. ft.

**3.00 LAND APPLICATION SYSTEM**

3.10 Number of irrigation sites 3 Total Acres 355.3 Maximum % field slopes 2  
 #2 Location: SE ¼, SE ¼, NW ¼, 31 Sec. 22N T 14E R N.M. County \_\_\_\_\_ Acres 38.01  
 #3 Location: SW ¼, NE ¼, SW ¼, 31 Sec. 22N T 14E R N.M. County \_\_\_\_\_ Acres 135.17  
 #4 SW ¼ NE ¼ SE ¼ 31 Sec 22N T 14E R New Madrid Acres: 182.1



**ST. JUDE INDUSTRIAL PARK**  
**WASTEWATER TREATMENT SYSTEM DESCRIPTION**  
**NPDES PERMIT # MO-0098418 : RENEWAL - FORM I**

**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 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:**

**2.20 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.

#4 Cell Total = 620,300 square ft.

**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.

**2.21 Storage Volumes:**

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

**2.30 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.

**ST. JUDE INDUSTRIAL PARK  
WASTEWATER TREATMENT SYSTEM DESCRIPTION  
NPDES RENEWAL – FORM I  
PAGE 2**

**2.40 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 **173.4 days**, based on an annual average wastewater influent of 81,319,425 gallons for the last four years.

**3.12 Specific Crops and Yields/Acre:**

Row crops of soybeans, corn, and cotton are grown in the irrigated areas. Crops are rotated and planned by the farmer. Yields are for the entire farm, which includes irrigated acreage. Yields for irrigated acreage are not reported separately. A change in farmers in 2004 has made obtaining actual yields difficult prior to that time. Only corn and cotton have been grown in the irrigated areas in 2004, 2005, and 2006.

CROP	YIELD GOAL	ACTUAL YIELD AVERAGE 2001-2006
Soybeans	50 Bu/Acre	50 Bu/Acre (Estimated)
Corn	180 Bu/Acre	160 Bu/Acre in 2005
Cotton	1,000 Pounds/Acre	1,122 Pounds/Acre in 2006

**3.21 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.

**Each unit, when operated, distributes effluent at the hourly rates shown.**

IRRIGATOR DESIGN FLOWS AT 55 PSI, 100% TRAVEL RATE					
IRRIG	GPM	GPH	ACRES	1" / A x ACRES = GAL/REV	IN/A/HR
2	288	17,280	38.01	1,032,124 GAL	<b>0.64</b>
3	944	56,640	135.17	3,670,406 GAL	<b>2.09</b>
4	1,154	69,240	182.10	4,944,743 GAL	<b>2.55</b>
TOTAL	2,386	143,160	355.28	9,647,273 GAL	<b>5.28</b>

AVERAGE FLOWS/YR DURING IRRIGATION (2001 through 2005)							
IRRIG	HRS	GALLONS	GPH	ACRE	IN/A/HR	IN/A/DAY	IN/A/YR
2	293.6	4,975,207	16,946	36.60	0.62	2.48	5.01
3	459.4	25,378,964	55,244	132.14	2.03	2.84	7.07
4	414.2	27,872,347	67,292	179.88	2.48	3.22	5.71
TOTAL	1,167.2	58,226,518	49,886	348.62	Avg. 1.84	Avg. 2.84	6.15

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.

Irrigators have been operated March through November as weather permits.

**ST. JUDE INDUSTRIAL PARK  
WASTEWATER TREATMENT SYSTEM DESCRIPTION  
NPDES RENEWAL - FORM I  
PAGE 3**

**3.30 Equipment Type:**

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

IRRIG	FLOW CAPACITY (GAL/HR @ 55 PSI)	AVERAGE HOURS OF OPERATION (2001 - 2005)
2	17,280 GALLONS/HR	293.6 HOURS/YR
3	56,640 GALLONS/HR	459.4 HOURS/YR
4	69,240 GALLONS/HR	414.2 HOURS/YR

**3.60 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

**3.70 Farm Management:**

All irrigated and other farmland is owned by Noranda Aluminum, Inc., a park tenant. 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. Attached is a soil analysis performed in 2005 for irrigated land. To our knowledge, there is no specific Nutrient Management Plan as such.

**6.00 Most Limiting Pollutants for Irrigation:**

Not required to perform this analysis.

**7.00 Consulting Engineer:**

Although not consulted for this permit renewal, Burns and McDonnell Engineering of Kansas City, Mo. designed the original and expansion wastewater projects and are available if needed.

**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**

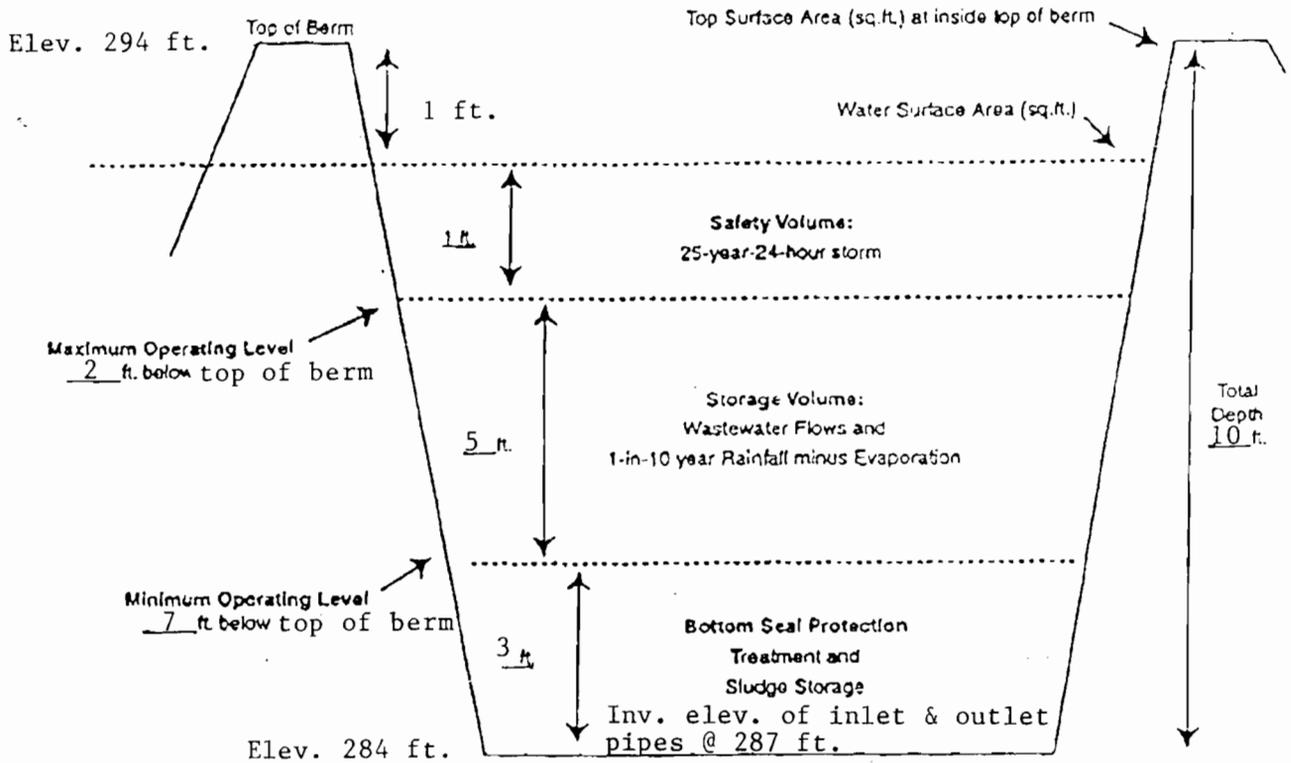
1 in 10 yr. rainfall minus evap. = 2.7'

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**

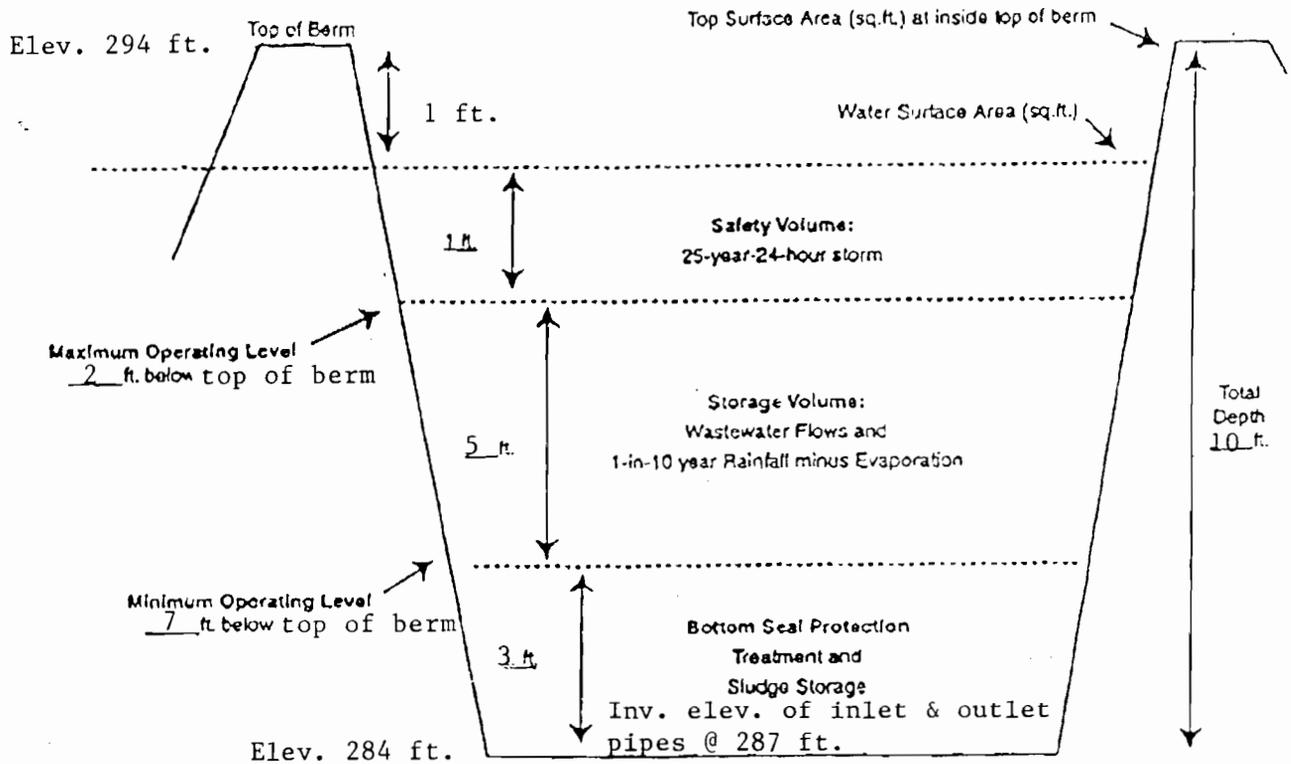
Avg. annual influent = 81,319,425 gal. = 222,793 gal./day

