



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

Kemin Industries, Inc.
2100 Maury Street
Des Moines, IA 50316

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Kemin Industries, Inc., Lawrence County, Missouri.

Please read your permit and enclosed Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis. The required forms are enclosed. Please make copies for your use. Completed forms should be mailed to this office.

This permit is both your Federal NPDES Permit and your new Missouri State Operating Permit and replaces all previous State Operating Permits issued for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.

Please be aware that nothing in this permit relieves the permittee of any other legal obligations or restrictions, such as other federal or state laws, court orders, or county or other local ordinances or restrictions.

If you were adversely affected by this decision, you may be entitled to an appeal before the administrative hearing commission pursuant to 10 CSR 20-1.020 and Section 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission. Any appeal shall be directed to: Administrative Hearing Commission, Truman Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, MO 65102, Phone: 573-751-2422, Fax: 573-751-5018, website: www.oa.mo.gov/ahc.



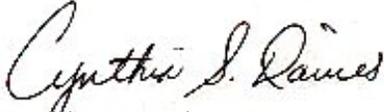
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Kemin Industries, Inc.
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If you have questions concerning this permit please contact Ms. Gwenda J. Bassett of my staff by calling 417-891-4300 or via mail at Southwest Regional Office, 2040 W. Woodland, Springfield, MO 65807-5912.

Sincerely,

SOUTHWEST REGIONAL OFFICE

A handwritten signature in cursive script that reads "Cynthia S. Davies".

Cynthia S. Davies
Regional Director

CSD/gb

Enclosures

c: DARCO, LLC

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

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

Permit No. MO-0136760

Owner: Kemin Industries, Inc.
Address: 2100 Maury Street, Des Moines, IA 50316

Continuing Authority: Same as above
Address: Same as above

Facility Name: Kemin Industries, Inc.
Facility Address: 519 North 3rd St., Verona, MO 65769

Legal Description: See Page 2
Latitude/Longitude: See Page 2

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

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

FACILITY DESCRIPTION

Facility type is a no-discharge storage and land application system for year round flows. No Certified Operator Required.

Application rate is based on nutrient loading rate, sodium & soil pH.

Continued page 2

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

January 18, 2012

Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

January 17, 2017

Expiration Date

Cynthia S. Davies, Regional Director, Southwest Regional Office

Outfall #001 – SIC #2015 (Previously permitted under MO-0112500 as Outfall #004)
South Plant – Stormwater runoff

Legal Description: NE ¼, Sec. 17, T26N, R26W, Lawrence County
Latitude/Longitude: 429042 / 4091721

Receiving Stream: Tributary to Spring River (U)
First Classified Stream and ID: Spring River (P) (03165)
USGS Basin & Sub-watershed No.: (11070207 – 0101)

Outfall #002 – SIC #2015 (Previously permitted under MO-0112500 as Outfall #005)
Five concrete storage tanks / two lined aerated earthen storage basins

Legal Description: NE ¼, Sec. 17, T26N, R26W, Lawrence County
Latitude/Longitude: 429054 / 4091739

Receiving Stream: Tributary to Spring River (U)
First Classified Stream and ID: Spring River (P) (03165)
USGS Basin & Sub-watershed No.: (11070207 – 0101)

Outfall #003 – SIC #2015 (Previously permitted under MO-0112500 as Outfall #006)
South Plant – Stormwater runoff

Legal Description: NE ¼, Sec. 17, T26N, R26W, Lawrence County
Latitude/Longitude: 429041 / 4091622

Receiving Stream: Tributary to Spring River (U)
First Classified Stream and ID: Spring River (P) (03165)
USGS Basin & Sub-watershed No.: (11070207 – 0101)

Outfall #004 – SIC #2015 (Previously permitted under MO-0112500 as Outfall #010)
Land applied wastewater from South Plant

Legal Description: NE ¼, Sec. 17, T26N, R26W, Lawrence County
Latitude/Longitude: 429054 / 4091739

Receiving Stream: Tributary to Spring River (U)
First Classified Stream and ID: Spring River (P) (03165)
USGS Basin & Sub-watershed No.: (11070207 – 0101)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PAGE NUMBER 3 of 11

