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-0001716
Owner:	BASF Hannibal Plant
Address:	3150 Highway JJ, Palmyra MO 63461-2611
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	BASF Hannibal Plant
Address:	3150 Highway JJ, Palmyra, MO 63461-2611
Legal Description:	See Page 2
UTM:	See Page 2
Receiving Stream:	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0304

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

FACILITY DESCRIPTION

SIC #2879, 2834
NAICS #325320, 325412

BASF manufactures various agricultural chemicals and intermediates to pesticide active ingredients.

Facility Description continued on 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.

October 1, 2013 — Effective Date
November 1, 2016 — Revised Date

Harry Bozoian, Director, Department of Natural Resources

September 30, 2018 — Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001: SIC# 2879 NAICS# 325320.
All BASF pesticide manufacturing process wastewater is being collected through a series of feed tankage and pumping systems. These systems are currently being used to manage the liquid wastes sent to incineration for treatment prior to discharge via a diffuser at Outfall #001. Average flow through outfall #001 is 1.4 MGD. Design flow is 1.5 MGD.

Legal Description:	Outfall 001 NE ¼, SW ¼, Sec. 11, T58N, R5W, Marion County
UTM:	X = 634447, Y = 4410628
Receiving Stream:	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0304

Outfall #002: SIC# 2879 NAICS# 325320. Discharge from utility generation treated by pH neutralization average flow 0.1 MGD; Scrubbing systems effluent, stormwater from secondary containment, cooling tower, boiler blowdown, boiler feedwater demineralization ion exchange regeneration blowdown and process water treatment with an average flow if 0.12 MGD. Maximum flow is 0.58 MGD.

Legal Description:	Outfall 002- NE ¼ , SE ¼ , Sec. 10, T58N, R5W, Marion County
UTM:	X = 633982, Y = 4410950
Receiving Stream:	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0304

Outfall #003: SIC# 2834 NAICS 325412. Internal Monitoring Point for the Discharge from Hannibal Biotech. The average sanitary flow through Outfall #003 is 0.01 MGD. The design flow of the combined fermentation and sanitary effluents is 0.3 MGD. This outfall goes on to discharge at outfall #001, but is not incinerated. Sludge from biological treatment is either land applied or removed to a landfill.

Legal Description:	Outfall 003- SE ¼ , SW ¼ , Sec. 10, T58N, R5W, Marion County
UTM:	X = 633982, Y = 4410950
Receiving Stream:	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0304

A. 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 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
Outfall #001						
Flow	MGD	*		*	once/month	24 hr. total
Biochemical Oxygen Demand	lbs/day mgL	15,740 *		3,403 *	once/month	24 hr. comp**
Total Suspended Solids	lbs/day mg/L	12,975 *		3,829 *	once/month	24 hr. comp**
Chemical Oxygen Demand (COD)	lbs/day mg/L	27,651 *		19,143 *	once/month	24 hr. comp**
Total Organic Pesticide Chemicals	lbs/day mg/L	13.54 *		4.03 *	once/month	24 hr. comp**
Counter and Thimet, Total	lbs/day	1.63		0.55	once/month	24 hr. comp**
pH – minutes of excursion per month (Note 1)	SU			446	continuous	continuous
pH – number of excursion incidents per month lasting more than 60 minutes (Note 1)	SU			0	continuous	continuous
Total Dissolved Solids	mg/L	*		*	once/month	grab
E. coli (Note 2)	mpn/100mL	630		126	once/month	grab
Chromium VI, Total Dissolved	µg/L	*		*	once/month	24 hr. comp**
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE DECEMBER 28, 2016.						
Acute WET Test	% survival		See Special Condition #11		once/year	24 hr. comp**
Chronic WET test	TUc	*	See Special Condition #12		once/permit cycle	24 hr. comp**
WET TEST MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE NEXT REPORT IS DUE JULY 28, 2017.						

* Monitoring requirement only.

** This facility may collect either a time or flow proportional 24 hr. composite sample, dependent upon flow conditions. The 24 hr. flow proportional sample, at a minimum, consists of 72 aliquots per day (3 samples per hour), the time proportional sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals.

Note 1 - An excursion occurs anytime the pH is outside of the 6.0 to 9.5 range. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes at outfall 001 in accordance with 40 CFR §401.17.

Note 2 - Final limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean.

A. 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 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
Outfall #002						
Flow	MGD	*		*	once/month	24 hr. total
pH	SU	**		**	once/month	grab
Total Suspended Solids	lbs/day	*		*	once/month	24 hr. comp***
Nitrates as N	lbs/day mg/L	* *		* *	once/month	24 hr. comp***

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE DECEMBER 28, 2016.

A. 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 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
Outfall #003						
Flow	MGD	*		*	once/month	24 hr. total
Biochemical Oxygen Demand	lbs/day mgL	* *		1,918 *	once/month	24 hr. comp***
Total Suspended Solids	lbs/day mg/L	* *		3,260 *	once/month	24 hr. comp***
Chemical Oxygen Demand (COD)	lbs/day mgL	4,191 *		2,142 *	once/month	24 hr. comp***
Ammonia as N	lbs/day mg/L	210 *		73 *	once/month	24 hr. comp***
Ethanol	lbs/day mg/L	25 *		10 *	once/month	24 hr. comp***
pH – Units	SU	****		****	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE DECEMBER 28, 2016.

* Monitoring requirement only.

** Outfall #002 - 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.

*** This facility may collect either a time or flow proportional 24 hr. composite sample, dependent upon flow conditions. The 24 hr. flow proportional sample, at a minimum, consists of 72 aliquots per day (3 samples per hour), the time proportional sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals..

**** Outfall #003 – the pH is limited to the range of 6.0-9.0. pH is measured in pH units and is not to be averaged.

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated October 1, 1980 and August 15, 1994, and hereby incorporated as though fully set forth herein.

C. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources has initiated stakeholder discussions on how to best incorporate these new criteria into the State's rules. A date for when this rule change will occur has not been determined. Also, refer to Factsheet Addendum, Section V of this permit's factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department's 2013 EPA criteria Factsheet located at http://dnr.mo.gov/pubs/pub2481.htm .

2. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test 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.

3. All outfalls must be clearly marked in the field.

3. 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.

C. SPECIAL CONDITIONS (continued)

4. 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.

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

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

7. Land Application of industrial sludge/biosolids
   (a) Shall be conducted in accordance with the biosolids management plan submitted to the Department;
   (b) There shall be no application during frozen, snow covered or saturated soil conditions.
   (c) Detailed records of land application practices shall be kept on site for a minimum of five (5) years and made available to the Department upon request.

8. All paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to stormwater. Spill prevention, control, and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water 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.

9. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.

10. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.

11. Acute Whole Effluent Toxicity (WET) Test shall be conducted at Outfall 001 as follows:

Test	OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
Acute	001	3.24%	Once per year	24 hr. composite***	Any

13.0% effluent	6.5% effluent	3.24% effluent	1.6% effluent	0.8% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

*** This facility utilizes a Flow Proportional (or flow weighted) 24 hr. composite sampler rather than a time-proportional 24 hr. composite sampler. The 24 hr. flow proportional sampler, at a minimum, takes 72 aliquots per day (3 samples per hour), which satisfies the 48 aliquots usually taken by time-proportional samplers.

(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.
      (a) 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.
      (b) 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.
      (c) 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.

C. SPECIAL CONDITIONS (continued)

(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 Department 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 the Department 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 annual 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.

(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 Department 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

C. SPECIAL CONDITIONS (continued)

12. Chronic Whole Effluent Toxicity (WET) Test shall be conducted at Outfall 001 as follows:

Test	OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
Chronic	001	0.72%	Once per permit cycle	24 hr. composite***	Any in 4th year of permit

2.88% effluent	1.44% effluent	0.72% effluent	0.36% effluent	0.18% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

*** This facility utilizes a Flow Proportional (or flow weighted) 24 hr. composite sampler rather than a time-proportional 24 hr. composite sampler. The 24 hr. flow proportional sampler, at a minimum, takes 72 aliquots per day (3 samples per hour), which satisfies the 48 aliquots usually taken by time-proportional samplers.

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution chronic WET test in the months and at the frequency specified above. All tests results shall be submitted 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 14 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102.

(d) A twenty-four hour composite sample shall be submitted for analysis.

(e) 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.

(f) 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 analyses performed upon any other effluent concentration.

(g) 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) All test results along with complete copies of the test reports as received from the laboratory shall be reported to the Water Protection Program within 14 calendar days of the availability of the results.

(b) Test Conditions

(1) Unless more stringent methods are specified by the Department, the procedures shall be consistent with the most current edition of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821/R-02/013, and Errata for the Effluent and Receiving Water Toxicity Testing Manuals: Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms; Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms; and Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA-600/R-98/182.

(2) The test shall be a 3-Brood *Ceriodphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas)* Larval Survival and Growth Test. Testing with the green algae *Selenastrum* is not required.

(3) All tests, including repeat tests for previous failures, shall include both test species listed below.

(4) 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.

(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. Reconstituted dilution/control water used will be moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, ½ AEC and ¼ AEC;

(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and

(c) reconstituted water.

C. SPECIAL CONDITIONS (continued)

If, in any control more than 10% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination

13. Permit Reopener for Chronic Toxicity

In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include effluent limitations or permit conditions to address chronic toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

Missouri Department of Natural Resources
Factsheet Addendum
For Permit Modification
#MO-0001716
BASF Hannibal Plant

This addendum gives pertinent information regarding minor/simple modification(s) to the above listed operating permit for a public comment process.

An addendum is not an enforceable part of a Missouri State Operating Permit.