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**

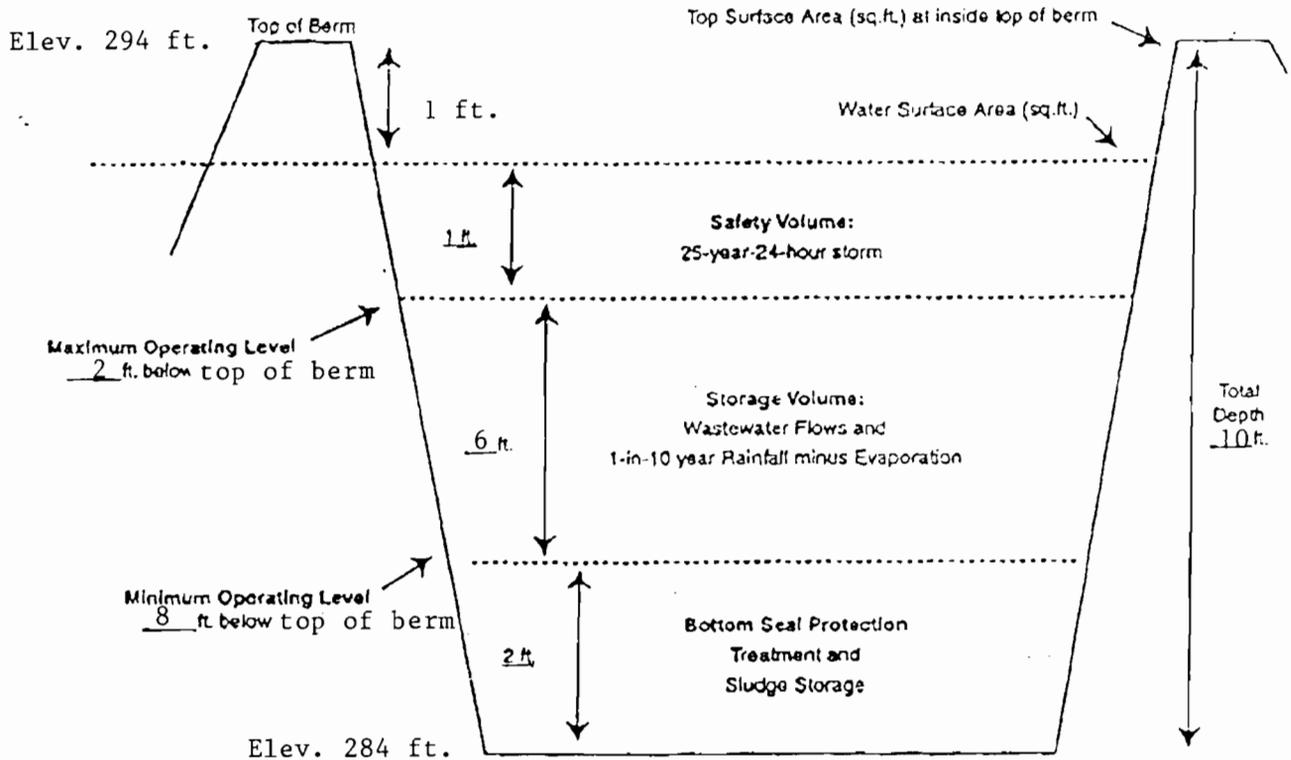
Avg. annual influent = 81,319,425 gal. = 222,793 gal./day

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).**

- Freeboard is depth from top of berm to emergency spillway (minimum 1 foot);
- Safety Volume is depth for 25-year, 24-hour storm (minimum of 1 foot);
- Maximum Operating Level is at bottom of the safety volume (minimum of 2 feet below top of berm).
- 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.
- Storage Volume and days storage are based on the volume between Minimum and Maximum Operating Levels.
- Total Depth is from top of berm to bottom of basin including freeboard.

**ATTACHMENT A**

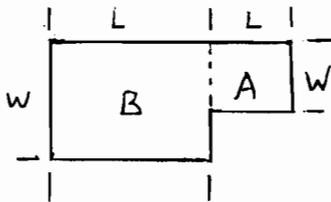
**LAGOON CELL #4**

(To be included with Form I and Form R)

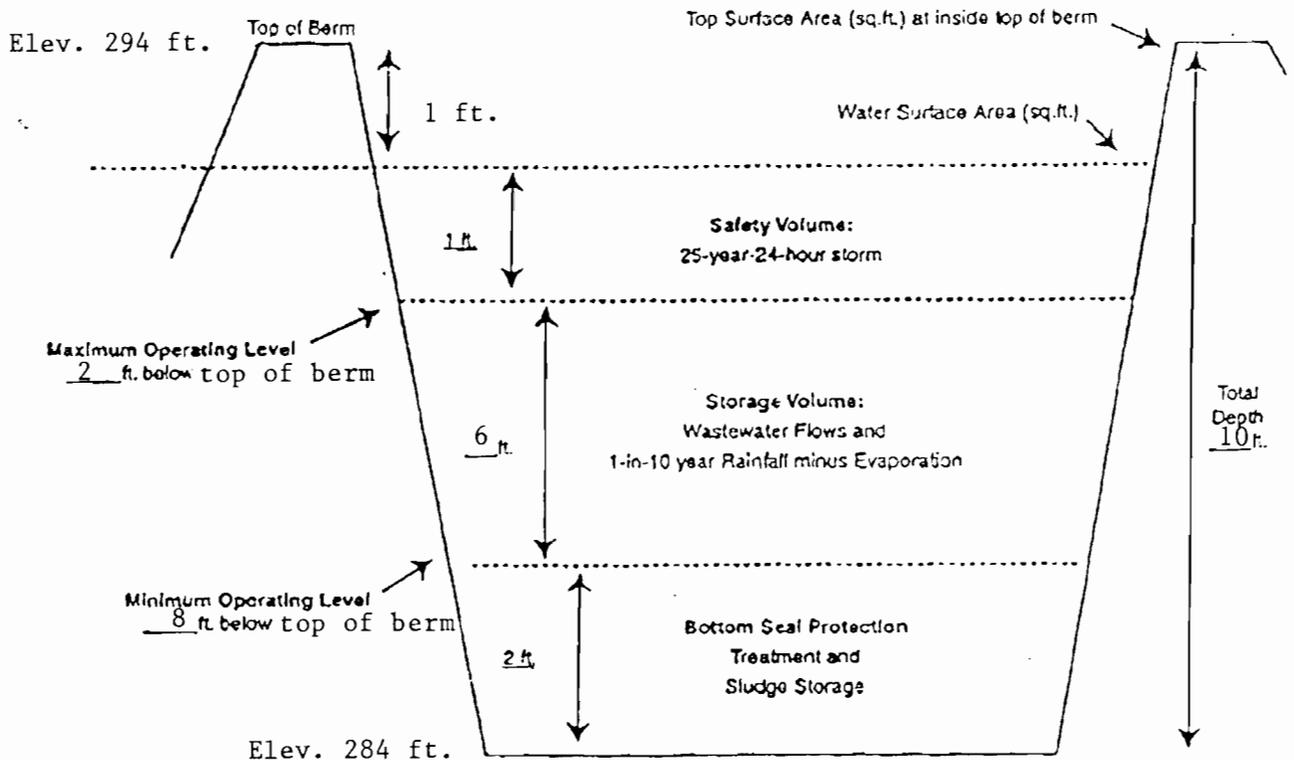
Sec. A - W 380 ft. X L 460 ft. = 174,800 sq. ft.

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.

