

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-0131342

Owner: Missouri Biosolids, LLC
Address: 2927 County Road 253, Columbia, Missouri 65202

Continuing Authority: Same as above
Address: Same as above

Facility Name: Missouri Biosolids Home Place
Facility Address: 2927 County Road 253, Columbia, Missouri 65202

Legal Description: SEE PAGE TWO
UTM Coordinates: SEE PAGE TWO

Receiving Stream: SEE PAGE TWO
First Classified Stream and ID: SEE PAGE TWO
USGS Basin & Sub-watershed No.: SEE PAGE TWO

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

FACILITY DESCRIPTION

SEE PAGE TWO

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.

June 29, 2012
Effective Date

October 23, 2012
Modification Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

June 28, 2017
Expiration Date

John Madros
John Madros, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

All Permitted Features – Storage and Land Application Facility – SIC #4953 – **No Certified Operator Required**

This facility is authorized to receive biosolids, sludge, septage, grease, and other domestic wastes.
This facility is authorized to receive approved sludge, residuals, and other industrial wastes as detailed in the application submitted.
See Special Condition #4.

Facility Type:

No-discharge System – Two single-cell sludge storage basins/sludge is land applied.

Outfall #001 – East Sludge Storage Basin

Legal Description: SE ¼, NE ¼, Sec. 7, T48N, R10W, Callaway County
UTM Coordinates: X= 580166.429, Y= 4312350.118
Receiving Stream: Unnamed tributary to Manacle Creek (U)
First Classified Stream and ID: Manacle Creek (C) (00742) 303(d) List
USGS Basin & Sub-watershed No.: (10300102-1002)

Storage Basin:

Freeboard for basin: 1 foot
Storage volume (minimum to maximum water levels) 296,000 cubic feet

Outfall #002 – West Sludge Storage Basin

Legal Description: SE ¼, NE ¼, Sec. 7, T48N, R10W, Callaway County
UTM Coordinates: X= 580070.319, Y= 4312333.826
Receiving Stream: Unnamed tributary to Manacle Creek (U)
First Classified Stream and ID: Manacle Creek (C) (00742) 303(d) List
USGS Basin & Sub-watershed No.: (10300102-1002)

Storage Basin:

Freeboard for basin: 1 foot
Storage volume (minimum to maximum water levels) 320,430 cubic feet

Days of Storage (both basins)

Design for Dry weather Flows 365 days

Land Application:

Watershed 1

Legal Description: SW ¼, & S ½, NW ¼, Sec. 5 & SW ¼ & SE ¼ & S ½, NE ¼, Sec. 6 & N ½, Sec. 7 & W ½,
NW ¼, Sec. 8, T48N, R10W, Callaway County
Receiving Stream: Unnamed tributary to Manacle Creek (U)
First Classified Stream and ID: Manacle Creek (C) (00742)
USGS Basin & Sub-watershed No.: (10300102 – 1002)

Watershed 2

Legal Description: SW ¼ & S ½, NW ¼, Sec. 5 & NW ¼, Sec 8, T48N, R10W, Callaway County
Receiving Stream: Unnamed tributary to Auxvasse Creek (U)
First Classified Stream and ID: Auxvasse Creek (C) (00706)
USGS Basin & Sub-watershed No.: (10300102 – 1502)

Irrigation Volume/year: 4,000,000 gallons (including 1-in-10 year flows)
Irrigation areas: 999 acres
Field slopes: less than three percent (3%)
Equipment type: umbilical drag line hose/sludge injection toolbar
Vegetation: Row Crops
Application rate is based on: Plant Available Nutrient