Part I – Proposed Construction

The facility is planning to begin to operate a liquid scrubber which uses a sodium hydroxide and water solution to capture fugitive nitrogen oxide (NO_X) emissions from a nitric acid storage tank. Sodium nitrite and sodium nitrate will result from the neutralization of the NO_X fumes absorbed in the scrubber liquid. A portion of the scrubber liquid will need to be purged periodically to remove accumulated sodium nitrite and sodium nitrate prior to adding fresh scrubber solution. Therefore, the facility will begin to discharge up to 10 pounds of Nitrate-N per day to the Mississippi River through Outfall #002. See Antidegradation Review in Appendix A.

Facility Description:
See Page 1 of the Factsheet for complete description. Also, see Appendix A. Page 6.

Part II – Reason for the Modification

This operating permit is hereby modified to liquid sodium hydroxide and water solution scrubber to capture fugitive nitrogen oxide (NO_X) emissions from a nitric acid storage tank. This permit modification was to include monitoring for nitrates because the scrubber liquid will be purged periodically to remove sodium nitrite and sodium nitrates. Please see Antidegradation Review in Appendix A.

Part III – Effluent Limits Determination (Outfall #002).

Outfall #002 – Main Facility Outfall
Effluent limitations derived and established in the below Effluent Limitations Table are based on proposed 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	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	*		*	NO	*
Total Suspended Solids	lbs./day	*		*	NO	*
pH - Units	SU	6.5-9.0			YES	6.0-9.5
Nitrates as N	lbs./day mg/L	* *		* *	NEW	

OUTFALL #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

- **Total Suspended Solids (TSS).** Monitoring is continued from the previous permit based on effluent guidelines set forth in 40 CFR part 455, subpart A.

- **pH**. 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. Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

- **Nitrates as N.** See Antidegradation Review Appendix A. Nitrates may exceed the proposed discharge of10 lbs/day because the facility assimilative capacity (FAC) of the Mississippi River that will be consumed by the discharge was determined to be 0.001 %. This FAC value is well below the 10% value. Both pounds per day and concentration should be reported to show that the facility is in compliance with the antidegradation review requirements.

  This antidegradation review in Appendix A below did not include a comparison a water quality based limitations with available technology-based limitations (TBEL) for the liquid NAOH scrubber to capture fugitive nitrogen oxide (NO_X) emissions from a nitric acid storage tank for a few reasons. First, the only TBEL that we could locate was from 40 CFR 423 that was published in November 2015. The TBEL was found in pretreatment standards for existing sources. The Maximum Daily value was 17.0 mg/L Nitrate/Nitrite. Second, a water quality-based limitation that protects the assimilative capacity of the Mississippi River was not developed in the antidegradation review in Appendix A below. The nitrate water quality criterion for drinking water supply is 10 mg/L. The rationale for this lack of limitations was that assimilation of nitrates and nitrites is instantaneous in the massive flow volume of the Mississippi River. In addition, a conservative background value of 0.01 mg/L was applied to the FAC calculation that should account for upstream sources of nitrates from the MO-0081523 MFA Foods and MO-0001821 CF Industries LLC. There are limited number of facilities with sizable wastewater flows that discharge upstream of the BASF facility that may contribute to nitrogen (nitrate) loading.

Part IV – Antidegradation Review

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.

☒ - New discharge, please see **APPENDIX A FOR ANTIDEGRADATION ANALYSIS.**

Part V – 2013 Water Quality Criteria for Ammonia

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

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

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

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

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

Operating permits for facilities in Missouri must be written based on current statutes and regulations. Therefore permits will be written with the existing effluent limitations until the new standards are adopted. To aid permittees in decision making, an advisory will be added to permit Fact Sheets notifying permittees of the expected effluent limitations for ammonia. When setting schedules of compliance for ammonia effluent limitations, consideration will be given to facilities that have recently constructed upgraded facilities to meet the current ammonia limitations. For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

Part VI – Administrative Requirements

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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 began on September 16, 2016 to October 17, 2016..

Date of addendum: July 20, 2016

Completed by:
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Missouri Department of Natural Resources
FACT SHEET WITH ADDENDUM FOR MODIFICATION (JULY 2016)
FOR THE PURPOSE OF RENEWAL
OF
MO-0001716
BASF HANNIBAL

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 an Industrial Facility.

Part I – Facility Information

Facility Type: Industrial
Facility SIC Code(s): 2879, 2834

Facility Description:
The BASF Hannibal Plant is located at 3150 Highway JJ, Palmyra, Missouri, adjacent to the Mississippi River, and approximately nine miles north of Hannibal, Missouri. The facility manufactures a variety of agricultural pesticides. The BASF Corporation grounds can be divided into five production facilities or plants. Each facility has associated products. The following products can currently be produced: Prowl®, Arsenal®, Scepter®, Cadre®, Raptor®, Pursuit®, Kixor®, Alverde® and Pirate®. The Pyrrole plant was brought into production in March of 2001. One product at a time can be produced at each plant, but some of the plants are capable of producing multiple products. The BASF Corporation facility operates seven days a week and 24 hours a day, with an average one month of maintenance down time for each plant per year. MO-0001716 includes the tankage for managing wastewater, the incinerators, the WWTP and the effluent system that discharges the treated wastewater streams.

American Vanguard (AMVAC) owns the Thimet®/Counter® production plant. BASF currently operates the plant for AMVAC under contract and treats the wastewater from this facility.

The chemical manufacturing processes generate three process waste streams. These include fumes, organic and aqueous wastes (wastewaters). All three waste streams are handled by four RCRA Part B permitted on-site incinerators. The site includes tankage for managing wastewater from the production facilities. Wastewater is accumulated in tanks prior to incineration and the tanks provide surge protection between the production facilities and the incinerators. If one of the incinerators is shut down for any reason, the industrial process wastewater which feeds that unit will either be accumulated in tanks or switched to feed another on-line incinerator. Fumes are switched to another incinerator or to other air pollution control devices. Each incinerator is equipped with a quench system, where process water is used to cool the gasses, and a stack scrubber, which also uses process water. The quench and scrubber blowdown water from the incinerators is discharged through Outfall #001.

Process water for the BASF Corporation facility is drawn from several on-site wells, and is treated at the West Utilities facility. Treatment of the well water consists of iron and calcium carbonate removal using a Gyrazur cold-lime softener followed by a clarifier. Wastewater from the process water treatment plant flows to a settling basin with pH neutralization and is discharged at Outfall #002. The sand in the Gyrazur unit acts as a “seed” for the collection of calcium carbonate. Most of the treatment sludge consists of the accumulation of calcium carbonate and ferric hydroxide on sand particles, resulting in the formation of irregularly shaped spheres with a diameter of $^{1}/_{16}$ to one (1) inch. Water supply for human consumption is supplied by Marion County Public

Water Supply District #1.

The Hannibal site includes a 1.2 million gallon wastewater lagoon that was designed for the hydraulic and organic loading from the Hannibal Biotech fermentation facility. The biological treatment lagoon is equipped with coarse bubble diffusion, two blowers, and a final clarifier. Flow and pH are monitored at the effluent pump house adjacent to the lagoon system. The system is also equipped with a sludge gravity thickener and belt filter press.

At the time of this renewal BASF intends to facilitate disinfection of the clarifier overflow by applying 140 °F steam at 150 pounds/square inch (gauge). The steam is being redirected to this location from existing processes. This treatment is a response to difficulty meeting fecal coliform limits implemented during the previous permit. The facility has performed tests to determine the minimum temperature and pressure required to meet permit limits. This process modification will bring the effluent into compliance while BASF is still considering conventional disinfection technology. Installing conventional technology may require a construction permit and/or permit modification request.

The former AFI plant had provided approximately 95% of the hydraulic and organic loading to the wastewater lagoon. The AFI plant formerly manufactured an animal pharmaceutical product through 2003. The AFI plant property is still owned by BASF. However, the plant buildings and manufacturing equipment is currently owned by Hannibal Bio-Tech. Hannibal Bio-Tech restarted the plant in the first quarter of 2012 and the WWTP aeration system commenced operation at this time. Sanitary wastewater and gray water from laundry operations are also pumped to WWTP biological treatment lagoon. The thickener and belt filter press have also been re-activated as a result of the Hannibal Bio-Tech start-up. Treated waste water from the biological treatment lagoon is discharged through Outfall #001 (MO-0001716).

The BASF facility has secondary containment around all aqueous and organic wastewater tanks, pumps, valves, and process areas to manage liquid wastes prior to incineration from each processing unit. Stormwater runoff collected in these containment systems is tested for active ingredients, COD, and BOD. If contamination is detected, or if no testing is conducted, the water is removed by vacuum truck (or pumped) and incinerated along with aqueous process wastes. If no contamination is detected, the water is pumped to the Mississippi River through Outfall #001 (MO-0001716).

The legal description of the BASF Hannibal Plant is listed on the permit as the SE ¼, SW ¼, Section 11, Township 58 North, Range 5 West, in Marion County. The receiving stream for this facility is the Mississippi River.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☐ - Yes; (please provide simple description or reference appropriate location in the Fact Sheet.
☒, - No.

Application Date: 10/11/2011
Expiration Date: 04/05/2012
Last Inspection: 06/15/2010 In Compliance ☒; Non-Compliance ☐

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	2.3	Advanced (Incineration and Biological)	Process and Sanitary Waste	0.0
002	0.3	Advanced (pH Neutralization)	Process Waste	0.0
003	0.5	Advanced (Fermentation and Biological)	Internal Monitoring Point for Process and Sanitary Waste	0.0

Receiving Water Body's Water Quality & Facility Performance History:
The BASF Hannibal Plant discharges treated waste via outfalls 001 and 002. These discharges are directly to the Mississippi River which is a class P stream. There is no documented impairment on this segment of the Mississippi River.