PERMIT NUMBER MO-0136760

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 upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls #001 and 003- Stormwater (Note 1)						
Flow	MGD	*		*	once/quarter**	24 hr. estimate
Chemical Oxygen Demand	mg/L	120		90	once/quarter**	grab
Total Suspended Solids	mg/L	100		50	once/quarter**	grab
pH – Units	SU	***		***	once/quarter**	grab
Ammonia as N	mg/L	12.1		4.6	once/quarter**	grab
Oil & Grease	mg/L	15		10	once/quarter**	grab
Rainfall****	inches	*		*	daily	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE **APRIL 28, 2012**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)					PAGE NUMBER 4 of 11	
					PERMIT NUMBER MO-0136760	
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 upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u> – (Note 2, 3, and 4)						
Lagoon Freeboard	feet	*		*	once/month	measured
Rainfall	inches	*		*	daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2012</u> .						
<u>Outfall #004</u> – Land Application Operational Monitoring (Notes 3 & 4)						
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches / acre	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2012</u> .						
<u>Outfall #004</u> – Irrigated Wastewater (Notes 5)						
pH – Units	SU	****			once/quarter**	grab
Total Kjeldahl Nitrogen as N	mg/L	*			once/quarter**	grab
Nitrate plus Nitrite as N	mg/L	*			once/quarter**	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter**	grab
Total Phosphorus as P	mg/L	*			once/quarter**	grab
Oil and Grease	mg/L	*			once/quarter**	grab
Sodium	mg/L	250			once/quarter**	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2012</u> . THERE SHALL BE NO DISCHARGE OF FLOATING OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** **Sampling shall occur once per quarter in the periods of January through March, April through June, July through September, and October through December. Please note that monitoring reports shall be submitted no later than the 28th day of the month following the monitoring period (April 28th, July 28th, October 28th, and January 28th, respectively).** For tracking purposes samples taken anytime in the first quarter (January through March) will be recorded by the Department as though they were taken in March, samples taken anytime in the second quarter (April through June) will be recorded by the Department as though they were taken in June, samples taken anytime in the third quarter (July through September) will be recorded by the Department as though they were taken in September, and samples taken in the fourth quarter (October through December) will be recorded by the Department as though they were taken in December.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- *** 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.
- **** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.
- ***** The total precipitation for the event sampled shall be reported.

Note 1 All samples shall be collected from a discharge resulting from a precipitation event greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable precipitation event.

Note 2 - No-discharge Facility requirements: Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. 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. The report shall include the following:

- a. Record of maintenance and repairs 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 discharged 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 per acre per day and for the year, the monthly and annual precipitation received at the facility and summary of testing results.

Note 4 – Lagoon freeboard shall be reported as storage basin water level 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 or wet well.

C. SPECIAL CONDITIONS

1. Emergency Discharge. Outfall 002 may only discharge 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 recorded in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Biochemical Oxygen Demand ₅	mg/L
Total Suspended Solids	mg/l
Total Ammonia Nitrogen	mg/L
Temperature	°C
pH – Units	Standard Units

- 2. Report as no-discharge when a discharge does not occur during the reporting period.
- 3. Outfalls must be marked in the field and on the topographic site map submitted with the permit application.
- 4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

C. SPECIAL CONDITIONS (continued)

5. 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 in Part A of the permit by the Director.
- (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.

6. Water Quality Standards

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

7. 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

C. SPECIAL CONDITIONS (continued)

(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.

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

8. Lagoons and earthen basins shall have a liner that is designed, constructed and maintained in accordance with 10 CSR 20-8.020(13)(A)4. If operating records indicate, excessive percolation, the Department may require a water balance test in accordance with 10 CSR 20-8.020(16) or other investigations to evaluate adequacy of the lagoon seal. The Department may require corrective action as necessary to eliminate excess leakage.