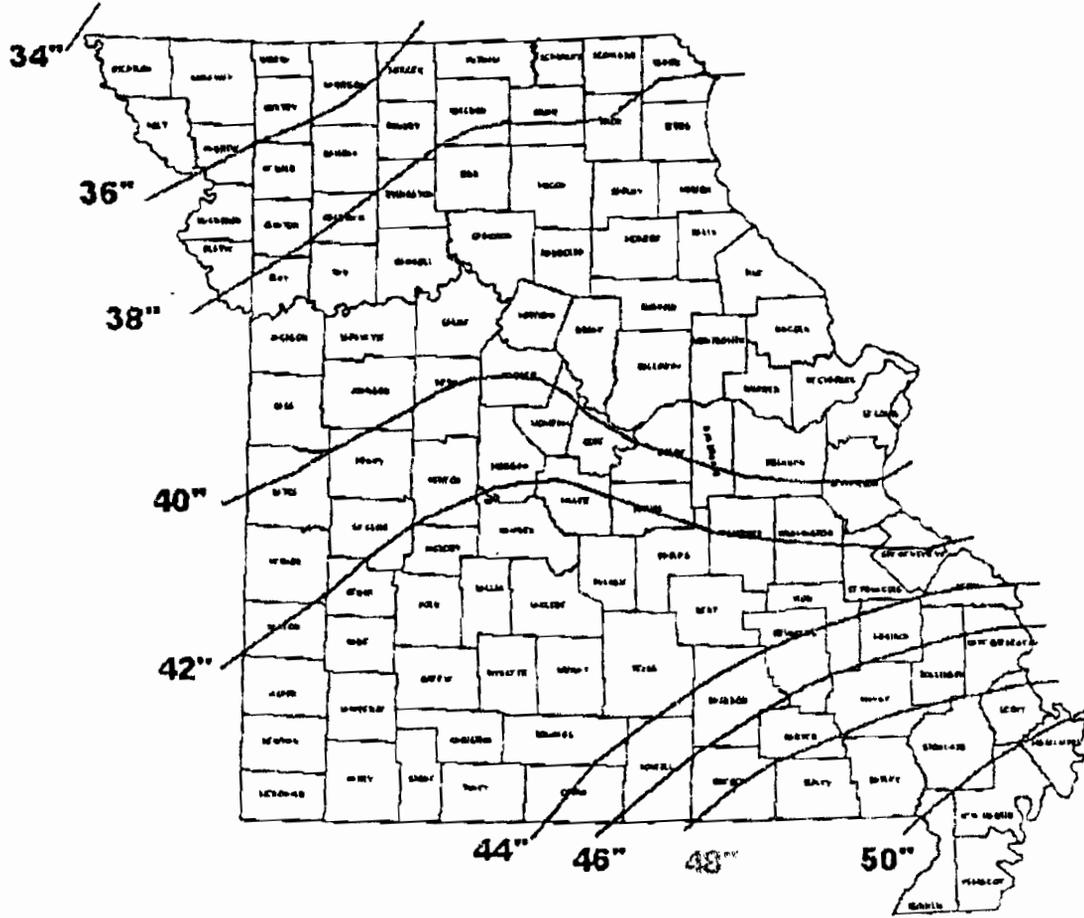
a) 6.0' - 2.7' = 3.3' = 15,311,485 gal. = 68.7 days

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.



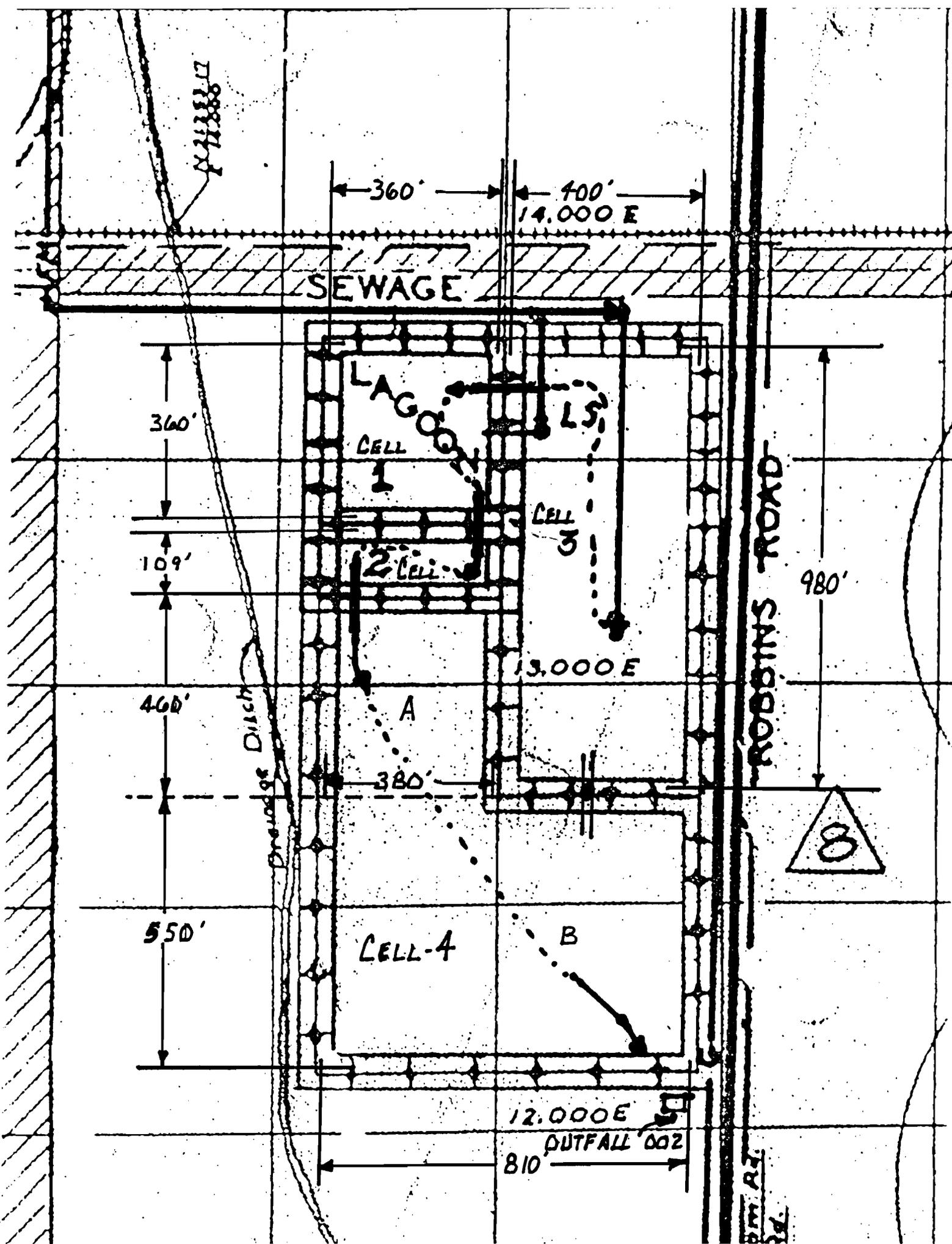
**MEAN ANNUAL PRECIPITATION (1961-1990)**

Table 1. DESIGN VOLUMES for RAINFALL, RUNOFF and R-E

Mean Annual Rainfall (inches)	1-in-10 Year Rainfall (inches)	1-in-10 Year R-E (feet)	1-in-10 Year Runoff Earthen Areas (feet)	1-in-10 Year Runoff Concrete & Roof Areas (feet)
36	46.8	1.2	1.8	3.1
38	49.4	1.4	2.0	3.3
40	52.0	1.6	2.2	3.5
42	54.6	1.8	2.5	3.6
44	57.2	2.1	2.7	3.8
46	59.8	2.3	2.8	4.0
48	62.4	2.5	3.0	4.2
50	65.0	2.7	3.2	4.4

Table 2. Percent Reduction Factors for Storage Periods less than 365 Days

Storage Period (days)	1-in-10 Year R-E (% of 365 day volume)	1-in-10 Year Runoff (% of 365 day volume)
180	80%	60%
120	70%	50%
90	60%	40%
60	50%	30%





# **ST. JUDE INDUSTRIAL PARK WASTEWATER TREATMENT SYSTEM OPERATION OF STABILIZATION LAGOON AND IRRIGATION EQUIPMENT**

**Note: Excerpted from original employee manual dated 1982; updated 2001**

## **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.
- 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 #004 to the ditch unless warranted by an emergency or other conditions such as excessive rainfall, unusual storm event, etc. Discharge to the ditch must be approved by the Park Superintendent prior to initiation.

**ST. JUDE INDUSTRIAL PARK**  
**WASTEWATER SYSTEM OPERATIONS**  
**PAGE 2**

**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.

**ST. JUDE INDUSTRIAL PARK**  
**WASTEWATER SYSTEM OPERATIONS**  
**PAGE 3**

**Shutdown Procedure (continued)**

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.
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 System Operator 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.