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 20-9.020(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*	12-DIGIT HUC	EDU**
Mississippi River	P	3699	AQL, DWS, IND, LWW, SCR, WBC-A	071100040304	Central Plains/Cuivre/Salt

* - 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 TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUE (CFS)
	7Q10
Mississippi River (P)	16,310

MIXING CONSIDERATIONS: OUTFALL 001 AND 002 MISSISSIPPI RIVER

A diffuser study was conducted in March of 2007. The CORMIX1 modeling analysis demonstrates that the high-rate diffuser achieves effluent dilutions at the ZID of less than 10 percent effluent under the full range of normal operating conditions. The critical site-specific ZID dilution of 3.24% was demonstrated. The demonstrated critical dilution at the edge of the mixing zone was 0.72% effluent.

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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 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.

☒ - Renewal no degradation proposed and no further review necessary.

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 land applies biosolids in accordance with Standard Conditions III and a Department approved biosolids management plan.

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)].

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

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ☒;
A RPA was conducted on Chromium IV. Please see **APPENDIX #A – RPA RESULTS.**

REMOVAL EFFICIENCY:
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

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

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

Additionally in accordance with the 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.

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.

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

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

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

Number of Samples "n":
Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

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

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 <u>all</u> facilities meeting the following criteria:
WHOLE EFFLUENT TOXICITY (WET) TEST (CONTINUED):

☐ 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_3)
☐ Facility is a municipality or domestic discharger with a Design Flow ≥ 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, 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 devices designed for peak wet weather flows.

☒ 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.

Part V – Effluent Limits Determination

Outfall #001
Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit. Outfall 001 discharges effluent from pesticide production facilities, sulfuric acid recovery plant, storm water, sanitary wastes and the fermentation unit that produces antibiotics. The fermentation unit is monitored via outfall 003.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	GPD					
Biochemical Oxygen Demand	lbs/day	15,740		3,403	NO	15,740/3,403
	mg/L	*		*	NO	*/*
Total Suspended Solids	lbs/day	12,975		3,829	NO	12,975/3,829
	mg/L	*		*	NO	*/*
Chemical Oxygen Demand (COD)	lbs/day	27,651		19,143	NO	27,651/19,143
	mg/L	*		*	NO	*/*
Total Organic Pesticide Chemicals	lbs/day	13.54		4.03	NO	13.54/4.03
	mg/L	*		*	NO	*/*
E. coli**	mpn/100 mL	630		126	YES	******
Counter and Thimet, Total	lbs	1.63		0.55	NO	1.63/0.55
1,2-Dichloroethane	mg/L	Removed		Removed	YES	*/*
Toluene	mg/L	Removed		Removed	YES	*/*
Chlorobenzene	mg/L	Removed		Removed	YES	*/*
pH Minutes of pH – Excursion per month	minutes			446	NO	******
pH Number of pH – Excursion incidents lasting more than 60 minutes per month	number			0	NO	******
Total Dissolved Solids	mg/L	*		*	NO	*/*
Chromium VI, Total Dissolved	µg/L	*		*	YES	462/219

* - Monitoring requirement only.
** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.
**** - Parameter not previously established in previous state operating permit.
****** - Previous bacteria limitation was Fecal Coliform.
******- pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.5 pH units. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes at outfall 001 in accordance with 40 CFR §401.17.

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5).** The Biological Oxygen Demand (BOD) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 455, subpart A. The facility's current permit limit is based on 50% of the allowable load. The new limits will also be 50% of the allowable load. The limits for BOD are calculated as follows:

  Permit Limit = (Guideline limit)*(lbs production/1000)*0.5
  30 day average = (1.6 lbs/day)*(4254 lbs/day) *0.5= 3403 lbs/day
  Daily Maximum = (7.4 lbs/day)*(4254 lbs/day)*0.5= 15740 lbs/day

- **Total Suspended Solids (TSS).** The Total Suspended Solids (TSS) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 455, subpart A. The facility's current permit limit is based on 50% of the allowable load. The new limits will also be 50% of the allowable load. The limits for TSS are calculated as follows:

  Permit Limit = (Guideline limit)*(lbs production/1000)*0.5
  30 day average = (1.8 lbs/day)*(4254 lbs/day) *0.5= 3829 lbs/day
  Daily Maximum = (6.1 lbs/day)*(4254 lbs/day)*0.5= 12975 lbs/day

- **Chemical Oxygen Demand (COD).** The Chemical Oxygen Demand (COD) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 455, subpart A. The facility's current permit limit is based on 50% of the allowable load. The new limits will also be 50% of the allowable load. The limits for COD are calculated as follows:

  Permit Limit = (Guideline limit)*(lbs production/1000)*0.5
  30 day average = (9 lbs/day)*(4254 lbs/day) *0.5= 19143 lbs/day
  Daily Maximum = (13 lbs/day)*(4254 lbs/day)*0.5= 27651 lbs/day

- **Total Organic Pesticide Chemicals.** Total Organic Pesticide Chemicals monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 455, subpart A, and Best Professional Judgment (BPJ). Only a portion of the products manufactured at BASF is covered by the effluent guidelines. The limits are derived by multiplying previous permit by the ratio of current production to 1990 production. The limits from the previous permit have been evaluated and retained. Additionally the facilities application states that production of pesticides is 352,000 lbs/day.

  30 day average = 3.01 lbs/day * 352/263 = 4.03 lbs/day
  Daily Maximum = 10.12 lbs/day * 352/263 = 13.54 lbs/day

- **Counter and Thimet.** The Counter and Thimet monitoring and limitations are continued in the permit based Best Professional Judgment (BPJ). The limit will remain the same from the previous permit.

- **pH**. pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.5 pH units. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes at outfall 001 in accordance with 40 CFR §401.17.

  This facility will have a pH limitation range of 6.0 – 9.5. The minimum of 6.0 SU is consistent with the Pesticide Effluent Guidelines in 40 CFR Part 455.22. The Hannibal Plant Effluent Diffuser Analysis Study (March 2007) determined that the critical site-specific ZID dilution was 3.24% effluent and that the corresponding critical dilution at the edge of the mixing zone was 0.72% effluent. The diffuser and analysis of the mixing zone ensure that the pH is at the ambient level at the edge of the mixing zone. Using the above diffuser value for mixing zone (0.72% / 100 = 0.0072) with the receiving water's pH of 6.5 SU and the effluent's pH of 6.0 SU, this would cause the Mississippi River's pH to drop by 0.0036 (~0.004 pH SU). This drop is insignificant and undetectable.

  The upper pH range limit of 9.5, as determined by best professional judgment (BPJ) is appropriate for the following reasons: (1) The facility is treating its process wastewater by incineration. This process produces an alkaline waste stream with a typical pH of 9.0 to 9.5. In order for the facility to achieve pH limits of 9.0 SU, the facility would be required to add acid to the waste stream. This will add more pollutant (salt) to the environment. (2) The facility has agreed to permit limits for TSS, BOD, and COD that are half of what is allowed for under the applicable effluent guidelines. (3) The type of treatment employed by this facility is equivalent to the treatment upon which the effluent guideline limits are based. Incineration requires special consideration with respect to pH, and therefore; the limit is established at 6.0 – 9.5. (4) The same determination with diffuser is applicable, the increase with effluent's pH being 9.5 SU will have minimal (~0.004 pH SU) increase to the receiving water.

- **Total Dissolved Solids (TDS).** The monitoring requirement for TDS has been reassessed and retained from the previous permit. This requirement is established based on BPJ of the permit writer.

- ***Escherichia coli (E. coli)***. Monthly average of 126 per 100 ml as a geometric mean and Daily Maximum of 630 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C).

- **Acute WET Testing.** 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. The CORMIX1 modeling analysis demonstrates that the critical dilution at the edge of the ZID was 3.24%.

- **Chronic WET Testing.** A once per permit cycle Chronic WET testing requirements has been added to this renewal. The previous permit contained only Acute WET testing requirement that was pass/fail. The facility did not demonstrate toxicity during the previous permit cycle. A Chronic WET testing monitoring requirement has been established in this permit due to the nature of the chemicals manufactured at the facility. The facility will report toxicity in terms of chronic toxic units (TUc) derived using the inhibition concentration of 25% (IC25). This requirement is to evaluate compliance with 10 CRS 20-7.031(3)(D). The CORMIX1 modeling analysis demonstrates that the critical dilution at the edge of the mixing zone was 0.72%.

- **Chlorobenzene.** Effluent monitoring for this parameter has been removed from this permit due to no exceedances of the water quality standard during the previous permit cycle given the available mixing achieved by the facilities diffuser.

- **Toluene.** Effluent monitoring for this parameter has been removed from this permit due to no exceedances of the water quality standard during the previous permit cycle given the available mixing achieved by the facilities diffuser.

- **1, 2 Dichloroethane.** Effluent monitoring for this parameter has been removed from this permit due to no exceedances of the water quality standard during the previous permit cycle given the available mixing achieved by the facilities diffuser.

- **Chromium VI, Total Dissolved.** An RPA for total dissolved chromium IV indicated that the facility did not demonstrate reasonable potential to exceed water quality standards during the previous permit cycle. Per Department policy, monitoring only will be required for another permit cycle, if no reasonable potential is demonstrated monitoring may be removed at renewal.

Outfall #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	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	*		*	NO	*
Total Suspended Solids	lbs/day	*		*	NO	*
pH - Units	SU	6.5-9.0			YES	6.0-9.5

OUTFALL #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

- **Total Suspended Solids (TSS).** Monitoring is continued from the previous permit based on effluent guidelines set forth in 40 CFR part 455, subpart A.