9. Wastewater Irrigation System

- (a) Discharge Reporting. Any unauthorized discharge from the lagoon 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 and Effluent Limitations sections of this permit.
- (b) Irrigation Design. Permittee shall operate the land application system in accordance with 10 CSR 20-8.020(15). Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
 - (1) No-discharge System. When the Facility Description is "No-discharge", wastewater must be stored and irrigated at appropriate times. There shall be no-discharge from the irrigation site or storage lagoon except due to precipitation
- (c) Lagoon Operating Levels – No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot (1') below the overflow point except due to any exceedance of the 1-in-10 year or 25-year-24-hour rainfall events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30th.
- (d) Emergency Spillway. Lagoons and earthen storage basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot (1') below the top of berm. The Department may waive the requirement for overflow structures on small existing basins.
- (e) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
- (f) Saturated / Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions. There shall be no irrigation on days when more than 0.2 inches of precipitation is received or when there is observation by operator of an imminent or impending rainfall event.
- (g) 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 dwellings; or 50 feet of the property line.
- (h) Public Access Restrictions. Public access shall not be allowed to the irrigation site(s). Fencing and public access restrictions to land application sites shall be in accordance with requirements in 10 CSR 20-8.020(15)(B)(5).
- (i) Equipment Checks During Irrigation. The irrigation system and application site shall be visually inspected at least once per day during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.
- (j) Operation and Maintenance Manual. 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. Copies of the O&M Manual and subsequent revisions shall be submitted to the Departments' Water Pollution Control Program and the appropriate Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.

C. SPECIAL CONDITIONS (continued)

10. Nutrient Management

- (a) Nitrogen. The permittee shall not exceed the plant available nitrogen management approach as listed in this permit.
- (b) Phosphorus. When soil test phosphorus (P) levels are above 120 pounds per acres using Bray P-1 test method, the sludge application rate shall not exceed the annual crop requirements for available phosphorus in accordance with state NRCS guidelines. When state NRCS standards and guidelines become available, the permit will be revised to include the Phosphorus Threshold and Phosphorus Index methods to be developed under the USDA, NRCS National Policy, General Manual, Part 402.06.
- (c) The actual application rates for a given year or growing season must be adjusted based on the approved management approach and the actual sludge and soil testing results and crop requirement. If crop yields are less than that predicted in the permit application, the application rates must be reduced or the yields increased through appropriate changes in management practice.
- (d) This permit will be modified to require a Nutrient Management Plan (NMP) after promulgation of applicable state, EPA and USDA rules and guidelines. The NMP will replace the current PAN and phosphorus methods.

11. Plant Available Nitrogen (PAN) Procedure

- (a) Wastewater, sludge and fertilizer nitrogen application shall not exceed the crop nitrogen requirements based on realistic crop yield goals and the Plant Available Nitrogen (PAN) method. The wastewater application rate shall be calculated as follows:

$$\text{PAN} = \text{CNR} - \text{SRN} - \text{CFN}$$

WHERE: **CFN** = Commercial Fertilizer Nitrogen applied in pounds N/acre.
CNR = Crop Nitrogen Requirement in pounds N/acre.
PAN = Plant Available Nitrogen in wastewater and sludge expressed as annual pounds N/acres.
SRN = Soil Residual Nitrogen in pounds N/acre.

- (b) Plant Available Nitrogen (PAN) in pounds/acre for wastewater is calculated as follows:

$$\begin{aligned} \text{PAN} = & [\text{Ammonia Nitrogen}] \quad \times \quad [\text{Availability Factor}] \\ & + [\text{Organic Nitrogen}] \quad \times \quad [\text{Availability Factor}] \\ & + [\text{Nitrate Nitrogen}] \quad \times \quad [\text{Availability Factor}] \end{aligned}$$

For anaerobic treated wastewater and sludge, the nitrate nitrogen amounts will be negligible and can be ignored.

- (c) Plant Available Nitrogen (PAN) Availability factors are as follows:

(1) Average Availability factors for all fields:

<u>Types of Nitrogen</u>	<u>Surface Application</u>	<u>Immediate Incorporation or Subsurface Injection</u>
Organic	0.25 – 0.75*	0.25 – 0.75*
Ammonia	0.6**	0.9**
Nitrate	0.9**	0.9**

* Organic Nitrogen = [Total Kjeldahl Nitrogen as N] – [Ammonia as N]. Availability Factors based on time after application and waste type are:

C. SPECIAL CONDITIONS (continued)

Type of Wastewater And Sludge Treatment Method	Organic Nitrogen Availability Factor by Time Period			
	Year	Year	Year	Cumulative
	1	2	3	Year 3+
Aerobic wastewater lagoon and sludge	0.20	0.10	0.05	0.35
Anaerobic wastewater lagoon and sludge	0.40	0.20	0.10	0.70
Aerobic sludge-only storage basin/lagoon	0.40	0.20	0.10	0.70
Extended aeration plant and sludge	0.40	0.20	0.10	0.70
Waste activated treatment plant (liquids, primary/secondary sludges)	0.40	0.20	0.10	0.70
Lime Stabilized Sludge	0.40	0.20	0.10	0.70
Aerobic Sludge Digestor	0.30	0.15	0.08	0.53
Anaerobic Sludge Digestor	0.20	0.10	0.05	0.35
Composted Sludge (Class A)	0.10	0.05	0.03	0.18

NOTES: Year 1 is the current year of waste application; year 2 is the previous year of waste application; and year 3 is waste application two years ago. Nitrogen availability for years 1, 2 and 3 must be added when waste is applied in consecutive years. The cumulative factor is used when waste is applied at about the same rate for 3 consecutive years or longer.

** Average inorganic nitrogen availability based on the typical soil and climate conditions when considering additions due to precipitation, dry deposition, and foliar absorption versus losses due to volatilization and denitrification (10% denitrification loss is included). The permittee may choose to use this average value for all fields or may adjust the N availability based on site specific soil conditions using the following tables under 'field Specific Availability Factors for Inorganic Nitrogen'.

(2) Field Specific Availability Factors for Inorganic Nitrogen.

For ammonia and nitrate nitrogen factors, the permittee may choose to use the average value for all fields under paragraph C.1. above, or may use the alternate factors on a field specific basis using the tables below. The approved factors for each field will be included in the O&M Manual.

Table A. Alternate Field Specific Availability Factors for Surface Application					
% of inorganic N (manure., precip.) available					
Soil Organic Matter %	Excessively Well drained	Well Drained	Moderately Well drained	Somewhat Poorly Drained	Poorly Drained
< 2	71	66	62	56	45
2-5	66	60	56	49	30
> 5	63	56	49	38	19

Adapted from USDA – NRCS, national Engineering Handbook, Part 651, Animal Waste Management Field Handbook (AWMFH), April 1992, Tables 11-6 and 11-8.

C. SPECIAL CONDITIONS (continued)

(d) Soil Residual Nitrogen (SRN).

- (1) For Annual Crops, the nitrogen availability from soil organic matter must be included based on soil CEC and crop season as follows:

$$\text{SRN in pound N/acre}^* = [\text{percent organic matter}] \times \text{Soil Availability Factor}$$

<u>Growing Season</u>	<u>Soil Availability Factor</u> <u>By Soil CEC Ranges and Organic Matter</u>			
	<u>Organic Matter</u>	<u>CEC <10</u>	<u>CEC 10-18</u>	<u>CEC >18</u>
Summer	1%	40*	20	10
Winter	1%	20*	10	5

***Note:** If CEC is less than 10 and organic matter is 1.5% or greater, the total SRN is constant at 60 pound nitrogen for summer and 30 pounds for winter.

- (2) For Perennial Crops the SRN is considered zero (0) for purposes of these calculations because the SRN has already been considered in the crop fertilization recommendations in the referenced publications.

- (e) Crop nitrogen requirements shall be based on University of Missouri publication, Soil Test Interpretations and Recommendations Handbook, as revised or one of the other reference publications listed in this permit. Alternate reference publications may be used only upon prior approval by the department and shall be listed in the approved Operation and Maintenance Manual.
- (f) If a crop is not harvested, the PAN rate shall not exceed 40 lbs/acre/year and grass vegetation must be maintained on the site.

11. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 30 days and implemented within 90 days of issuance of coverage under this general permit. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with this facility. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.
- (b) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water. Minimum BMPs are listed in Special Conditions #12 below.
- (c) The SWPPP must include a schedule for monthly site inspections and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. The Department must be notified within fifteen (15) days by letter of any corrections of deficiencies. Deficiencies that consist of minor repairs or maintenance must be corrected within seven (7) days. Deficiencies that require additional time or installation of a treatment device to correct should be detailed in the written notification. Installation of a treatment device, such as an oil water separator, may require a construction permit. Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
- (d) A provision for designating an individual to be responsible for environmental matters.
- (e) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.