**ST. JUDE INDUSTRIAL PARK**  
**SUMMARY OF ANNUAL IRRIGATION AND LAND APPLICATION FOR 2007**

Contact: Fred Turner, Superintendent  
 Phone: (573) 643-2784  
 FAX: (573) 643-2734  
 E-mail: turnerf@noralnm.com

Report Date:

**NPDES PERMIT NO.: MO-0098418**  
 County: New Madrid

Mailing Address: P.O. Box 441, New Madrid, MO 63869  
 Ship To Address: 23 St. Jude Industrial Hwy., Marston, MO 63866

	FREEBOARD FEET (#4 CELL) (END OF MONTH)	IRRIGATION PERIOD HOURS	VOLUME IRRIGATED (GALLONS)	APPLICATION AREA (ACRES)	APPLICATION RATE GALLONS/ACRE	MAXIMUM DAILY APPLICATION RATE	TOTAL MONTHLY RAINFALL INCHES	MAXIMUM DAILY RAINFALL INCHES
JANUARY	4.46	0.00	0	0	0	0	7.22	2.57
FEBRUARY	3.80	0.00	0	0	0	0	2.80	1.38
MARCH	3.33	0.00	0	0	0	0	1.58	0.58
APRIL	2.75	0.00	0	0	0	0	3.18	1.13
MAY	3.50	239.30	11,559,768	355.28	32,537.06	0.40 IN/A/DAY	1.92	0.97
JUNE	3.92	220.00	10,030,500	355.28	28,232.66	0.34 IN/A/DAY	2.29	1.11
JULY	5.80	346.70	15,746,178	355.28	44,320.47	0.34 IN/A/DAY	1.25	0.79
AUGUST	6.50	402.80	20,142,888	355.28	56,695.81	0.36 IN/A/DAY	0.31	0.18
SEPTEMBER	5.58	0.00	0	0	0	0	4.63	1.97
OCTOBER	5.58	353.80	12,981,372	173.18	74,958.84	0.44 IN/A/DAY	8.97	3.5
NOVEMBER	6.33	125.10	5,692,050	355.28	16,021.31	0.59	3.58	1.23
DECEMBER	4.60	0.00	0	0	0	0	6.86	1.29
<b>TOTAL</b>		<b>1,687.70</b>	<b>76,152,756</b>				<b>44.59</b>	

Crop(s) Grown: Cotton

Crop(s) Yield(s): Cotton: 900#/A = 1.8 Bales/A

Emergency Discharge (YES\* or NO) **NO** (If yes, include DMR and number of days of discharge)

**RECORD OF MAINTENANCE:**

**March:** #2 Unit: 3/6/07 - swapped gear box on 5th tower; 3/7/07 - replaced drive motor & flex joint on 3rd tower.

#4 Unit: 3/27/07 - replaced damaged tire; Pumps: #1 pump has vibration & leaking seal - troubleshooting.

**April:** #2 Unit: 4/24/07 - replaced one drive motor; #4 Unit: 4/20/07 - replaced two tires; Pumps: #1 - shaft bushing worn - repair parts ordered.

**May:** #3 Unit: 5/7/07 - discovered 5th tower damaged; repairs made by Mid-Valley on 5/11/07; #4 Unit: removed riser elbow on 5/30 for repairs/replacement; Pumps: replaced shaft bushings - #1 on 5/8, #2 & #3 on 5/15, & #4 on 5/16.

**June:** #2 Unit: 6/18 - replaced percentage timer; #4 Unit: 6/7 - repaired riser elbow

**July:** #3 Unit - replaced drive gearbox on 5th tower on 7/30.

**August:** #4 Unit - cleaned end gun on 8/3.

Report Completed By: Fred Turner, Superintendent

Date: 1/4/2008



Report Approved By (Owner or Operating Authority):

Fred Turner, Superintendent

Date: 1/4/2008



**ST. JUDE INDUSTRIAL PARK**  
**SUMMARY OF ANNUAL IRRIGATION AND LAND APPLICATION FOR 2008**

Contact: Fred Turner, Superintendent  
 Phone: (573) 643-2784  
 FAX: (573) 643-2734  
 E-mail: turnerf@norainm.com

Report Date: 1/2/2009

**NPDES PERMIT NO.: MO-0098418**  
 County: New Madrid

Mailing Address: P.O. Box 441, New Madrid, MO 63869  
 Ship To Address: 23 St. Jude Industrial Hwy., Marston, MO 63866

	FREEBOARD FEET (#4 CELL) (END OF MONTH)	IRRIGATION PERIOD HOURS	VOLUME IRRIGATED (GALLONS)	APPLICATION AREA (ACRES)	APPLICATION RATE GALLONS/ACRE	MAXIMUM DAILY APPLICATION RATE	TOTAL MONTHLY RAINFALL INCHES	MAXIMUM DAILY RAINFALL INCHES
JANUARY	4.12	0.00	0.00	0.00	0.00	0.00	2.24	0.55
FEBRUARY	3.17	0.00	0.00	0.00	0.00	0.00	3.81	1.77
MARCH	1.83	0.00	0.00	0.00	0.00	0.00	11.75	4.95
APRIL	2.92	0.00	0.00	0.00	0.00	0.00	5.70	1.96
MAY	2.25	0.00	0.00	0.00	0.00	0.00	4.77	1.00
JUNE	2.15	181.60	8,449,464	355.28	23,782.55	0.12	2.02	1.09
JULY	3.37	430.00	21,120,294	355.28	59,446.90	0.12	2.96	1.75
AUGUST	4.67	430.80	19,602,600	355.28	55,175.07	0.11	0.72	0.30
SEPTEMBER	4.67	197.70	7,305,024	173.18	42,181.68	0.19	2.22	0.73
OCTOBER	6.25	336.50	14,488,608	355.28	40,780.82	0.11	2.78	1.69
NOVEMBER	6.17	0.00	0	0	0	0.00	2.16	1.13
DECEMBER	5.08	0.00	0	0	0	0.00	6.05	1.13
TOTAL		1,576.60	70,965,990				47.18	

Crop(s) Grown: #2: Beans; #3: Beans & Cotton; #4: Cotton  
 Crop(s) Yield(s): #2: Beans = 45 bu/a;  
 #3: Beans = 45 bu/a; Cotton = 950 lbs/a;  
 #4: Cotton = 1,065 lb/a

**Emergency Discharge (YES\* or NO) YES (If yes, include DMR and number of days of discharge)**

4/7/08 - 4/23/08; 16.21 days (389 hours); total: 21,009,435 gal.; Daily Maximum Rate - 1.3 MGD; very heavy rainfall in March.

**RECORD OF MAINTENANCE:**

April: #3 unit - repaired power cable & installed new disconnect on 4/25.  
May: #2 & #3 units - serviced gear boxes on 5/1; #3 unit - repaired disconnect lug at pivot on 5/9; installed new auto-reverse switch on 5/23.  
June: #2 unit - replaced LH gearbox on last tower & RH gearbox on first tower on 6/4/08; repaired removed units.  
 #3 unit: installed new auto-reverse switch assembly on 6/2/08; replaced one gearbox on 6/6/08.  
 #4 unit: replaced 35 second board & relay on 6/25; installed new strobe light on 6/27.  
July: #4 unit: replaced safety shut-down pressure switch on 7/8/08.  
August: #4 unit: cleaned end gun on 8/13/08.  
September: #3 unit: replaced auto-reversing switch assembly on 9/17/08.  
October: #3 Unit - repaired flat tire on 10/21/08.

Report Completed By: Fred Turner, Superintendent Date: 1/2/2009

*Fred Turner*

Report Approved By (Owner or Operating Authority): Fred Turner, Superintendent Date: 1/2/2009

*Fred Turner*

**ST. JUDE INDUSTRIAL PARK**  
**SUMMARY OF ANNUAL IRRIGATION AND LAND APPLICATION FOR 2009**

Contact: Fred Turner, Superintendent  
 Phone: (573) 643-2784  
 FAX: (573) 643-2734  
 E-mail: turnerf@noralm.com

Report Date: 1/14/2010

**NPDES PERMIT NO.: MO-0098418**  
 County: New Madrid

Mailing Address: P.O. Box 441, New Madrid, MO 63869  
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JANUARY	4.70	0.00	0	0.00	0.00	0.00	4.34	2.48
FEBRUARY	3.50	0.00	0	0.00	0.00	0.00	4.54	2.27
MARCH	3.10	0.00	0	0.00	0.00	0.00	2.22	1.24
APRIL	2.71	0.00	0	0.00	0.00	0.00	6.17	1.40
MAY	4.92	0.00	0	0.00	0.00	0.00	7.76	2.58
JUNE	3.10	0.00	0	0.00	0.00	0.00	6.10	2.50
JULY	3.58	242.20	10,436,592	355.28	29,375.68	0.11	4.41	2.35
AUGUST	3.50	103.60	6,181,644	317.27	19,483.86	0.17	4.03	2.80
SEPTEMBER	3.30	17.90	1,013,856	135.17	7,500.60	0.37	4.02	2.25
OCTOBER	2.00	0.00	0	0	0.00	0.00	11.63	1.45
NOVEMBER	3.50	90.30	5,959,800	182.1	32,728	0.32	1.48	0.85
DECEMBER	6.60	0.00	0	0	0	0.00	5.24	1.10
<b>TOTAL</b>		454.00	23,591,892				61.94	

Crop(s) Grown: #2: Beans; #3: Beans & Cotton; #4: Cotton  
 Crop(s) Yield(s): #2: Beans = 54.9 bu/a;  
 #3: Beans = 54.9 bu/a; Cotton = 898 lb/a;  
 #4: Cotton = 1,100 lb/a

**Emergency Discharge - YES\*** (If yes, include DMR and number of days of discharge)  
 1. Discharged from 08:45 on 5/15/09 to 13:45 on 5/29/09 = 341 hrs. or 14.21 days; total gallons discharged calculated to be 21,256,886 gal. = 1.5 MGD average (lowered ponds 1'-10" = 16,189,404 gal + rainfall of 2.89" = 2,126,698 gal. + sewer influent = 2,940,784 gal).  
 2. Discharged from 15:00 on 11/5/09 to 15:00 on 12/18/09 = 1,032 hrs. or 43.0 days; total gallons discharged calculated to be 56,667,514 gal. = 1.32 MGD average ( lowered ponds 5.17' = 50,330,805 gal +rainfall of 3.89" = 2,851,817 gal + sewer influent = 9,444,692 gal minus irrigation = - 5,959,800 gal).