- **pH**. 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. Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

Outfall #003
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	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	*		*	NO	*
Biochemical Oxygen Demand	lbs/day	*		1918	NO	*/1,918
	mg/L	*		*	NO	*
Total Suspended Solids	lbs/day			3260	NO	*/3,260
	mg/L	*		*	NO	*
Chemical Oxygen Demand (COD)	lbs/day	4,191		2,142	NO	*
	mg/L	*		*	NO	1,675/856
Ammonia as N	lbs/day	210		73	NO	*
	mg/L	*		*	NO	84.1/29.4
Ethanol	lbs/day	25		10	NO	*
	mg/L	*		*	NO	10/4.1
pH – Units	SU	6.0-9.0			NO	6.0-9.0

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD_5).** 40 CFR 439.12(a) requires the monthly average limitation for BOD_5 to be expressed as mass loading (lb/day), and must reflect not less than 90% reduction in the long-term average daily BOD_5 load of the raw (untreated) process wastewater, which is to be multiplied by a variability factor of 3.0. Therefore:

  Raw BOD_5 = 6,392 (provided by permittee)
  90% reduction = 6,392 lb/day x 0.1 = 639.2 lbs/day
  Variability factor of 3 = 639.2 lb/day x 3 = 1,918 lbs/day

- **Total Suspended Solids (TSS).** 40 CFR 439.12(b) requires the monthly average limitation for TSS to be expressed as 1.7 times the BOD_5 limitation. Therefore:
  1918 lb/day x 1.7 = 3,260 lb/day as a Monthly Average.

- **Chemical Oxygen Demand (COD).** Effluent limitations for Chemical Oxygen Demand (COD) based on the effluent guidelines set forth in 40 CFR Part 439.12(b).
  COD daily maximum 1,675 mg/L(8.34)(0.3MGD)= 4,191 lbs/day
  COD monthly average 856 mg/L(8.34)(0.3MGD)= 2,142 lbs/day

- **Temperature.** Effluent limitations were considered for temperature, it was determined that there is no reasonable potential to exceed water quality standards for temperature. This discharge only has the potential to increase the temperature of the Mississippi by 0.04 °F (summer) - 0.07 °F (winter).

- **Ammonia.** Effluent limitations for Ammonia based on the effluent guidelines set forth in 40 CFR Part 439.12(b).
  NH_4 daily maximum 84.1 mg/L(8.34)(0.3MGD)= 210 lbs/day
  NH_4 monthly average 29.4 mg/L(8.34)(0.3MGD)= 73 lbs/day

- **Ethanol.** Effluent limitations for Ethanol based on the effluent guidelines set forth in 40 CFR Part 439.12(b).
  Ethanol daily maximum 10 mg/L(8.34)(0.3MGD)= 25 lbs/day
  Ethanol monthly average 4.1 mg/L(8.34)(0.3MGD)= 10 lbs/day

- **pH.** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

PART VI: 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 VII – 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.

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 07/26/2013 to 08/26/2013. The permittee submitted comments concerning minor corrections and modifications to the sample collection methods. The public notice version of the permit incorrectly listed grab samples as the sample type for TSS, COD and Total Organic Pesticides. These parameter are to be collected as 24 hour composite samples. The permittee also requested that the permit allow the flexibility to collect flow or time proportional composite samples. The language stating that the permittee used a flow proportional method was modified to the following language:

This facility may collect either a time or flow proportional 24 hr. composite sample, dependent upon flow conditions. The 24 hr. flow proportional sample, at a minimum, consists of 72 aliquots per day (3 samples per hour), the time proportional sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals.

DATE OF FACT SHEET: 07/11//2013

COMPLETED BY:

AMANDA SAPPINGTON
INDUSTRIAL PERMITS UNIT
OPERATING PERMITS SECTION
WATER PROTECTION PROGRAM
(573) 751-8728
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Appendices

APPENDIX # A– RPA RESULTS:

BASF Hannibal Site, PERMIT #MO0001716, Marion Co.
Reasonable Potential Analysis (TSD, EPA/505/2-90-001, Section 3.3.2)

Symbol	Analyte	CMC	RWC Acute	CCC	RWC Chronic	Reasonable Potential	n	CV
Cr VI	Chromium (VI), Dissolved	15.00	3.09	10.00	0.31	NO	29	1.460523

Units are (µg/L) unless otherwise noted.
Metals are in Total Recoverable. Other than Chromium VI it is in its Dissolved form.

N/A – Not Applicable
* - Units are (µg/L) unless otherwise noted.
** - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.
*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.
RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).
n – Is the number of samples.
MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.
RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

APPENDIX A – WATER QUALITY AND ANTIDEGRADATION REVIEW

Water Quality and Antidegradation Review

For the Protection of Water Quality
and Determination of Effluent Limits for Discharge to Mississippi River
by

BASF Hannibal Plant

February, 2016

Table of Contents

1. FACILITY INFORMATION

FACILITY NAME: BASF Hannibal Plant NPDES #: MO-0001716

FACILITY TYPE: INDUSTRIAL – Pesticides and Agricultural Chemicals – SIC #2879, NAICS #325320

FACILITY DESCRIPTION: The BASF Hannibal Plant is located at 3150 Highway JJ, Palmyra, Missouri, adjacent to the Mississippi River. The facility manufactures a variety of agricultural pesticides. The BASF Corporation grounds can be divided into five plants and operates seven days a week, 24 hours a day, with an average maintenance downtime of one month per plant per year. MO-0001716 includes the tankage for managing wastewater, the incinerators, the WWTP and the effluent system that discharges the treated wastewater streams through Outfall #001, #002, and #003. The facility's current design flows are 1.5 MGD from Outfall #001, 0.22 MGD from Outfall #002, and 0.3 MGD from Outfall #003.

Process water for the BASF Corporation is drawn from several onsite wells that contain lime and calcium carbonate, which is removed using a softener followed by a clarifier. The process wastewater flows to a settling basin with pH neutralization and is discharged at Outfall #002 along with scrubbing systems effluent, stormwater from secondary containment, cooling tower blowdown, and boiler feedwater demineralization ion exchange regeneration blowdown.

The facility is planning to begin to operate a liquid scrubber which uses a sodium hydroxide and water solution to capture fugitive nitrogen oxide (NO_X) emissions from a nitric acid storage tank. Sodium nitrite and sodium nitrate will result from the neutralization of the NO_X fumes absorbed in the scrubber liquid. A portion of the scrubber liquid will need to be purged periodically to remove accumulated sodium nitrite and sodium nitrate prior to adding fresh scrubber solution. Therefore, the facility will begin to discharge up to 10 pounds of Nitrate-N per day to the Mississippi River through Outfall #002. Total Suspended Solids and pH are not expected to be impacted by the addition of this new purge. The volumetric contribution of this purge liquid is not anticipated to significantly change the average or peak flow rates through Outfall #002.

COUNTY:	Marion	UTM COORDINATES:	X= 633982 / Y= 4410950
12- DIGIT HUC:	07110004-0304	LEGAL DESCRIPTION:	NE ¼, SE ¼, Section 10, T58N, R5W
EDU*:	Central Plains/ Cuivre/ Salt	ECOREGION:	Central Plains

* - Ecological Drainage Unit

2. WATER QUALITY INFORMATION

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, and revised May 2, 2012, a facility is required to use *Missouri's Antidegradation Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1. WATER QUALITY HISTORY:

The facility was in Enforcement for violating water quality standards for hexavalent Chromium (Cr VI) in 2009. The Cr VI had been found in wastewater discharged from the scrubber for the "C" incinerator left that facility through Outfall #001. The facility's discharge monitoring reports (DMRs) for the last five years (2010-2015) show exceedances from Outfall #001 and Outfall #003. There have been no recorded exceedances from Outfall #002. The average flow from 2010 to 2015 from Outfall #002 was 0.14 MGD.

The section of the Mississippi River that the facility discharges to is not listed as impaired. There is a Total Maximum Daily Load (TMDL) for the Mississippi River for Chlordane and Polychlorinated biphenyls, or PCBs in fish tissue. The facility's discharge is not expected to contain these pollutants.

Outfall	Design Flow (cfs)	Treatment Level	Receiving Waterbody	Distance to Classified Segment (mi)
001	2.3	Advanced (Incineration and Biological)	Mississippi River	0.0
002	0.3	Advanced (pH Neutralization)		
003	0.5	Advanced (Fermentation and Biological)		

3. Receiving Waterbody Information

Waterbody Name	Class	WBID	Low-Flow Values (cfs)	Designated Uses**
			7Q10	
Mississippi River	(P)	3699	16,310	AQL, DWS, IND, IRR, LWW, SCR, WBC(A), HHP

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

Receiving Water Body Segment #1: Mississippi River
Upper end segment* UTM coordinates: X= 634201 / Y= 4411169
Lower end segment* UTM coordinates: X= 634275 / Y= 4411091

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

4. General Comments

The applicant elected to determine that discharge of the pollutant of concern (POC) is insignificant in the receiving stream using existing water quality. This analysis was conducted to fulfill the requirements of the AIP. Information that was provided by the applicant including a letter detailing the proposed discharge from Curt Gardner, P.E. Senior Environmental Specialist with BASF Corporation, and summary forms used to develop this review document can be found in Appendix B, Antidegradation Review Summary Attachments.

A Geohydrological Evaluation was not submitted for this facility upgrade. The stream is gaining for discharge purposes (Appendix A: Map).

Dissolved oxygen modeling analysis was not submitted for review. Staff believes that the discharge will not impact water quality standards for dissolved oxygen.

A Missouri Department of Conservation Natural Heritage Review Report was obtained by the department; MDC found no record of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the defined Project Area. However, if any trees need to be removed for your project, please contact the U.S. Fish and Wildlife Service.

5. ANTIDEGRADATION REVIEW INFORMATION

The following is a review of BASF Corporation's proposed discharge of Sodium Nitrite and Sodium Nitrate.

5.1. TIER DETERMINATION

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

TABLE 1. POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER	DEGRADATION	COMMENT
Nitrate-N	2	Insignificant	
Nitirites	2	Insignificant	

5.2. EXISTING WATER QUALITY

Existing water quality data was not submitted. The facility is planning to discharge Sodium Nitrite and Sodium Nitrate. Table A, Criteria for Designated Uses, in 10 CSR 20-7, contains criteria for Nitrate-N based off of designated uses. The designated uses for the receiving waterbody, which are listed in the Receiving Waterbody Information section above, includes drinking water supply (DWS) and groundwater (GRW) which both have criteria for Nitrate-N. All POCs were considered to be Tier 2.