12. Permittee shall adhere to the following minimum Best Management Practices:

- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.

C. SPECIAL CONDITIONS (continued)

- (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
- (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
- (d) Provide good housekeeping practices on the site to keep solid waste from entry into waters of the state.
- (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property.

13. The purpose of the SWPPP and the BMPs listed therein is to prevent pollutants from entering waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR20-2.010(56)] of waters of the state, or failed to achieve compliance with benchmarks. Corrective action means the facility took steps to eliminate the deficiency.

14. All spills must be **cleaned up** within 24 hours or as soon as possible, and a written report of the incident supplied with the facility's Discharge Monitoring Report. The following spills must be **reported** to the department at the earliest practicable moment, but no greater than 24 hours after the spill occurs:

- (a) Any spill, of any material, that leaves the property of the facility;
- (b) Any spill, of any material outside of secondary containment and exposed to precipitation, greater than 25 gallons or equivalent volume of solid material.

The department may require the submittal of a written report detailing measures taken to clean up the spill within 5 days of the spill. Whether the written report is submitted with the Discharge Monitoring Report or required to be submitted within 5 days, it must include the type of material spilled, volume, date of spill, date clean-up completed, clean-up method, and final disposal method. If the spill occurs outside of normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the spill to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436. Leaving a message on a department staff member voice-mail does not satisfy this reporting requirement. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the Noncompliance Reporting requirement found in Standard Conditions Part I.

Federal Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

**Missouri Department of Natural Resources
Statement of Basis
Kemin Industries, Inc.
MSOP #: MO-0136760
Lawrence County**

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rationale for the development of the NPDES Missouri State Operating Permit (operating permit). This Statement includes Wasteload Allocations, Water Quality Based Effluent Limitations, and Reasonable Potential Analysis calculations as well as any other calculations that effect the effluent limitations of this operating permit. This Statement does not pertain to operating permits that include sewage sludge land application plans and variance procedures, and does not include the public comment process for this operating permit.

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

Part I – Facility Information

Facility Type: IND
SIC #2015

Facility Description: The Kemin Industries, Inc. Verona plant produces ingredients for companion animal food from animal organs from local processing plants. The organs are processed through a series of steps to produce a final product that is packed in bags and totes. Wastewater is generated from product driers and from plant washdown, resulting in a high strength, organic wastewater. Wastewater facility type is a no-discharge storage and land application system for year round flows. There are two storage basins, plus five underground concrete storage tanks (not exposed to stormwater). A significant portion of the highest strength wastewater generated is not land applied, but is instead hauled to the Springfield SW WWTF. Land application sites total approximately 950- acres.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	Varies	BMPs	South plant- stormwater runoff	0.3
002	No Discharge allowed	Primary	Emergency discharge from storage basin, south plant	0.3
003	Varies	BMPs	South plant- stormwater runoff	0.3
004	No Discharge	Primary	Land Applied Wastewater from South Plant	N/A

Receiving Water Body’s Water Quality & Facility Performance History:

This is for a new industrial stormwater and land application permit. Due to a sale of American Dehydrated Foods, Inc. south plant, the outfalls contained in this permit which were previously permitted under MO-0112500, are now being permitted under MO-0136760.

Comments: None.

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR

20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

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

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

- 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)]:

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 1st 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:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Tributary to Spring River	U	N/A	General Criteria	11070207	Ozark/ Neosho
Spring River	P	03165	AQL, LWW, SCR, WBC-A		

* - 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).

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Spring River (U)	0	0	0

MIXING CONSIDERATIONS

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

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

Part IV – 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 statement are at least as protective as those previously established; therefore, backsliding does not apply.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(8)(A)10.], when a Continuing Authority under paragraph 10 CSR 20-6.010(3)(B)1. or 2. is expected to be available for connection within the next five (5) years, any operating permit issued to a permittee under this paragraph, located within the service area of the paragraph (3)(B)1. or 2. facility, shall contain the following special condition... This language is contained in Special Condition #3 of this operating permit.