**RECORD OF MAINTENANCE:**

January: #4 Unit - replaced drive unit on next to last tower on 1/13/09.  
January through June - all power lost due to January ice storm; all power restored except for #2 unit as of 8/13/09.  
May: Pumped out and cleaned pump inlet screens and sump.  
July: #2 Unit - power cable grounded - electric co-operative to assist in repairs; #3 Unit - repaired flat & electrical problem on 7/3; replaced drive shaft joint assemblies, swapped left gearbox - 7th tower from pivot & replaced TBX contactor on 7/14.  
November: #3 Unit - replaced contactor on 11/6; repaired inlet piping on 11/10; tightened anchor bolts, replaced #7 tower contactor, and replaced broken nozzle on 11/13.  
December: #4 Unit - replaced drive unit & 4 flex joints on 12/1; cleaned lagoon pump screen on 12/17.

<b>Report Completed By:</b> Fred Turner, Superintendent 	<b>Date:</b> 1/14/2010
<b>Report Approved By (Owner or Operating Authority):</b> Fred Turner, Superintendent 	<b>Date:</b> 1/14/2010

**ST. JUDE INDUSTRIAL PARK**  
**SUMMARY OF ANNUAL IRRIGATION AND LAND APPLICATION FOR 2010**

Contact: Fred Turner, Superintendent  
 Phone: (573) 643-2784  
 FAX: (573) 643-2734  
 E-mail: turnerf@norainm.com

Report Date:

**NPDES PERMIT NO.: MO-0098418**  
 County: New Madrid

Mailing Address: P.O. Box 441, New Madrid, MO 63869  
 Ship To Address: 23 St. Jude Industrial Hwy., Marston, MO 63866

	FREEBOARD FEET (#4 CELL) (END OF MONTH)	IRRIGATION PERIOD HOURS	VOLUME IRRIGATED (GALLONS)	APPLICATION AREA (ACRES)	APPLICATION RATE GALLONS/ACRE	MAXIMUM DAILY APPLICATION RATE	TOTAL MONTHLY RAINFALL INCHES	MAXIMUM DAILY RAINFALL INCHES
JANUARY	5.42	0.00	0	0.00	0.00	0.00	3.62	1.22
FEBRUARY	4.92	0.00	0	0.00	0.00	0.00	1.79	0.53
MARCH	4.25	0.00	0	0.00	0.00	0.00	5.37	1.54
APRIL	3.80	0.00	0	0.00	0.00	0.00	6.00	1.73
MAY	2.73	0.00	0	0.00	0.00	0.00	5.47	2.15
JUNE	4.88	250.00	25,521,864	355.28	71,835.92	0.25	1.16	0.80
JULY	6.12	254.80	29,002,950	355.28	81,634.06	0.28	3.51	1.35
AUGUST	7.70	328.45	15,121,800	355.28	42,563.05	0.11	0.73	0.49
SEPTEMBER	7.70	38.10	1,344,900	173.18	7,765.91	0.18	3.57	2.45
OCTOBER	8.30	0.00	0	0	0.00	0.00	0.43	0.36
NOVEMBER	6.54	0.00	0	0	0.00	0.00	5.02	2.10
DECEMBER	5.80	0.00	0	0	0	0.00	2.69	1.26
<b>TOTAL</b>		1,451.15	70,991,514				39.36	

Crop(s) Grown: #2: Beans; #3: Beans & Cotton; #4: Corn and Cotton	Crop(s) Yield(s): #2: Beans = 50 bu/a; #3: Beans = 50 bu/a; Cotton = 1,000 lb/a; #4: Corn = 170 bu/a; Cotton = 1,000 lb/a
--	---

Emergency Discharge - NO\* (If yes, include DMR and number of days of discharge)

**RECORD OF MAINTENANCE:**  
**January:** removed irrigator pump motors (1/4) and pumps (1/6) for maintenance and/or repairs.  
**April:** #2 Unit - installed new power cables - connected to same power supply as #4 unit; #4 unit - repaired power cables at disconnect on 4/1; replaced drive unit on 4th tower from end on 4/16. Pumps - installed all 4 repaired pumps on 4/19;  
**May:** installed repaired pumps, motors, and mechanical seals (all 4 pumps). #2 Unit - replaced auto reverse switch assembly on 5/6/10.  
**June:** #3 Unit - replaced drive unit & shaft joints on 3rd tower from end on 6/15; replaced drive joints & covers on 2nd tower from end on 6/17; replaced switches on 6th tower from end on 6/18; replaced gearbox, joints, & covers on 4th tower from end on 6/22. #4 Unit -replaced joints & drained gearbox on 8th tower from end on 6/7; changed gearbox, joints, & covers on 3rd tower from end on 6/23.  
**July:** #3 Unit - cleaned end gun on 7/21/10.  
**August:** #4 Unit - replaced gearbox & rev. switch on 4th tower on 8/2; Cleaned strainer; Repaired piping between between #2 & #3 cells - installed new valve on 8/24.

Report Completed By: Fred Turner, Superintendent <i>Fred Turner</i>	Date: 1-10-11
--	------------------

Report Approved By (Owner or Operating Authority): Fred Turner, Superintendent <i>Fred Turner</i>	Date: 1-10-11
--	------------------

See MAP

IN File



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH  
 (SEE MAP FOR APPROPRIATE REGIONAL OFFICE)  
**FORM C - APPLICATION FOR DISCHARGE PERMIT - MANUFACTURING,  
 COMMERCIAL, MINING AND SILVICULTURE OPERATIONS**

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

**NOTE: DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS**

1.00 NAME OF FACILITY  
 St. Jude Industrial Park - Drinking Water Treatment Plant

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER  
 MO - 0098418

1.20 THIS IS A NEW FACILITY AND WAS CONSTRUCTED UNDER MISSOURI CONSTRUCTION PERMIT NUMBER (COMPLETE ONLY IF THIS FACILITY DOES NOT HAVE AN OPERATING PERMIT).

2.00 LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES APPLICABLE TO YOUR FACILITY (FOUR DIGIT CODE)  
 A. FIRST 4941 - Water Supply & Distribution B. SECOND 4952 - Wastewater Treatment  
 C. THIRD \_\_\_\_\_ D. FOURTH \_\_\_\_\_

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.  
 OUTFALL NUMBER (LIST) NE ¼ SE ¼ SEC 30 T 22N R 14E New Madrid County  
003 - Discharge from groundwater treatment plant lime settling pond system. Effluent  
is intermittent, unmetered, and dependent upon volume of water treated; flows through  
12 in. discharge pipe as needed. Estimated flow: 43,000 gpd (avg.); Max. flow: 120gpm

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER.  

OUTFALL NUMBER (LIST)	RECEIVING WATER
<u>003</u>	<u>St. Jude Industrial Park's stormwater drainage ditch</u> <u>system, eventually to Portage Bayou, Basin 69, Little</u> <u>River Diversion Ditch, RR# 08020204-006-002</u>

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS:  
Operations of St. Jude Industrial Park which includes providing potable water to Park  
tenants, collection and treatment of domestic sanitary wastewater from Park tenants,  
and maintenance of all Park roads, railroads, ditches, and general park maintenance.

JAN 13 2012



2.40 CONTINUED

C. EXCEPT FOR STORM RUNOFF, LEAKS, OR SPILLS, ARE ANY OF THE DISCHARGES DESCRIBED IN ITEMS A OR B INTERMITTENT OR SEASONAL?

YES (COMPLETE THE FOLLOWING TABLE)       NO (GO TO SECTION 2.50)

1. OUTFALL NUMBER <i>(list)</i>	2. OPERATION(S) CONTRIBUTING FLOW <i>(list)</i>	3. FREQUENCY		4. FLOW				C. DURATION <i>(in days)</i>
		A. DAYS PER WEEK <i>(specify average)</i>	B. MONTHS PER YEAR <i>(specify average)</i>	A. FLOW RATE <i>(in mgd)</i>		B. TOTAL VOLUME <i>(specify with units)</i>		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	4. LONG TERM DAILY	3. MAXIMUM AVERAGE	
003	Settling pond effluent	5	12	0.04 MGD	0.17 MGD	5,768 cu. ft. per day	23,070 cu.ft. per day	1 day

2.50 MAXIMUM PRODUCTION

A. DOES AN EFFLUENT GUIDELINE LIMITATION PROMULGATED BY EPA UNDER SECTION 304 OF THE CLEAN WATER ACT APPLY TO YOUR FACILITY?

YES (COMPLETE B.)       NO (GO TO SECTION 2.60)

B. ARE THE LIMITATIONS IN THE APPLICABLE EFFLUENT GUIDELINE EXPRESSED IN TERMS OF PRODUCTION (OR OTHER MEASURE OF OPERATION)?

YES (COMPLETE C.)       NO (GO TO SECTION 2.60)

C. IF YOU ANSWERED "YES" TO B. LIST THE QUANTITY THAT REPRESENTS 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.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS <i>(list outfall numbers)</i>
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. <i>(specify)</i>	

2.60 IMPROVEMENTS

A. ARE YOU NOW 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 THAT 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 3.00)

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

B. OPTIONAL: YOU MAY ATTACH ADDITIONAL SHEETS DESCRIBING ANY ADDITIONAL WATER POLLUTION CONTROL PROGRAMS (OR OTHER ENVIRONMENTAL PROJECTS WHICH MAY AFFECT YOUR DISCHARGES) YOU NOW HAVE UNDER WAY OR WHICH YOU PLAN. INDICATE WHETHER EACH PROGRAM IS NOW UNDER WAY OR PLANNED, AND INDICATE YOUR ACTUAL OR PLANNED SCHEDULES FOR CONSTRUCTION.

MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED.



OUTFALL # 003

3.10 BIOLOGICAL TOXICITY TESTING DATA

DO YOU HAVE ANY KNOWLEDGE OR REASON TO BELIEVE THAT ANY BIOLOGICAL TEST FOR ACUTE OR CHRONIC TOXICITY HAS BEEN MADE ON ANY OF YOUR DISCHARGES OR ON A RECEIVING WATER IN RELATION TO YOUR DISCHARGE WITHIN THE LAST THREE YEARS?

YES (IDENTIFY THE TEST(S) AND DESCRIBE THEIR PURPOSES BELOW.)  NO (GO TO 3.20)

3.20 CONTRACT ANALYSIS INFORMATION

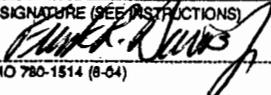
WERE ANY OF THE ANALYSES REPORTED PERFORMED BY A CONTRACT LABORATORY OR CONSULTING FIRM?

YES (LIST THE NAME, ADDRESS AND TELEPHONE NUMBER OF AND POLLUTANTS ANALYZED BY EACH SUCH LABORATORY OR FIRM BELOW.)  NO (GO TO 3.30)

A. NAME	B. ADDRESS	C. TELEPHONE (area code and number)	D. POLLUTANTS ANALYZED (list)
Environmental Analysis South	4000 East Jackson Blvd. Jackson, MO 63755	(573) 204-8817	Amonia as N, TOC, Magnesium, pH, BOD, Iron, Suspended Solids

3.30 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 THE 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 AND IMPRISONMENT.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Fred Turner, Mgr., St. Jude Ind. Park Frank R. Davis, Jr., Plant Manager, Noranda Aluminum, Inc.	TELEPHONE NUMBER (AREA CODE AND NUMBER) (573) 643-2784
SIGNATURE (SEE INSTRUCTIONS) 	DATE SIGNED 5-22-13

PLEASE PRINT OR TYPE. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

FORM C  
TABLE 1 FOR 3.00 ITEM A AND B

OUTFALL NO. 003

INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVRG. VALUE		D. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)	
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE	B. NO. OF ANALYSES
A. Biochemical Oxygen Demand (BOD)	less than 2.0						1	mg/l			
B. Chemical Oxygen Demand (COD)	12.0						1	mg/l			
C. Total Organic Carbon (TOC)	0.58						1	mg/l			
D. Total Suspended Solids (TSS)	16.0						1	mg/l			
E. Ammonia (as N)	<0.05						1	mg/l			
F. Flow	VALUE		VALUE		VALUE		Estimated	MGD		VALUE	
G. Temperature (winter)	Est. Avg. 5.6		VALUE		VALUE		1	°C		VALUE	
H. Temperature (summer)	VALUE 26.0		VALUE		VALUE			°C		VALUE	
I. pH	MINIMUM 8.9	MAXIMUM 9.5	MINIMUM	MAXIMUM			15	STANDARD LIMITS			

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT		3. EFFLUENT		3. EFFLUENT		4. UNITS		5. INTAKE (optional)	
	A. BE-LEVED PRE. SENT	B. BE-LEVED AB. SENT	A. MAXIMUM DAILY VALUE	B. MAXIMUM 30 DAY VALUE	C. LONG TERM AVRG. VALUE	D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE	B. NO. OF ANALYSES		
A. Bromide (24959-67-9)	X											
B. Chlorine Total Residual	X											
C. Color	X											
D. Fecal Coliform	X											
E. Fluoride (16984-48-8)	X											
F. Nitrate-Nitrite (as N)	X											

CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT				4. UNITS				5. INTAKE (optional)	
	A. BE-LEVED AS BEHT	B. BE-LEVED AS BEHT	A. MAXIMUM DAILY VALUE (1) CONCENTRATION (2) MASS	B. MAXIMUM 30 DAY VALUE (1) CONCENTRATION (2) MASS	C. LONG TERM AVRG. VALUE (1) CONCENTRATION (2) MASS	D. NO. OF ANAL. YSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE (1) CONCENTRATION (2) MASS	B. NO. OF ANAL. YSES		
G. Nitrogen Total Organic (as N)		X										
H. Oil and Grease		X										
I. Phosphorus (as P) Total (7723-14-0)		X										
J. RADIOACTIVITY												
(1) Alpha Total		X										
(2) Beta Total		X										
(3) Radium Total		X										
(4) Radium 226 Total		X										
K. Sulfate (as SO <sub>4</sub> ) (14808-79-8)		X										
L. Sulfide (as S)		X										
M. Sulfite (as SO <sub>3</sub> ) (14265-45-3)		X										
N. Surfactants		X										
O. Aluminum Total (7429-90-5)		X										
P. Barium Total (7440-39-3)		X										
Q. Boron Total (7440-42-8)		X										
R. Cobalt Total (7440-48-4)		X										
S. Iron total (7439-89-6)	X			0.703						1	mg/l	
T. Magnesium Total (7439-95-4)	X			8.28						1	mg/l	
U. Molybdenum Total (7439-98-7)		X										
V. Manganese Total (7439-96-5)		X										
W. Tin Total (7440-31-5)		X										
X. Titanium Total (7440-32-6)		X										

# Environmental Analysis South, Inc

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

Dennis Tittle  
 St Jude Industrial Park  
 P.O. Box 70  
 New Madrid, MO 63869

Report Number: 115406

## Report of Analysis

Reference:

The analysis of wastewater is conducted in accordance US EPA approved methods listed in 40 CFR Part 136.

<b>Log Number:</b>	<b>Sample Description:</b>	<b>Sample Date:</b>	<b>Sample Received Date:</b>
<b>1403906</b>	<b>Outfall #003</b>	<b>11/9/2011</b>	<b>11/9/2011</b>

**Demands**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
B.O.D. (5-day)	< 2	mg/L	SM-5210 B-01		11/09/11	147
Ammonia	12	mg/L	CAI-SB1500		11/14/11	133

**Microbiology**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Fecal Collform	32	cfu/100 mls	SM-9222 D-97		11/09/11	102

**Minerals**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
pH Measurement	8.44	S.U.	SM-4500-H B-00		11/09/11	133

**Miscellaneous**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total Organic Carbon	0.58	mg/L	SM-5310B,C,or D-00	PDC	11/28/11	

**Nutrients**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Ammonia as Nitrogen	< 0.050	mg/L	Lachat-10-107-06-1-K		11/21/11	102

**Preparation Methods**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total (Total Recoverable) Metals	1	Prep	EPA-200.2		11/10/11	133

# Environmental Analysis South, Inc

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

Dennis Tittle  
St Jude Industrial Park  
P.O. Box 70  
New Madrid, MO 63869

Report Number: 115406

## Report of Analysis

Log Number: 1403906      Sample Description: Outfall #003      Sample Date: 11/9/2011      Sample Received Date: 11/9/2011

### Solids

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
	16	mg/L	SM-2540 D-97		11/09/11	133

### Total (Total Recoverable) Trace Metals

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Iron	0.703	mg/L	SM-3111 B-99		11/14/11	133
	8.28	mg/L	SM-3111 B-99		11/14/11	133

Log Number: 1409907      Sample Description: outfall #005      Sample Date: 11/9/2011      Sample Received Date: 11/9/2011

### Demands

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
B.O.D. (5-day)	3.12	mg/L	SM-5210 B-01	J	11/09/11	147
	17	mg/L	CAI-SB1500		11/14/11	133

### Microbiology

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Fecal Coliform	2,680	cfu/100 mls	SM-9222 D-97		11/09/11	102

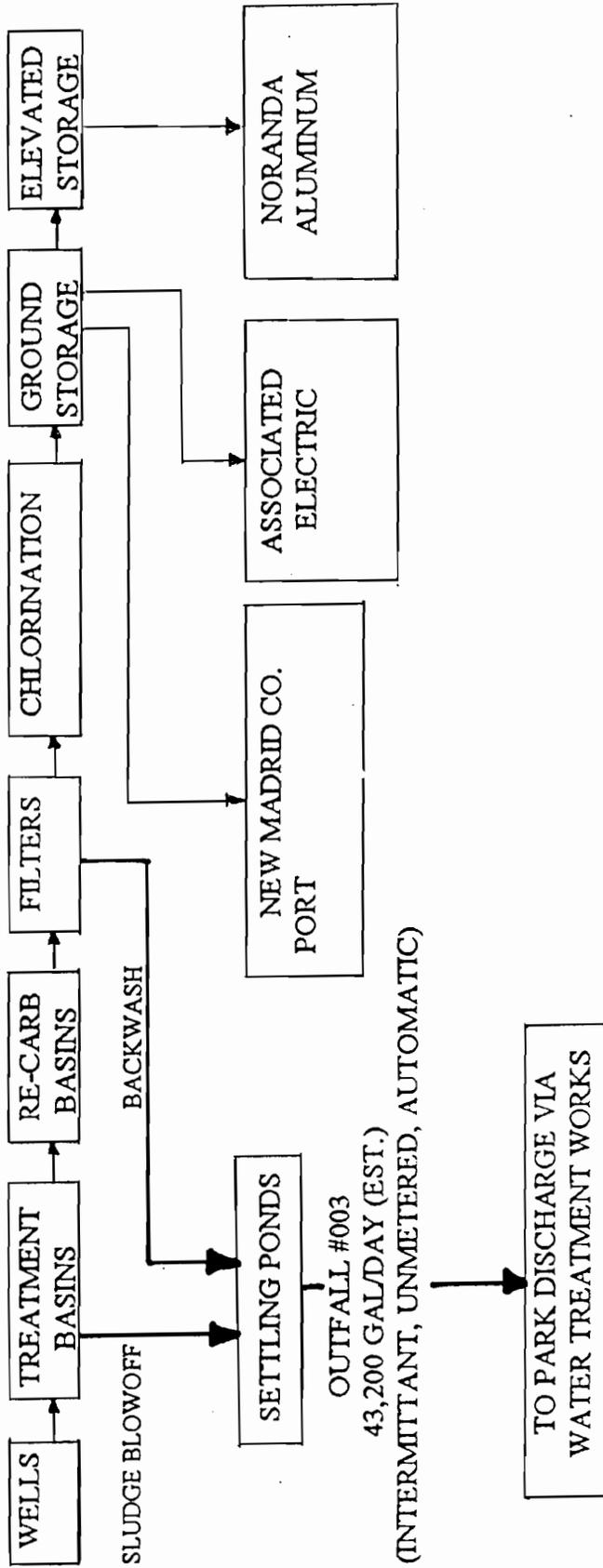
### Minerals

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
pH Measurement	8.29	S.U.	SM-4500-H B-00		11/09/11	133
	1.77	mg/L	SM-4110B-00		11/15/11	133