5.3. LOSING STREAM ALTERATIVE DISCHARGE LOCATION

Under 10 CSR 20-7.015(4) (A), *discharges to losing stream shall be permitted only after other alternatives including land application, discharge to gaining stream and connection to a regional facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons*. The Discharge does not discharge to a losing stream segment or will not discharge with 2 miles of a losing stream segment.

5.4. ASSIMILATIVE CAPACITY CALCULATIONS

The facility assimilative capacity (FAC) for a new or expanded facility may be calculated as follows:

$$FAC = [(C_c*(Q_s+Q_{d2}))-(C_s*(Q_s+Q_{d1}))]*CF$$

Where: C_c = downstream concentration, the Water Quality Standard (WQS)
Q_s = Stream 7Q10 flow (ft^3/s)
Q_{d1} = Current effluent **design** flow (ft^3/s)
Q_{d2} = Proposed effluent design flow (ft^3/s))
C_s = combined stream concentrations (calculated using EWQ, permitted discharges)
CF= Conversion factors for assimilative capacity calculations are: 0.0054 for ug/L, 5.4 for mg/L.

Due to the fact that the new discharge from the scrubber blow down is not expected to increase the volume discharged from Outfall #002 $Q_{d1} = Q_{d2}$. No existing water quality data was submitted so pollutant concentration in stream was assumed to be 0.01 mg/L.

$$FAC = \left[\left(10\frac{mg}{L}(16{,}310\ cfs + 0.3\ cfs)\right) - \left(0.01\frac{mg}{L}(16{,}310\ cfs + 0.3cfs)\right)\right] \times 5.4$$

$$FAC = 879{,}875\ \frac{lb}{day}$$

The applicant expects the new Nitrate-N load to be up to 10 pounds per day. The percent of FAC can be determined using the following equation:

$$Percent\ of\ FAC = \frac{New\ discharge\ load}{FAC} \times 100$$

$$Percent\ of\ FAC = \frac{10\ \frac{lbs}{day}}{879{,}875\ \frac{lbs}{day}} \times 100$$

$$Percent\ of\ FAC = 0.001\%$$

The assimilative capacity is much less than 10%. *Missouri's Antidegradation Implementation Procedure* considers the use of less than 10% of the facility's available assimilative capacity as insignificant degradation. The procedures indicate that cumulative degradation is measured from the time that existing water quality is first determined. Because this antidegradation review serves to establish the existing water quality, the proposed expansion of the BASF Hannibal WWTF amounts to the sum total of the degradation. We believe that there is no need to determine cumulative degradation for this review.

5.5. Demonstration of Necessity and Social and Economic Importance

Missouri's antidegradation implementation procedures specify that if the proposed activity does not result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are not required.

6. General Assumptions of the Water Quality and Antidegradation Review

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

6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

7. MIXING CONSIDERATIONS

Mixing Zone (MZ): One-quarter (1/4) of the stream width, cross-sectional area, or volume of flow; length one-quarter (1/4) mile. [10 CSR 20-7.031(5)(A)4.B.(III)(a)].

Zone of Initial Dilution (ZID): One-tenth (0.1) of the mixing zone volume of flow, not to exceed 10 times the effluent design flow. [10 CSR 20-7.031(5)(A)4.B.(III)(b)].

The low flow value of 16,310 was determined from a diffuser study for Outfall #001 conducted in March of 2007 which determined a mixing zone length (and width) of 114.25m (374.84 feet). There is not a diffuser located at Outfall #002, but the same low flow data would apply.

8. PERMIT LIMITS AND MONITORING INFORMATION

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N):	N	USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N):	N	WHOLE BODY CONTACT USE RETAINED (Y OR N):	Y

OUTFALL #002

TABLE 4. EFFLUENT LIMITS FOR OUTFALL #002

PARAMETER	UNITS	DAILY MAXIMUM	MONTHLY AVERAGE	UNITS	DAILY MAXIMUM	BASIS FOR LIMIT	MONITORING FREQUENCY
NITRATE-N	MG/L	*	*			FSR	ONCE/MONTH

MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT – PEL; OR TECHNOLOGY-BASED EFFLUENT LIMIT – TBEL; OR NO DEGRADATION EFFLUENT LIMIT – NDEL; OR FEDERAL/STATE REGULATION – FSR; OR NOT APPLICABLE – N/A. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

* Monitoring requirements only.

9. RECEIVING WATER MONITORING REQUIREMENTS

No receiving water monitoring requirements recommended at this time.

10. DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations and limits were calculated using two methods:

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

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

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

Chronic wasteload allocations (WLAc) 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).

2) Assimilative capacity based – Calculations performed in Assimilative Capacity Calculations section above.

10.1. OUTFALL #002 – MAIN FACILITY OUTFALL

10.2. LIMIT DERIVATION

- **Nitrate-N.** Table A- Criteria for Designated Uses in 10 CSR 20-7 has a limit of 10 mg/L to protect drinking water supply (DWS) and groundwater (GRW). As discussed in the Assimilative Capacity Calculations section above the degradation that results from the discharge of up to 10 lbs/day of Nitrate-N is much less than 10% of the stream's assimilative capacity and therefore is insignificant.

Due to the fact that the proposed discharge is less than the water quality limit it is not expected that the facility will exceed this limit. However, monitoring will be added to verify the limit is not exceeded.

- **Nitrites.** Missouri does not have Nitrite criteria. In the presence of oxygen and mixing the nitrites will form nitrates. Therefore, Nitrites are not expected to last long.

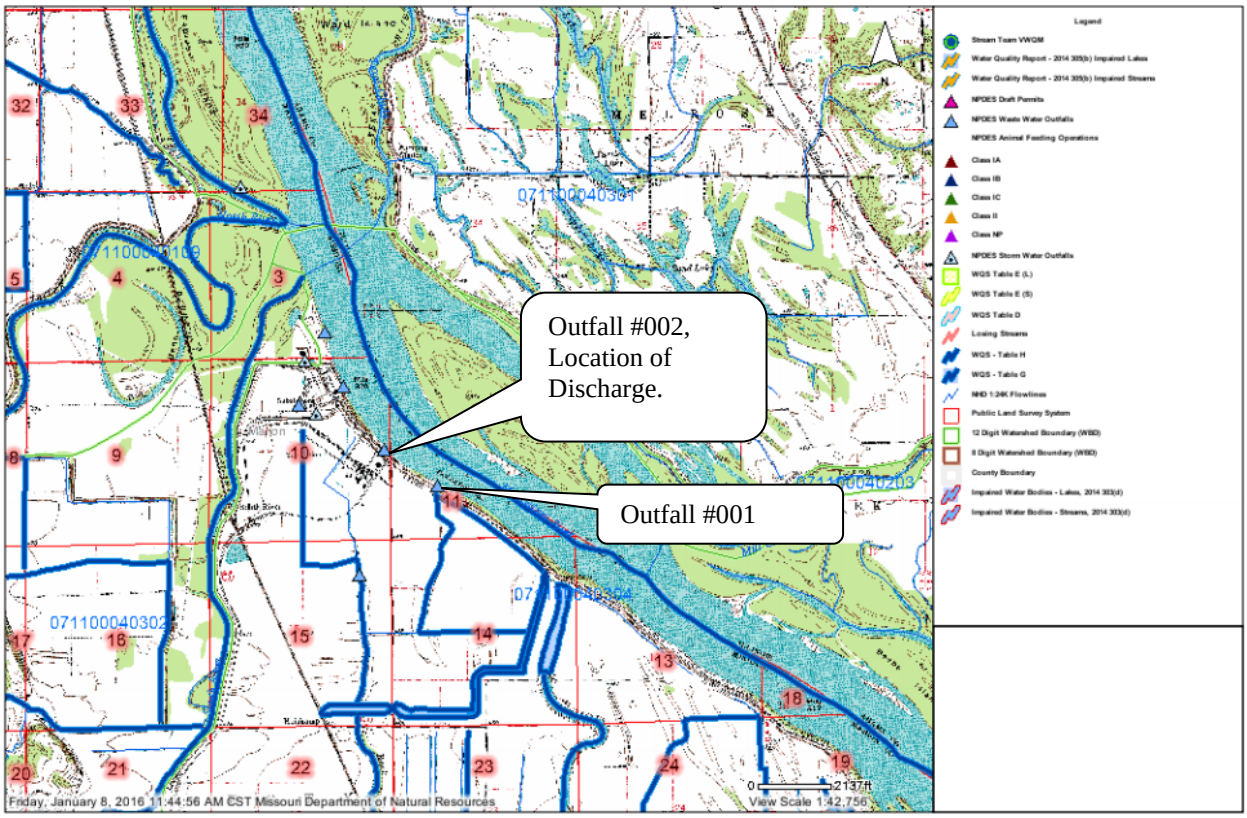
11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION

The proposed design flow at Outfall #002 will not change as the volumetric contribution of this purge liquid is not anticipated to significantly change the average or peak flow rates through Outfall #002. A portion of the scrubber liquid will be periodically purged to remove accumulated sodium nitrite and sodium nitrate prior to adding fresh scrubber solution. Total Suspended Solids and pH are not expected to be impacted by the addition of this new purge. This will result in insignificant degradation of the segment identified in the Mississippi River. Per the requirements of the AIP, the effluent limit in this review was developed to be protective of beneficial uses and to retain the remaining assimilative capacity. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Rachel Schneider, E.I.
Date: 02/23/2016
Unit Chief: John Rustige, P.E.

Appendix A: Map of Discharge Location

(*A USGS topographic map can be obtained on the web at http://www.dnr.mo.gov/internetmapviewer/.*)



Missouri Department of Natural Resources

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Appendix B: Antidegradation Review Request Antidegradation Review Summary Attachments

The attachments that follow contain summary information provided by the applicant.