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 17	
					PERMIT NUMBER MO-0131342	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfalls #001 & #002 - Emergency discharge from storage basins (Note 1)</u>						
Flow	MGD	*			once/day**	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	once/day**	grab
Total Suspended Solids	mg/L		45	30	once/day**	grab
Chemical Oxygen Demand	mg/L	*			once/day**	grab
Ammonia Nitrogen as N (May 1 – Oct 31) (Nov 1 – April 30)	mg/L	3.6 7.5		1.4 2.9	once/day**	grab
pH – Units	SU	***			once/day**	grab
Sulfate plus Chloride	mg/L	960			once/day**	grab
Chloride	mg/L	*			once/day**	grab
Total Alkalinity	mg/L	40			once/day**	grab
Oil & Grease	mg/L	15		10	once/day**	grab
Acetone	µg/L	*			once/day**	grab
Methylene Chloride	µg/L	1,600			once/day**	grab
Toluene	µg/L	200,000			once/day**	grab
Methanol	µg/L	*			once/day**	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2012</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #19			once/discharge event	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2013</u> .						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 17	
					PERMIT NUMBER MO-0131342	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Storage Basins and Land Application - Operational Monitoring (Notes 2 & 3)</u>						
Storage Basin Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches	*			daily	total
Precipitation	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2013</u> .						
<u>Storage Basins - Sludge (Notes 4 & 7)</u>						
Percent Solids	%	*			once/quarter	measured
Acetone (Note 5)	mg/kg	*			once/quarter	composite
Ammonia Nitrogen as N	mg/kg	*			once/quarter	composite
Arsenic	mg/kg	*			once/quarter	composite
Cadmium	mg/kg	*			once/quarter	composite
Chromium	mg/kg	*			once/quarter	composite
Copper	mg/kg	*			once/quarter	composite
Lead	mg/kg	*			once/quarter	composite
Methanol (Note 5)	mg/kg	*			once/quarter	composite
Methylene Chloride (Note 5)	mg/kg	*			once/quarter	composite
Nickel	mg/kg	*			once/quarter	composite
Nitrate + Nitrite	mg/kg	*			once/quarter	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2013</u> .						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 17	
					PERMIT NUMBER MO-0131342	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Storage Basins - Sludge (continued) (Notes 4 & 7)</u>						
Selenium	mg/kg	*			once/quarter	composite
Toluene (Note 5)	mg/kg	*			once/quarter	composite
Total Kjeldahl Nitrogen as N	mg/kg	*			once/quarter	composite
Total Phosphorus	mg/kg	*			once/quarter	composite
Zinc	mg/kg	*			once/quarter	composite
Amoxicillin (Note 5)	mg/kg	*			once/quarter	composite
Ampicillin (Note 5)	mg/kg	*			once/quarter	composite
Cefadroxil (Note 5)	mg/kg	*			once/quarter	composite
Cefdinir (Note 5)	mg/kg	*			once/quarter	composite
Cefprozil (Note 5)	mg/kg	*			once/quarter	composite
Cephalexin (Note 5)	mg/kg	*			once/quarter	composite
Dicloxacillin (Note 5)	mg/kg	*			once/quarter	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2013</u> .						
<u>Land Application Fields – Soil Monitoring (Note 6)</u>						
Ammonia as N	mg/kg	*			1/permit cycle****	composite
Nitrate + Nitrite	mg/kg	*			1/permit cycle****	composite
Available Phosphorus as P (Bray 1-P method)	mg/kg	*			1/permit cycle****	composite
Exchangeable Sodium Percentage	%	*			1/permit cycle****	composite
Cation Exchange Capacity	CEC	*			1/permit cycle****	composite
pH – Units (salt solution method) *****	SU	*			1/permit cycle****	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2017</u> .						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.
- *** pH is measured in pH units and is not to be averaged. The pH shall be maintained at or above 6.5 pH units.
- **** Soil testing is to occur in the fourth year (2016) of the permit cycle.
- ***** Soil pH shall be maintained in a range that is optimal for plant growth.

- Note 1 - **No-discharge facility requirements**. Sludge shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10-year, 365-day rainfall or the 25-year, 24-hour storm event. If a discharge occurs, the facility shall submit sample results to the Department within 30 days of the discharge event.
- Note 2 – See Special Condition #12.
- Note 3 – Storage Basin freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Condition #12 for Land Application of Sludge requirements.
- Note 4 – Sludge shall be sampled from each storage basin prior to land application. The basin from which land application is to occur shall be thoroughly mixed prior to sampling. Land application shall not occur until after results are received by the Permittee and application rates are calculated. New sludge shall not be added to the basin after sampling and before application, without the sludge being remixed and tested again.
- Note 5 – Antibiotic testing shall be done according to the requirements of Special Condition #14. Testing for Antibiotics, Methanol, Methylene Chlorine, Toluene, and Acetone shall only be conducted when the facility is land applying sludges from TEVA Pharmaceuticals USA facility in Mexico, Missouri, which have been stored for less than four (4) weeks in the storage basin(s). If testing is not required, please report “Not Required” for those parameters on the Discharge Monitoring Report.
- Note 6 – Composite samples from the top 0-12 inches of soil shall be collected from each land application field. The samples shall be collected in accordance with the sampling guidance contained in University of Missouri publication G9217, Soil Sampling Hayfields and Row Crops but does not include the requirements for one sample per 20 acres. Only one composite sample per field is required. Testing shall conform to Soil Testing Procedures for North Central Region (North Dakota Agricultural Experiment Bulletin 499-Revised); Methods of Soil Analysis, American Society of Agronomy, Inc; Soil Testing and Plant Analysis, Soil Science Society of America Inc; EPA Methods; or other methods approved by the department. The requirement to collect one representative composite sample per field supersedes the sampling guidance contained in University of Missouri publication G9217 that states that typical sampling areas should not exceed 20 acres.
- Note 7 – Sludge composite samples must represent various areas and must consist of at least seven (7) to 20 grab samples at a one-foot depth. Collect the samples during the same week from various locations in the sludge.