ANTIDegradation:

Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation requirements are consistent with 40 CFR 131.12 that outlines methods used to assess activities that may impact the integrity of a water and protect existing uses. This policy may compel the state to maintain a level of water quality above those mandated by criteria.

Not Applicable .

Not required at this time. This is an existing discharge authorized under a new permit. If the facility proposes to expand or change the characteristics of the discharge, an antidegradation review may be required.

APPLICABLE PERMIT PARAMETERS:

Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits, and from appropriate sections of the renewal application.

COMPLIANCE AND ENFORCEMENT:

Action taken by the Department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Not Applicable .

The permittee/facility is not under enforcement action and is considered to be in compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

PRETREATMENT PROGRAM:

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

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

also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

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):

Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ;

This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSOs), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, 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.

Not Applicable ;

This permit does not contain a SOC.

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.

In accordance with the EPA's *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Applicable ;

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

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 to total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ;

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

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

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

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

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

WLA MODELING:

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.

Not Applicable ;

At this time, the permittee is not required to conduct WET test for this facility.

40 CFR 122.41(m) - Bypasses:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from "bypassing" untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, which includes blending, 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.

- Not Applicable, this facility does not bypass.

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

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

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

Not Applicable ;

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

Adjusted Design Flow:

10 CSR 20-6.011(1)(B)1. provides for an Adjusted Design Flow when calculating permit fees on human sewage treatment facilities. If the average flow is sixty percent (60%) or less than the system's design flow, the average flow may be substituted for the design flow when calculating the permit fee on human sewage treatment facilities. If the facility's actual average flow is consistently 60% or less than the permitted design flow, the facility may qualify for a reduction in your fee when:

- The facility has a valid permit, or has applied for re-issuance, is in compliance with the terms, conditions and effluent limitations of the permit, and the facility has a good compliance history; and
- Flow is not expected to exceed 60% of design flow for the remaining term of the existing operating permit.

Not Applicable ;

Municipalities, POTWs, and Industrials do not qualify for Adjusted Design flows.

Outfall #001 and 003 – Stormwater Runoff

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD	1	*		*	NO	SAME
COD	MG/L	9	120		90	NO	SAME
TSS	MG/L	2, 9	100		50	NO	SAME
pH (S.U.)	SU	1	6.5-9.0		6.5-9.0	YES	6.0-9.0
AMMONIA AS N	MG/L	2, 3, 5	12.1		4.6	NO	SAME
OIL & GREASE	MG/L	1	15		10	NO	SAME

* Monitoring Only

** Parameter not previously established.

N/A - Not applicable

- | | |
|------------------------------------------|------------------------------------|
| 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 | |

DERIVATION AND DISCUSSION OF LIMITS:

Chemical Oxygen Demand. According to the permit application, conditions at the facility are believed to be the same as permitted under MO-0112500. According to a site visit, materials exposed to stormwater pose a potential for oxygen demand in storm water runoff. Effluent limitations established are consistent with stormwater effluent limits for other industrial stormwater facilities (not discharging to losing streams). COD is allowable instead of BOD₅ because according to *Standard Methods for Examination of Water & Wastewater*, organic oxygen demand is covered by COD analysis. The Permit Writer drafting this fact sheet has reviewed previous data submitted by the facility and believe that this facility is able to meet this limitation upon issuance of this operating permit.

Total Suspended Solids (TSS). Limitations are the same and have not been modified from the permit issued 10/24/2008. According to the permit application, conditions at the facility are believed to be the same. According to a site visit, materials exposed to stormwater pose a potential for solids in stormwater runoff. Total Suspended Solids effluent limits will be set at 100 mg/L Daily Max and 50 mg/L Monthly Average. These effluent limits have been demonstrated to be attainable using existing technology, at existing industrial stormwater facilities, and are believed to be protective of general criteria water quality standards when applied to storm water discharges.

pH.

– pH is limited to the range of 6.5 – 9.0 pH units, as per [10 CSR 20-7.015]. pH is measured in pH units and is not to be averaged.