ACT #133
MO-0001716
NERO
Marion

BASF
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DEC 16 2015
Water Protection Program

December 14, 2015

Federal Express
7748 6278 6977

Mr. John Rustige
Chief, Wastewater Engineering Unit
Missouri Department of Natural Resources
Water Protection Program
Lewis & Clark State Office Building
1101 Riverside Drive
P.O. Box 176
Jefferson City, MO 65102

RE: BASF Corporation Hannibal Plant (Permit MO-0001716), proposed discharge of Sodium Nitrite- and Sodium Nitrate- containing aqueous to Mississippi River via Outfall 002,.

Dear Mr. Rustige,

BASF Corporation – Hannibal Plant requests review and approval by the MDNR Water Protection Program of BASF's intent to discharge small amounts of sodium nitrite/sodium nitrate to the subject outfall. The sodium nitrite and sodium nitrate will be in an aqueous solution purged from a liquid scrubber using a sodium hydroxide/water solution to capture fugitive nitrogen oxide (NOx) emissions from a nitric acid storage tank. The sodium nitrite and sodium nitrate result from the neutralization of the NOx fumes absorbed in the scrubber liquid. A portion of the scrubber liquid will need to be purged periodically to remove accumulated sodium nitrite and sodium nitrate prior to adding fresh scrubber solution.

BASF estimates that up to 10 lbs/day Nitrate-N (total equivalent of sodium nitrite and sodium nitrate) will be captured by this scrubber that will need to be purged to Outfall 002 (which discharges to the Mississippi River). Outfall 002 pH and Total Suspended Solids are not expected to be impacted by addition of this new purge. Scrubber purge flowrate and purge frequency will need to be optimized once operation has commenced. However, the volumetric contribution of this purge liquid is not anticipated to significantly change the average or peak flowrates through Outfall 002 stated in the referenced permit. BASF proposes to operate the scrubber purge to Outfall 002 to avoid exceeding Water Quality Standards for Nitrate-N, and will conduct internal monitoring of Nitrate-N concentration in the outfall for verification.

BASF Corporation
Hannibal Site
3150 Highway JJ
Palmyra, MO 63461
Tel: (573) 769-8500

Helping Make Products Better ®

BASF

We create chemistry

With this letter, BASF is enclosing an Antidegradation Review form and check for review fee in the amount of $250. BASF would greatly appreciate the MDNR's prompt review of this request. Please contact me at 573-769-8684 if you have any questions.

Sincerely,

BASF Corporation
Hannibal Site

Curt Gardner

Curt Gardner, P.E.
Senior Environmental Specialist

Cc: Irene Crawford, MDNR NERO

BASF Corporation
Hannibal Site
3150 Highway JJ
Palmyra, MO 63461
Tel: (573) 769-8500

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DEC 16 2015

Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WATER QUALITY REVIEW ASSISTANCE/ ANTIDEGRADATION REVIEW REQUEST

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

For Office Use Only	
CHECK NUMBER	0211 6287
DATE RECEIVED	FEE SUBMITTED
12/16/15	$250.00 JS

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

REQUESTER	TELEPHONE NUMBER WITH AREA CODE
Curt Gardner, Senior EHS Specialist	(573) 769-8684
PERMITTEE / FACILITY NAME	MSOP NUMBER (IF APPLICABLE)
BASF Corporation - Hannibal Plant	MO-0001716
COUNTY	SIC / NAICS CODE
Marion	2879 / 325320

REASON FOR REQUEST

☐ New Discharge (See Instruction #9) ☑ Upgrade (No expansion) (See AIP) ☐ Expansion ☐ QAPP or Study Review

DESCRIPTION OF PROPOSED ACTIVITY

Fugitive Nitrogen Oxide (NOx) fumes from a storage tank will be captured in a scrubber using sodium hydroxide/water solution. The solution will be purged to permitted Outfall #002 of the referenced MSOP, discharging the captured NOx fumes as sodium nitrate and sodium nitrite to the river. Estimated daily discharge is 10 lbs/day average as Nitrate-N equivalent.

FACILITY INFORMATION

METHOD OF BACTERIA COMPLIANCE

☐ Chlorine Disinfection ☐ Ultraviolet Disinfection ☐ Ozone ☑ Not Applicable

WATER QUALITY ISSUES*

Industrial discharge consisting primarily of utilities water treatment waste water. The proposed activity would add sodium nitrate/nitrite to discharge

*Water quality issues include: effluent limit compliance issues, notices of violation, water body beneficial uses not attained or supported, etc.

OUTFALL	LOCATION (UTM OR LAT/LONG OR LEGAL DESCRIPTION)	MAPPED[1] (CHECK)	RECEIVING WATER BODY[2]
002	UTM: X = 633982, Y = 4410950		Mississippi River

[1] Please attach topographic map (See: www.dnr.mo.gov/internetmapviewer/) with outfall locations clearly marked. For additional outfalls, attach a separate form.

[2] Please see general instructions for discharges to streams.

OUTFALL	NEW DESIGN FLOW ** (MGD)	TREATMENT TYPE	EFFLUENT TYPES*
002	no significant change	no change	Industrial Wastewater

* Describe predominating character of effluent. Example: Domestic Wastewater, Municipal Wastewater, Industrial Wastewater, Storm water, Mining Leachate, etc.

** If expansion, indicate new design flow.

See General Instructions. Additional information may be needed to complete your request. Your request may be returned if items are missing. The water quality review assistance is a process to determine effluent limits for new facilities or existing facilities seeking to increase loading into the receiving stream.

SIGNATURE	DATE
	10/28/2015
PRINT NAME	EMAIL ADDRESS
G. Curtis Gardner	curt.gardner@basf.com
	TELEPHONE NUMBER WITH AREA CODE
	(573) 769-8684

Applicant supplied (check all that apply):

- ☑ Fee. See Instructions
- ☐ Attachment A – Significant Degradation
- ☐ Attachment B – Minimal Degradation
- ☐ Attachment C – Temporary degradation
- ☐ Attachment D – Tier 1 Review
- ☐ No Degradation Evaluation
- ☐ Heritage Review Determination. See Instruction #8.
- ☐ Geohydrologic Evaluation. See Instruction #9.
- ☐ Tier Analysis for minimal degradation (see Page 3, Tier 2 Reviews).
- ☐ Quality Assurance Project Plan.
- ☐ Time of travel study (see Instruction #3) or model (see Instruction #2).

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

GENERAL INSTRUCTIONS

Fees. This form must be submitted with the appropriate application fee: For an anti-degradation review for a new wastewater treatment plant if the design flow is less than 100,000 gallons per day the fee is $500; for an anti-degradation review for a new wastewater treatment plant if the design flow is equal to or more than 100,000 gallons per day the fee is $1000; for an anti-degradation review for which the existing wastewater treatment train is being retained as part of an upgrade or for a water quality review analysis the fee is $250.

1. Please attach maps clearly showing the location of each outfall. A U.S. Geological Survey topographic map is available at www.dnr.mo.gov/internetmapviewer/. Additional water quality information is available at www.dnr.mo.gov/env/wpp/wpp-map-gallery.htm.
2. **Discharges to all gaining streams**: Applicant must submit dissolved oxygen analysis (using Missouri Department of Natural Resources approved models such as Streeter Phelps (www.ecy.wa.gov/programs/eap/pwspread/pwspread.html, use PWSPREAD.XLS and the dosag2 sheet only) or Qual2K/Qual2E (Q2K/Q2E) stream water quality study (www.epa.gov/athens/wwqtsc/index.html) indicating the proposed BOD_5 effluent limitations are protective of Missouri's water quality standard for dissolved oxygen. DO modeling and BOD effluent limit development guidance can be found at www.dnr.mo.gov/env/wpp/permits/DO_Modeling_Administrative_Guidance_Dec_09.pdf. The department may provide more specific procedures upon request. **Note:** If Q2K/Q2E is used, wasteload allocation for ammonia must be assumed. All Q2K/Q2E studies must have department-approved Quality Assurance Project Plans
3. **Discharges to unclassified gaining stream**: Applicant may provide the time of travel to the confluence with the classified stream segment for modeling pollutant decay (See *Total Ammonia Nitrogen Criteria Implementation Guidance Policy* at www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm). Otherwise, the applicant may determine limits based on no decay of discharge pollutants. The department uses a Manning's N method for time of travel determination (see *Technical Addendum #3* at www.dnr.mo.gov/env/wpp/permits/antideg-guidance.htm). Please include items requested in the Technical Addendum and a map, schematic or description of flow segments with your calculations. A worksheet with instructions is available at the above web link.
4. For all discharges, the chronic water quality criteria point of compliance is the classified stream or the confluence with the classified stream. No mixing is allowed for streams with seven-day Q10 low flow less than 0.1 cfs (10 CSR 20-7.031(A)4.B.(I)), while mixing is allowed for streams with seven-day Q10 low flow greater than 0.1 cfs (10 CSR 20-7.031(A) 4.B.(II)) and (III).
5. For industrial facilities, a list of all chemicals, compounds, elements, etc. found in the discharge must be submitted with the request. Proprietary names of chemicals are not sufficient, as these chemicals may contain several pollutants for which the department must evaluate separate effluent limits. A pre-construction review meeting is highly recommended.
6. Do not submit water quality review assistance requests for renewals. All water quality based effluent limits will be determined during the renewal process.
7. 10 CSR 20-7.015(8)(A)3 allows alternative limitations (i.e., lagoon or trickling filters) if a water quality impact study is conducted. This impact study should indicate that equivalents to secondary treatment for lagoons or trickling filters are protective of Missouri Water Quality standards for dissolved oxygen and ammonia.
8. Applicant must check for rare and endangered aquatic species that may be affected by the discharge at http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm. Send information to provided address or select the Heritage Review Link. Register and supply requested information.
9. Additional requirements for new facilities:
   A. Division of Geology and Land Survey Geohydrologic Evaluations must be submitted with the request.
   B. Coordinates of outfalls in UTMs and in the public land survey system must be provided.
   C. Please submit a letter with project timeframe.