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. Emergency Discharge The holding basin may only discharge if rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) or the 24 hour, 25 year (Data taken from NRCS Urban Hydrology for Small Watersheds) rainfall events and the facility has conducted proper land application during suitable conditions prior to the discharge. **Discharge for any other reason shall constitute a permit violation and shall be recorded in accordance with Standard Conditions, Part I, Section B. 2. b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the month after the cessation of the discharge. In accordance with, and in addition to, Standard Conditions Part I, the permittee is to notify the department by telephone within 24 hours of becoming aware of any discharge or event that may endanger health or the environment. Leaving a message on a department staff member's voicemail does not satisfy this reporting requirement. During holidays, during the weekends, after normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the situation to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436.
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. The term "sludge" used herein means sludge, biosolids, by-products and residuals from domestic and/or industrial waste sources. It does not include licensed fertilizer products.
4. Approval of Sludge Characteristics.
 - (a) The permittee is authorized to receive and land apply domestic sludge. Permit Standard Conditions, Part III shall apply to the land application of domestic sludge with no mixture of industrial sludge.
 - (b) The permittee shall obtain approval to receive and land apply industrial sludge within every Standard Industrial Classification System (SIC) industry group that the permittee anticipates receiving. In order to obtain approval for land application of an industrial group sludge, the permittee shall submit a completed Form R – Permit Application for Land Application of Industrial Wastewater Biosolids and Residuals. The department may request additional information before approval is granted, or require that the permit be modified to ensure that permit limitations and monitoring requirements are protective of water quality.
 - (c) Once approved, sludge that meets the characteristics listed on the approved Form R for the industry group is authorized for land application. Only those pollutants listed in the approved Form R may be land applied.
 - (d) Industrial sludge, including any mixtures of domestic and industrial sludges, shall be land applied according to the Special Conditions of this permit.
 - (e) Approved industry groups shall be listed in the facility Operation and Maintenance Manual. The list shall give the following information:
 - (1) The three-digit industry group SIC code,
 - (2) The sludge characteristics and pollutants listed on the approved Form R, and
 - (3) The specific industries the permittee receives within each industry group with contact information.
 - (f) A list of specific industries from which the permittee receives industrial sludge is required by Special Condition #13.
 - (g) If new pollutants are identified or if the sludge characteristics or pollutant levels are found to be significantly higher than the approved Form R values, the department shall be notified within 30 days and a revised Form R submitted prior to any further land application.
 - (h) Hazardous waste regulated under the Missouri Hazardous Waste Law and regulations shall not be land applied under this permit.
 - (i) The permittee is approved to land apply industrial sludge received from the following:
 - (1) TEVA Pharmaceuticals USA in Mexico, Missouri, SIC System Industry Group 283: Drugs
 - (2) Coca-Cola Company in Warrenton, Missouri, SIC Industry Group 208: Beverages.

C. SPECIAL CONDITIONS (continued)

5. Sludge Monitoring

- (a) Sample and test each storage structure separately. Each test shall be conducted on a composite sample consisting of at least seven sub-samples collected at representative locations of the sludge to be land applied.
- (b) Test once/day during land application for percent solids.

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

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

8. 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.

9. Water Quality Standards

- (a) 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.

10. Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions and 40 CFR Part 503.

11. The earthen basins shall have a liner that is designed, constructed and maintained. If operating records indicate excessive percolation, the department may require corrective action as necessary to eliminate excess leakage.