Total Ammonia Nitrogen. Limitations are the same and have not been modified from the permit issued on 10/24/2008. According to the permit application, conditions at the facility are believed to be the same. According to a site visit, high levels of ammonia in process wastewater and high strength of organic raw materials and final product creates potential for exceedence of Water Quality Standards in storm water runoff. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B1]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Acute water quality criteria apply, 12.1 mg/L. Chronic criteria do not apply, because chronic criteria are based on a 30-day average, which is unlikely to occur due to the intermittent nature of a storm water discharge.

Acute WLA = 12.1 mg/L

LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L

[CV = 0.6, 99th Percentile]

MDL = 3.9 mg/L (3.11) = 12.1 mg/L

[CV = 0.6, 99th Percentile]

AML = 3.9 mg/L (1.19) = 4.6 mg/L

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

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

Outfall #002 – Storage Basin

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
LAGOON FREEBOARD	FEET	1	*		*	NO	SAME
RAINFALL	INCHES	9	*		*	NO	SAME
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Discharge for reasons other than those allowed in the permit will constitute a violation. Monitoring requirement only.
 N/A - Not applicable

- | | |
|------------------------------------------|------------------------------------|
| 7. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 8. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 9. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 10. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 11. Ammonia Policy | 11. WET Test Policy |
| 12. Dissolved Oxygen Policy | |

DERIVATION AND DISCUSSION OF LIMITS:

Lagoon Freeboard – the freeboard has to be maintained at 2 feet, therefore monitoring is required.

Rainfall – The lagoon is built to take into account the precipitation it receives as well as to determine if a discharge from the lagoon meets the exception of 1 in 10 year ran event or 24 hour 25 year rain event, monitoring is required.

The lagoon (Outfall #002) may only discharge 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 recorded in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Biochemical Oxygen Demand ₅	mg/L
Total Suspended Solids	mg/l
Total Ammonia Nitrogen	mg/L
Temperature	°C
pH – Units	Standard Units

These constituents are present in wastewater and will aid in determining any water quality violations to the receiving stream.

Minimum Sampling and Reporting Frequency Requirements #002: Permittee shall notify the Southwest Regional Office immediately when a discharge begins and when the discharge ceases.

Outfall #004- Land Application Site

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
IRRIGATION PERIOD	HOURS	1	*		*	NO	SAME
VOLUME IRRIGATED	GALLONS	1	*		*	NO	SAME
APPLICATION AREA	ACRES	1	*		*	NO	SAME
APPLICATION RATE	INCHES/ACRE	1	*		*	NO	SAME
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

** - Monitoring Only

Minimum Sampling and Reporting Frequency Requirements: daily sampling is required.

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
PH (S.U.)	SU	1	≥ 6.5			YES	≥ 6.0
TOTAL KJELDAHL NITROGEN AS N	MG/L	9	*			NO	SAME
NITRATE PLUS NITRITE AS N	MG/L	9	*			NO	****
AMMONIA AS N	MG/L	9	*			NO	SAME
TOTAL PHOSPHORUS	MG/L	9	*			NO	SAME
OIL AND GREASE	MG/L	9	*			NO	SAME
SODIUM	MG/L	9	250			NO	SAME

**** Parameter not previously established.

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 | |

DERIVATION AND DISCUSSION OF LIMITS:

OUTFALL #004

Total Kjeldahl Nitrogen, Ammonia as N, Nitrate plus Nitrite as N, and Total Phosphorus:

Monitoring only to ensure the nutrients added will not exceed the plant uptake and to ensure the Nitrogen loading stays below 150 pounds per acre per year and the Total Phosphorus stays under 120 pounds per acre per year. The Irrigated Wastewater monitoring is necessary to determine Phosphorus and Nitrogen loading for the plants.

Oil and Grease. Monitoring required because oil and grease is known to be present in land applied wastewater. This is a conventional pollutant. If effluent limitations are imposed, the limits for protection of aquatic life is 10 mg/L and 15 mg/L daily maximum.

Sodium. Limit established based on professional judgment of Permit Writer in consultation with staff soil scientist; this is to prevent the build up of sodium in soil at land application sites to phytotoxic levels. A sodium limit of 250 mg/L, daily maximum is being imposed.

Minimum Sampling and Reporting Frequency Requirements: Quarterly sampling is required due to smaller flows.

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.

Date of Factsheet: October 17, 2011

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