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

ANTIDEGRADATION INSTRUCTIONS:

For more detailed instructions, the applicant should refer to *Missouri's Antidegradation Rule and Implementation Procedure* (AIP), which is available at www.dnr.mo.gov/env/wpp/permits/antideg-implementation.htm. All **waters of the state** (except groundwater) are subject to the AIP. All applicants must submit a determination of assigned tiers of protection to water quality for all **waters of the state** on a pollutant-by-pollutant basis. The applicant should consult AIP, Section 1.B. for the process of assigning tier protection levels. Both Tier 1 and 2 reviews are conducted on a pollutant-by-pollutant basis. Outstanding national and state water resources listed on Table D and E in the Water Quality Standards at 10 CSR 20-7.031 automatically are assigned Tier 3 reviews that are conducted on a water body-by-water body basis.

As an overview, AIP requires the new or expanded discharge either:

1. Demonstrate that the loading is below the allowed facility assimilative capacity and segment assimilative capacity.
2. Demonstrate that loading will be maintained or decreased.
3. Demonstrate degradation or assume degradation with alternative analysis and Social and Economic Importance (SEI) evaluation.

For minimally degrading activities as defined in AIP, no alternative analysis or socio-economic importance demonstration is required. If the activity is degrading or assumed to be degrading, then in order to complete the Administrative Record of Decision the applicant must submit both:

1. An alternative analysis that demonstrates non-degrading and minimally degrading discharging options are either impracticable, non-cost efficient, or unaffordable.
2. An evaluation of SEI of the proposed degrading discharging activity for social and economic development of the community. Applicants must summarize the review using the attached summary sheets (See below).

Tier 1 Reviews: Pollutants of concern (POC) that qualify for Tier 1 reviews may be discharged in accordance with Water Quality Standards without performing the alternative analysis or SEI demonstration. However, for a POC with Tier 1 designation, the applicant must provide existing receiving water quality data[1], or an appropriate water quality model[1], or department Section 303(d) listings (facilities with water bodies having 305(b) listed POCs should contact the department). Appendix 2 of the AIP demonstrates the statistical process (90 percentile value is significantly more than 95 percent of the Water Quality Standards for the POC) that applicants must use to designate POC as Tier 1 (below, at or near Water Quality Standard), if POC is not department Section 303(d) listed for that water body. Finally, for Tier 1 POCs, the total maximum daily load process must be followed to maintain or improve water quality. The applicant must demonstrate the discharge will not violate the water quality criterion for that pollutant (see Attachment D). For a list of activities that are considered not to result in significant degradation, see AIP, Section II.A.

Tier 2 Reviews: By default, and in the absence of existing water quality data, all **waters of the state** must have a Tier 2 review before an application for a permit to discharge is filed. If an applicant is assuming some or all POCs cause degradation, alternative analysis and SEI demonstration is required. Worksheets for evaluating alternative to discharge (see AIP, Section II.B) and SEI to the community (See AIP, Section II.E), as provided in 10 CSR 20-7.031, must be provided for review (see Attachment A). For POCs with Tier 2 designation, applicant must provide the basis for determination by providing existing water quality[1] or an appropriate water quality model[1]. The applicant must consider the current existing water quality value in the administrative record from previous sampling events (see AIP, Water Quality Assessment Procedures). If degradation is minimal or temporary, no alternative analysis and socio-economic demonstration is required (Tier 2 review is not required) but applicant must provide basis for minimal determination. Degradation is considered minimal if the proposed new or expanded loading is less than 10 percent of the facility assimilative capacity and the cumulative degradation is less than 10 percent of the segment assimilative capacity as a result of all discharges combined. Minimal degradation as defined by AIP must be supported by summary worksheet in Attachment B for facility assimilative capacity or segment assimilative capacity demonstrating assimilative capacity of POC. A tier analysis must be provided with the review to ensure all pollutants have the Tier 2 designation.

Tier 3 Reviews: Tier 3 water bodies shall receive no degradation of water quality. If hydrologic connection to Tier 3 water bodies has been or is demonstrated, then the applicant must demonstrate that water quality in the Tier 3 segment will not be lowered. Applicants in watersheds with significant losing segments should contact the department's Division of Geology and Land Survey for a geohydrological evaluation and available dye tracings information. Temporary degradation of water receiving with Tier 3 protection may be allowed by the department on a case-by-case basis as explained in Section II.A of AIP document. Applicant must provide information stated below for evaluation of temporary degradation (see Attachment C).

---

[1] Quality Assurance Project Plan, or QAPP, must be provided to the department's Water Protection Program for review in advance (i.e., at least six months) of the proposed data collection activity and before submittal of the Antidegradation Review. A pre-applicant conference is highly recommended. **Important:** Applicant must follow the U.S. Environmental Protection Agency's requirements for Quality Assurance Project Plan document, available at www.epa.gov/QUALITY/qs-docs/r5-final.pdf. **Additional information needed with the EWQ data includes**: 1) Date existing water quality data was provided by the Watershed Protection Section, 2) Approval date by the Watershed Protection Section of the QAPP, project sampling plan, and data collected by all appropriate POCs.

ANTIDEGRADATION INSTRUCTIONS: (CONTINUED)

Applicants choosing to use new wastewater technology that is considered, "unproven technology" in their Tier 2 Reviews with alternative analysis must comply with the requirements set forth in the *New Technology Definitions and Requirements fact sheet* found at: www.dnr.mo.gov/pubs/pub2453.htm.

Temporary degradation is defined in the Antidegradation Implementation Procedure on pages 8 and 23. If degradation is temporary, describe the nature of the temporary impact by providing:

1. Length of time during which water quality will be lowered (time frame is typically less than a year).
2. Percent change in ambient conditions.
3. Parameters affected.
4. Likelihood for long-term water quality benefits to the segment.
5 Degree to which achieving the applicable water quality standards during the proposed activity may be at risk.
6. Potential for any residual long-term influences on existing uses.

Summary Documentation for Public Notice: Please attach the entire antidegradation review report. In addition, the department requests antidegradation review summaries for public notice of the major findings for each analysis. Please do not use the phrase "See Report" to complete these forms. Attached to this request form are outlines of the requested information:

Attachment A – Form used for pollutants of concern that are Tier 2 with significant degradation. Significant degradation requires an alternative analysis, preferred alternative outline, social and economic importance of discharge, and if necessary, facility and segment assimilative capacity.

Attachment B – Form used for pollutants of concern that are Tier 2 with minimal degradation or maintenance or reduction of loading demonstrations. For reduction or maintenance of loading demonstrations, submit a summary table showing the levels of each pollutant of concern before and after the proposed discharge in the receiving water and then complete Attachment B for the first downstream classified water body segment. Minimal degradation requires a summary of facility and segment assimilative capacity. ***Tier determination analysis must be submitted with this review.***

Attachment C – Submit this form if the discharge will result in temporary degradation. Temporary degradation requires description of the nature of the impact and Tier 1 Review.

Attachment D – Form used for pollutants of concern that are Tier 1. Tier 1 Review requires determination of Tier 1 and may require facility assimilative capacity and segment assimilative capacity for discharge water body or downstream water body segment.

No Degradation Evaluation – Conclusion of Antidegradation Review – Submit this form with the appropriate Construction Permit Application if the project is determined to be non-degrading. Do not submit water quality review assistance request to the central office as no antidegradation review is required. Note: During consultation with Water Protection Staff under the "Other" option of no degradation, a Water Quality Review Assistance Request may be required.

Outstanding National Resource Waters – Outstanding National Resource Waters and Outstanding State Resource Water are listed in Tables D and E of 10 CSR 20-7.031. If the discharge's proposed receiving water body is an Outstanding National Resource Water, an Outstanding State Resource Water, or drainage thereto, per Section I.B.3 of the AIP, "any degradation of water quality is prohibited in these waters unless the discharge only results in temporary degradation." Therefore, if degradation is significant or minimal, the Antidegradation Review will be denied.

RECEIVED

JUN 23 2016

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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED 6/23/16	FEE SUBMITTED

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- _____ — Expiration Date _____
- ☒ An operating permit modification: permit # MO- 0001716 — Reason: Addition of Nitrate/Nitrite-N to Outfall 002

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

2. FACILITY

NAME	PHONE / FAX	
BASF Hannibal Site	PHONE 573-769-8839 FAX 573-769-5609	
ADDRESS (PHYSICAL)	**CITY**	**STATE / ZIP**
3150 Highway JJ	Palmyra	MO 63461-2611

3. OWNER

NAME	E-MAIL ADDRESS	PHONE / FAX	
Same as 2.0		PHONE FAX	
ADDRESS (MAILING)	**CITY**	**STATE**	**ZIP**

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

4. CONTINUING AUTHORITY

NAME	PHONE / FAX	
Same as 2.0	PHONE FAX	
ADDRESS (MAILING)	**CITY**	**STATE / ZIP**

5. OPERATOR

NAME	CERTIFICATE NUMBER	PHONE / FAX	
Same as 2.0		PHONE FAX	
ADDRESS (MAILING)	**CITY**	**STATE**	**ZIP**

6. FACILITY CONTACT

NAME	TITLE	PHONE / FAX
Minh Hoac	EHS Specialist, Sr I	PHONE 573-769-8839 FAX 573-769-5609

7. ADDITIONAL FACILITY INFORMATION

7.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)

001 ____¼ ____¼ Sec 11 T 58N R 5W Marion County
UTM Coordinates Easting (X): _____ Northing (Y): _____
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

002 ____¼ ____¼ Sec 11 T 58N R 5W Marion County
UTM Coordinates Easting (X): _____ Northing (Y): _____

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

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

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

001 – SIC 2879 and NAICS 325320 002 – SIC 2879 and NAICS 325320
003 – SIC _____ and NAICS _____ 004 – SIC _____ and NAICS _____

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? If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).	YES ☒	NO ☐
B.	Is your facility considered a "Primary Industry" under EPA guidelines: If yes, complete Forms C and D.	YES ☒	NO ☐
C.	Is application for storm water discharges only? If yes, complete EPA Form 2F.	YES ☐	NO ☒
D.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale. See previous submittals		
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? If yes, complete Form R.	YES ☒	NO ☐

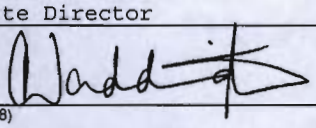
9. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions. (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE).