### Miscellaneous

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total Organic Carbon	3.3	mg/L	SM-5310B,C,or D-00	PDC	11/28/11	

FORM "C"  
SECTION 2.40-A  
ST. JUDE INDUSTRIAL PARK PERMIT  
WATER TREATMENT PLANT  
NPDES PERMIT #MO-0098418 OUTFALL #003





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH  
 (SEE MAP FOR APPROPRIATE REGIONAL OFFICE)  
**FORM C - APPLICATION FOR DISCHARGE PERMIT - MANUFACTURING,  
 COMMERCIAL, MINING AND SILVICULTURE OPERATIONS**

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

**NOTE: DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS**

1.00 NAME OF FACILITY

St. Jude Industrial Park - Water Treatment Plant Sludge Drying Area

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER

MO - 0098418

1.20 THIS IS A NEW FACILITY AND WAS CONSTRUCTED UNDER MISSOURI CONSTRUCTION PERMIT NUMBER (COMPLETE ONLY IF THIS FACILITY DOES NOT HAVE AN OPERATING PERMIT).

2.00 LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES APPLICABLE TO YOUR FACILITY (FOUR DIGIT CODE)

A. FIRST 4941 - Water Treatment & Distribution B. SECOND 4952 - Wastewater Treatment

C. THIRD \_\_\_\_\_ D. FOURTH \_\_\_\_\_

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.

OUTFALL NUMBER (LIST) SE ¼ NE ¼ SEC 30 T 22N R 14E New Madrid County  
005 - Stormwater runoff from the water treatment lime sludge drying area. Maximum  
flow based on a 6.5" (0.54')/25 year/24 hr. storm event which calculates to 0.61  
MGD. Runoff goes into the St. Jude Industrial Park ditch system.

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER.

OUTFALL NUMBER (LIST)	RECEIVING WATER
005	St. Jude Industrial Park stormwater ditch system and eventually some enters the Portage Bayou, Basin 69, Little River Diversion Ditches RR# 08020204-006-002

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS:

Operation of the City of New Madrid, St. Jude Industrial Park providing the following utilities and services to tenants: potable water (non-transient, non-community public water treatment facility); collection, treatment, and irrigation of domestic sanitary wastewater from park tenants; maintenance of all roads, railroads, drainage ditches, and general park maintenance.

JAN 18 2012



2.40 CONTINUED

C. EXCEPT FOR STORM RUNOFF, LEAKS, OR SPILLS, ARE ANY OF THE DISCHARGES DESCRIBED IN ITEMS A OR B INTERMITTENT OR SEASONAL?  
 YES (COMPLETE THE FOLLOWING TABLE)       NO (GO TO SECTION 2.50)

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

2.50 MAXIMUM PRODUCTION

A. DOES AN EFFLUENT GUIDELINE LIMITATION PROMULGATED BY EPA UNDER SECTION 304 OF THE CLEAN WATER ACT APPLY TO YOUR FACILITY?  
 YES (COMPLETE B.)       NO (GO TO SECTION 2.60)

B. ARE THE LIMITATIONS IN THE APPLICABLE EFFLUENT GUIDELINE EXPRESSED IN TERMS OF PRODUCTION (OR OTHER MEASURE OF OPERATION)?  
 YES (COMPLETE C.)       NO (GO TO SECTION 2.60)

C. IF YOU ANSWERED "YES" TO B. LIST THE QUANTITY THAT REPRESENTS 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.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS <i>(list outfall numbers)</i>
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. <i>(specify)</i>	

2.60 IMPROVEMENTS

A. ARE YOU NOW 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 THAT 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 3.00)

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

B. OPTIONAL: YOU MAY ATTACH ADDITIONAL SHEETS DESCRIBING ANY ADDITIONAL WATER POLLUTION CONTROL PROGRAMS (OR OTHER ENVIRONMENTAL PROJECTS WHICH MAY AFFECT YOUR DISCHARGES) YOU NOW HAVE UNDER WAY OR WHICH YOU PLAN. INDICATE WHETHER EACH PROGRAM IS NOW UNDER WAY OR PLANNED, AND INDICATE YOUR ACTUAL OR PLANNED SCHEDULES FOR CONSTRUCTION.  
 MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED.



3.10 BIOLOGICAL TOXICITY TESTING DATA

DO YOU HAVE ANY KNOWLEDGE OR REASON TO BELIEVE THAT ANY BIOLOGICAL TEST FOR ACUTE OR CHRONIC TOXICITY HAS BEEN MADE ON ANY OF YOUR DISCHARGES OR ON A RECEIVING WATER IN RELATION TO YOUR DISCHARGE WITHIN THE LAST THREE YEARS?

YES (IDENTIFY THE TEST(S) AND DESCRIBE THEIR PURPOSES BELOW.)  NO (GO TO 3.20)

3.20 CONTRACT ANALYSIS INFORMATION

WERE ANY OF THE ANALYSES REPORTED PERFORMED BY A CONTRACT LABORATORY OR CONSULTING FIRM?

YES (LIST THE NAME, ADDRESS AND TELEPHONE NUMBER OF AND POLLUTANTS ANALYZED BY EACH SUCH LABORATORY OR FIRM BELOW.)  NO (GO TO 3.30)

A. NAME	B. ADDRESS	C. TELEPHONE (area code and number)	D. POLLUTANTS ANALYZED (list)
Environmental Analysis South	4000 East Jackson Blvd. Jackson, MO 63755	(573) 204-8817	Aluminum, BOD5, Iron, Magnesium, Nitrate, pH, TOC, SS, COD, Total Kjeldahl Nitrogen

3.30 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 THE 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 AND IMPRISONMENT.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Fred Turner, Mgr., St. Jude Ind. Park Frank R. Davis, Jr., Plant Manager, Noranda Aluminum, Inc.	TELEPHONE NUMBER (AREA CODE AND NUMBER) (573) 643-2784
SIGNATURE (SEE INSTRUCTIONS) 	DATE SIGNED 5-22-13

PLEASE PRINT OR TYPE. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

FORM C  
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)		OUTFALL NO. 005
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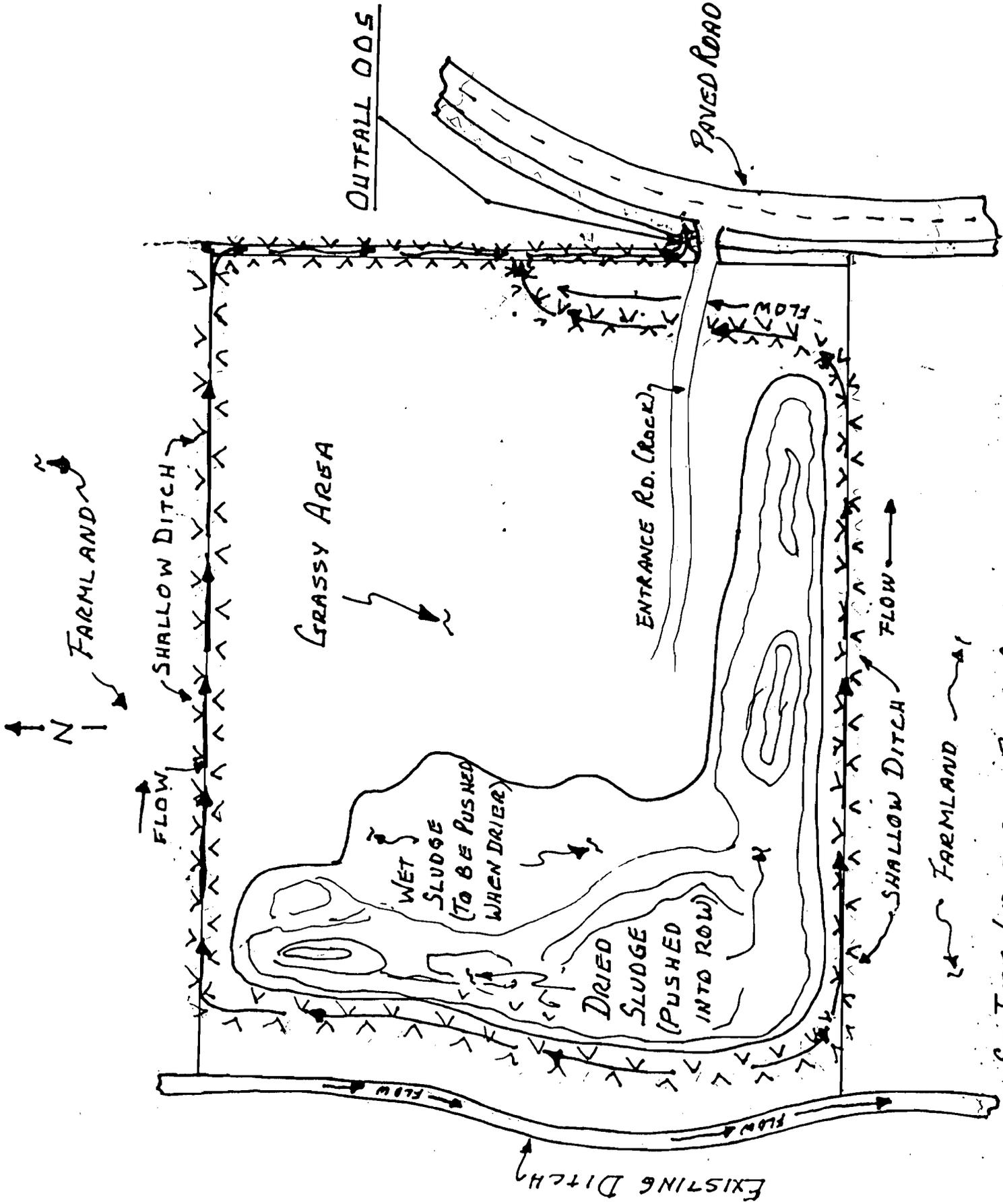
1. POLLUTANT	2. EFFLUENT				3. UNITS (specify if blank)			4. INTAKE (optional)		
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
A. Biochemical Oxygen Demand (BOD)	3.12				1	mg/l				
B. Chemical Oxygen Demand (COD)	17				1	mg/l				
C. Total Organic Carbon (TOC)	3.3				1	mg/l				
D. Total Suspended Solids (TSS)	181				1	mg/l				
E. Ammonia (as N)	<0.050				1	mg/.				
F. Flow EST. MAX.	VALUE 0.61 MGD BASED ON 25 YR/24 HR. STORM EVENT.	VALUE	ACTUAL FLOW IS CALCULATED AS IT OCCURS	VALUE						
G. Temperature (winter)	VALUE 4.2	VALUE		VALUE		°C				
H. Temperature (summer)	VALUE 21.8	VALUE		VALUE		°C				
I. pH	MINIMUM	MAXIMUM	MINIMUM 7.8	MAXIMUM 8.9	11	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT			4. UNITS			5. INTAKE (optional)			
	A. BE-LEVED PRESENT	B. BE-LEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
A. Bromide (24959-67-9)	X											
B. Chlorine Total Residual	X											
C. Color	X											
D. Fecal Coliform	X		2,680					#/100ml				
E. Fluoride (16984-48-8)	X											
F. Nitrate-Nitrite (as N)	X		< 0.02			1		mg/l				

CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT				4. UNITS		5. INTAKE (optional)		B. NO. OF ANAL. YSES
	A. BE-LEVED ASSENT	B. BE-LEVED ASSENT	A. MAXIMUM DAILY VALUE (1) CONCENTRATION	B. MAXIMUM 30 DAY VALUE (2) MASS	C. LONG TERM AVRG. VALUE (3) MASS	D. NO. OF ANAL. YSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE (1) CONCENTRATION	B. MASS	
G. Nitrogen Total Organic (as N)	X		≤ 0.500			1	mg N/l				
H. Oil and Grease		X									
I. Phosphorus (as P) Total (7723-14-0)		X									
<b>J. RADIOACTIVITY</b>											
(1) Alpha Total		X									
(2) Beta Total		X									
(3) Radium Total		X									
(4) Radium 226 Total		X									
K. Sulfate (as SO <sub>4</sub> ) (14808-79-8)	X		1.77			1	mg/l				
L. Sulfide (as S)		X									
M. Sulfite (as SO <sub>3</sub> ) (14265-45-3)		X									
N. Surfactants		X									
O. Aluminum Total (7429-90-5)	X		3.3			1	mg/l				
P. Barium Total (7440-39-3)		X									
Q. Boron Total (7440-42-8)		X									
R. Cobalt Total (7440-48-4)		X									
S. Iron Total (7439-89-6)	X		13.1			1	mg/l				
T. Magnesium Total (7439-95-4)	X		9.32			1	mg/l				
U. Molybdenum Total (7439-98-7)		X									
V. Manganese Total (7439-96-5)		X									
W. Tin Total (7440-31-5)		X									
X. Titanium Total (7440-32-6)		X									



ST. JUDE INDUSTRIAL PARK SLUDGE DRYING AREA

## SLUDGE DRYING BED

### OUTFALL 005 N.P.D. E.S. STORMWATER RUNOFF

Area = 300,000 ft<sup>2</sup>    F = Runoff Factor = 0.5    k = Volume / ft<sup>3</sup> = 7.48 GAL/FT<sup>3</sup>

E = Rainfall Event in Ft. (24 Hr.)

$$\frac{(A)(F)(k)(E)}{1,000,000} = \text{FLOW (MGD)} \quad \frac{(300,000)(0.5)(7.48)(E)}{1,000,000} = \underline{1.122 \times E = \text{MGD}}$$

STORMWATER FLOW (MGD) = 1.122 × RAINFALL IN FT.

EXAMPLE: E = 1.75 INCHES = 0.15 FT.

$$1.122 \times 0.15 = 0.168 \text{ MGD.}$$

# Environmental Analysis South, Inc

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

Dennis Tittle  
 St Jude Industrial Park  
 P.O. Box 70  
 New Madrid, MO 63869

Report Number: 115406

## Report of Analysis

**Log Number:** 1403906      **Sample Description:** Outfall #003      **Sample Date:** 11/9/2011      **Sample Received Date:** 11/9/2011

**Solids**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
	16	mg/L	SM-2840 D-97		11/09/11	

**Total (Total Recoverable) Trace Metals**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Iron	0.703	mg/L	SM-3111 B-99		11/14/11	133
	5.28	mg/L	SM-3111 B-99		11/14/11	

**Log Number:** 1403907      **Sample Description:** outfall #005      **Sample Date:** 11/9/2011      **Sample Received Date:** 11/9/2011

**Demands**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
B.O.D. (5-day)	3.12	mg/L	SM-5210 B-01	J	11/09/11	147
	17	mg/L	CAI-SB1500		11/09/11	

**Microbiology**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Fecal Coliform	2,680	cfu/100 mls	SM-9222 D-97		11/09/11	102

**Minerals**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
pH Measurement	8.29	S.U.	SM-4500-H B-00		11/09/11	133
	1.77	mg/L	SM-4110B-00		11/09/11	

**Miscellaneous**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Total Organic Carbon	3.3	mg/L	SM-5310B,C,or D-00	PDC	11/28/11	

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Dennis Tittle  
 St Jude Industrial Park  
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 New Madrid, MO 63869

Report Number: 115406

## Report of Analysis

**Log Number:** 1403907      **Sample Description:** outfall #005      **Sample Date:** 11/9/2011      **Sample Received Date:** 11/9/2011

**Nutrients**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Ammonia as Nitrogen	< 0.050	mg/L	Lachat-10-107-06-1-K		11/21/11	102
	< 0.500	mg/L	Lachat-10-107-06-2-K		11/15/11	102
Nitrate as Nitrogen	< 0.020	mg/L	SM-4110B-00		11/15/11	133
<b>Preparation Methods</b>						
Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Anions IC Sample Preparation	1	Prep	SM-4110B-00		11/09/11	133
	1	Prep	EPA-200.7 Rev. 4.4	PDC	11/18/11	
Total (Total Recoverable) Metals	1	Prep	EPA-200.2		11/10/11	133

**Solids**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Suspended Solids	181	mg/L	SM-2540 D-97		11/09/11	133

**Total (Total Recoverable) Trace Metals**

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
Aluminum by ICP	3.3	mg/L	EPA-200.7 Rev. 4.4	PDC	11/18/11	
	13.1	mg/L	SM-3111 B-99		11/14/11	133
Magnesium	9.32	mg/L	SM-3111 B-99		11/14/11	133

**St. Jude Industrial Park NPDES Permit # MO-0098418**

**Request to change or add the following to:**

**Section C. - Special Conditions**

**8. Water Treatment Plant Sludge**

Change:

- (b) If the water treatment plant by-product (lime sludge) is to be applied to farmland, it is the responsibility of the land owner, their representative, or the applicator to determine the ENM requirements and soil pH adjustments of the land and apply the lime by-product accordingly. At this point, the material becomes an agricultural lime substitute and should be treated as such.
  
- (c) Delete
  
- (d) Delete – no aluminum additives are used at this plant.
  
- (e) new (c) An annual report shall be submitted by January 28<sup>th</sup> of each year that contains a summary of the previous year's lime sludge removal. The report must indicate the name(s) of the party(ies) removing the sludge, the amount of sludge removed in tons, and the ENM of the sludge.
  
- (f) new (d) Other possible beneficial uses of the water treatment plant by-product (lime sludge) may be allowed with prior, written approval by the Missouri Department of Natural Resources, on a case by case basis.

**St. Jude Industrial Park**

**NPDES Permit Renewal**

**MO0098418**

**2012**

**Submitted – January, 2012**

**Re-submitted – May, 2013**

RECEIVED  
MAY 13 2013  
WATER PROTECTION PROGRAM