NAME Note: Discharge is to the Mississippi River

Downstream landowner - Klocke, Randall and Janet

ADDRESS	CITY	STATE	ZIP
161 Co. Road 127	Ewing	MO	63440

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)	PHONE (AREA CODE & NUMBER)
Peter Waddington Site Director	573-769-8500
SIGNATURE 	DATE SIGNED 6/20/16.

MO 780-1479 (07-08)

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?
- ☒ 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?

BASF

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RECEIVED
JUN 23 2016
Water Protection Program

June 22, 2016

Federal Express
7765 8490 4879

Ms. Pam Hackler
Water Protection Program
Missouri Department of Natural Resources
1101 Riverside Drive
Jefferson City, Missouri 65102

Reference: Letter, C. Gardner to P. Hackler, June 1, 2016.

Dear Ms. Hackler:

Attached to this letter is the completed Form A you requested in your e-mail to me of June 13, 2016. This is in conjunction with the previous operating permit modification request by BASF Corporation Hannibal Plant (MO-0001716) to include a new aqueous stream purged from a NOx Fume Scrubber that will be discharged to the Mississippi River via Outfall 002 (see reference).

As a separate matter, BASF would like to request removal of Outfall 003 monitoring requirements from this same permit. Outfall 003 is for monitoring of the effluent from of the Hannibal Biotech Facility, which discharges to the BASF NPDES. However, as you may know, the Hannibal Biotech Facility is now idle, with no immediate prospect of restarting. Please advise if this modification can also be included in conjunction with the previous NOx Fume Scrubber purge modification request without significantly delaying the review process.

If you have any questions with regard to this submittal or require any additional information, please contact me at 573-769-8684.

Sincerely,

BASF Corporation
Hannibal Site

Curt Gardner

Curt Gardner, P.E.
EHS Specialist, Senior II

cc: Ms. Irene Crawford, Director, MDNR NERO

BASF Corporation
Hannibal Site
3150 Highway JJ
Palmyra, MO 63461
Tel: (573) 769-8500

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STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
Revised
October 1, 1980

PART I - GENERAL CONDITIONS
SECTION A - MONITORING AND REPORTING

1. **Representative Sampling**
   a. Samples and measurements taken as required herein shal be representative of the nature and volume, respectively, of the monitored discharge. All samples shall be taken at the outfall(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
   b. Monitoring results shall be recorded and reported on forms provided by the Department, postmarked no later than the 28th dayof the month following the completed reporting period. Signed copies of these, and all other reports required herein, shal be submitted to the respective Department Regional Office, the Regional Office address is indicated in the cover letter transmitting the permit.

2. **Schedule of Compliance**
   No later than fourteen (14) calendar days following each date identified in the "Schedule of Compliance", the permittee shall submit to the respective Department Regional Office as required therein, either a repot of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or if there are no more scheduled requirements, when such noncompliance will be corrected. The Regional Office address is indicated in the cover letter transmitting he permit.

3. **Definitions**
   Definitions as set forth in the Missouri Clean Water Law and Missouri Clean Water Commission Definition Regulation 10 CSR 20-2.010 shall apply to terms used herein.

4. **Test Procedures**
   Test procedures for the analysis of pollutant shall be in accordance with the Missouri Clean Water Commission Effluent Regulation 10 CSR 20-7015.

5. **Recording of Results**
   a. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
      (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. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate anymonitoring device or method required to be maintained under this permit shall, upon conviction, be punished bya fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or both.
   c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

6. **Additional Monitoring by Permittee**
   If the permittee monitors any pollutant at the location(s) designated herein more frequently than required bythis permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monitoring Report Form. Such increased frequencyshall also be indicated.

7. **Records Retention**
   The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recording for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this 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.

SECTION B - MANAGEMENT REQUIREMENTS

1. **Change in Discharge**
   a. All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant not authorized by this permit or any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.
   b. Any facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants shall be reported by submission of a new NPDES application at least sixty (60) days before each such changes, or, if they will not violate the effluent limitations specified in the permit, by notice to the Department at least thirty (30) days before such changes.

2. **Noncompliance Notification**
   a. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Department with the following information, in writing within five (5) days of becoming aware of such conditions:
      (i) a description of the discharge and cause of noncompliance, and
      (ii) the period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps beingtaken to reduce, eliminate and prevent `recurrence of the noncomplying discharge.
   b. Twenty-four hour reporting. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally with 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided with five (5) days of the time the permittee becomes aware of the circumstances. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

3. **Facilities Operation**
   Permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions. Operators or supervisors of operations at publicly owned or publicly regulated wastewater treatment facilities shall be certified in accordance with 10 CSR 209.020(2) and any other applicable law or regulation. Operators of other wastewater treatment facilities, water contaminant source or point sources, shall, upon request by the Department, demonstrate that wastewater treatment equipment and facilities are effectively operated and maintained by competent personnel.

4. **Adverse Impact**
   The permittee shall take all necessary steps to minimize any adverse impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit or set forth in the Missouri Clean Water Law and Regulations (hereinafter the Law and Regulations), including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

a. Any bypass or shut down of a wastewater treatment facility and tributary sewer system or any part of such a facility and sewer system that results in a violation of permit limits or conditions is prohibited except:
   (i) where unavoidable to prevent loss of life, personal injury, or severe property damages; and
   (ii) where unavoidable excessive storm drainage or runoff would catastrophically damage any facilities or processes necessary for compliance with the effluent limitations and conditions of this permit;
   (iii) where maintenance is necessaryto ensure efficient operation and alternative measures have been taken to maintain effluent quality during the period of maintenance.

b. The permittee shall notify the Department in writing of all bypasses or shut down that result in a violation of permit limits or conditions. This section does not excuse any person from liability, unless such relief is otherwise provided by the statute.

6. **Removed Substances**
Solids, sludges, filter backwash, or any other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutants from entering waters of the state unless permitted by the Law, and a permanent record of the date and time, volume and methods of removal and disposal of such substances shal be maintained by the permittee.

7. **Power Failures**
In order to maintain compliance with the effluent limitations and other provisions of this permit, the permittee shall either:
a. in accordance with the "Schedule of Compliance", provide an alternative power source sufficient to operate the wastewater control facilities; or,
b. if such alternative power source is not in existence, and no date for its implementation appears in the Compliance Schedule, halt or otherwise control production and all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

8. **Right of Entry**
For the purpose of inspecting, monitoring, or sampling the point source, water contaminant source, or wastewater treatment facility for compliance with the Clean Water Law and these regulations, authorized representatives of the Department, shall be allowed by the permittee, upon presentation of credentials and at reasonable times;
a. to enter upon permittee's premises in which a point source, water contaminant source, or wastewater treatment facility is located or in which any records are required to be kept under terms and conditions of the permit;
b. to have access to, or copy, any records required to be kept under terms and conditions of the permit;
c. to inspect any monitoring equipment or method required in the permit;
d. to inspect any collection, treatment, or discharge facility covered under the permit; and
e. to sample any wastewater at any point in the collection system or treatment process.

9. **Permits Transferable**
a. Subject to Section (3) of 10 CSR 20-6.010 an operating permit may be transferred upon submission to the Department of an application to transfer signed by a new owner. Until such time as the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
b. The Department, within thirty (30) days of receipt of the application shall notify the new permittee of its intent to revoke and reissue or transfer the permit.

10. **Availability of Reports**
Except for data determined to be confidential under Section 308 of the Act, and the Law and Missouri Clean Water Commission Regulation for Public Participation, Hearings and Notice to Governmental Agencies 10 CSR 20-6.020, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by statute, effluent data shall not be considered confidential. Knowingly making any false statement on any such report shall be subject to the imposition of criminal penalties as provided in Section 204.076 of the Law.

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) violation 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 and 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.

12. **Permit Modification - Less Stringent Requirements**
If any permit provisions are based on legal requirements which are lessened or removed, and should no other basis exist for such permit provisions, the permit shall be modified after notice and opportunity for a hearing.

13. **Civil and Criminal Liability**
Except as authorized by statute and provided in permit conditions on "Bypassing" (Standard Condition B-5) and "Power Failures" (Standard Condition B-7) nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

14. **Oil and Hazardous Substance Liability**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, and the Law and Regulations. Oil and hazardous materials discharges must be reported in compliance with the requirements of the Federal Clean Water Act.

15. **State Laws**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state statute or regulations.

16. **Property Rights**
The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, no does it authorize any injury to private property or any invasion of personal rights, nor any infringement of or violation of federal, state or local laws or regulations.

17. **Duty to Reapply**
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit 180 days prior to expiration of this permit.

18. **Toxic Pollutants**
If a toxic effluent standard, prohibition, or schedule of compliance is established, under Section 307(a) of the Federal Clean Water Act for a toxic pollutant in the discharge of permittee's facility and such standard is more stringent than the limitations in the permit, then the more stringent standard, prohibition, or schedule shall be incorporated into the permit as one of its conditions, upon notice to the permittee.

19. **Signatory Requirement**
All reports, or information submitted to the Director shall be signed (see 40 CFR-122.6).

20. **Rights Not Affected**
Nothing in this permit shall affect the permittee's right to appeal or seek a variance from applicable laws or regulations as allowed by law.

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

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
AUGUST 15, 1994

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. Permitees 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 grated 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 herby 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. Se 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 plan 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 respresent 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 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. 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 5th 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.