12. Land Application of Sludge

- (a) Irrigation Design. This special condition does not apply to fertilizer products that are exempted under the Missouri Clean Water Law and regulations, 10 CSR 20-6.015(3)(B)8.
- (b) Operation. Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
- (c) No-Discharge System. Sludge shall be stored and land applied during suitable conditions so that there is no-discharge of process wastes from the storage site or land application site. Uncontaminated storm water runoff from land application sites may be discharged when land application was conducted in accordance with permit requirements. In no case, shall the permittee cause violation of the Water Quality Standards rules for general criteria and specific criteria under 10 CSR 20-7.031.

C. SPECIAL CONDITIONS (continued)

- (d) Lagoon Operating Levels - No-discharge Systems. A depth gauge shall be maintained in each storage basin so that depth can be ascertained at all times. The gauge must be readable from a location on the berm and must indicate the height at which overflow will occur and the minimum and maximum operating levels. Each basin shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10 year or 25-year-24 hour storm events. Sludge shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage basins should be lowered to the minimum operating level prior to each winter by November 30.
- (e) Emergency Spillway. Lagoons and earthen storage basins shall have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below top of berm. The department may waive the requirement for overflow structures on small existing basins.
- (f) Land Application Site Locations. This permit authorizes land application of sludge to the sites that have been public noticed and listed in the permit facility description. Additional land application fields including non-owned property can be added to the facility without permit modification. The permittee shall submit a map and notice of the additional fields to the Northeast Regional Office prior to land application on the new fields.
- (g) Subsurface Injection Requirement. Subsurface Injection or immediate incorporation after surface application should be considered where feasible and practicable to reduce exposure to wash off by storm water runoff and to retain nutrients in the soil for crop requirements. Dissolved Air Flotation (DAF) sludge from meat and poultry slaughter and processing facilities or other similar sludge with high oil and grease content shall be subsurface injected or immediately incorporated.
- (h) Land Application Equipment. The land application system shall be operated so as to provide uniform distribution of applied wastes to the entire application site. Land application shall occur only during daylight hours.
- (i) Saturated/Frozen Conditions. There shall be no irrigation during ground frost, frozen, snow covered, or saturated soil conditions, or when precipitation is imminent or occurring. There shall be no land application on days when there is observation by operator of an imminent or impending rainfall event. An on-site visual investigation of the field's soil moisture condition will be made prior to land application to determine whether land application can occur. The visual and soil test procedures will be reviewed and approved by the department as part of the Operation and Maintenance (O&M) Manual.
- (j) Buffer Zones. There shall be no irrigation within 300 feet of any sinkhole, losing stream or other structure or physiographic feature that may provide direct connection between the ground water table and the surface, or water supply withdrawal; 300 feet of any lake or pond used for water supply; 100 feet of other ponds and lakes; 100 feet of gaining streams; 50 feet of intermittent or wet weather streams; 150 feet of dwelling or public use areas excluding roads or highways; or 50 feet inside the property line. For subsurface injection, buffer zones may be reduced to 25 feet from gaining streams (classified and unclassified) and property lines.
- (k) Public Access Restrictions. Public access shall to the irrigation site(s) shall be restricted for 180 days after application unless the sludge is either subsurface injected or incorporated. If the sludge is subsurface injected or incorporated, then public access to the irrigation site(s) shall be restricted for 60 days after application.
- (l) Equipment Checks during Irrigation. The irrigation system and application sites shall be visually inspected at least **once every hour** during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site. The visual inspections shall be recorded in a daily log. The visual inspection logs shall be submitted with the annual report (Special Condition #13).
- (m) Nutrient Management Plan. The facility shall develop a Nutrient Management Plan (NMP) within 90 days of the issuance of this permit. The NMP shall determine the form, source, amount, timing, and method of application of sludge on individual land application fields. The NMP shall ensure that appropriate agricultural utilization of the nutrients in the sludge occur while also minimizing the movement of nitrogen, phosphorus, and other potential water contaminants into surface and/or ground water. The NMP must provide both a reliable and a technically valid basis for achieving the nutrient management objectives. The NMP shall be submitted to the Department for review and approval by **September 28, 2013**. The facility shall implement the NMP upon receipt of Department approval of the plan.
- (n) Storage Structure Observations. Sludge storage structures shall be checked visually at least once/month for structural integrity, visible leaks and measurement of liquid sludge depth. Liquid depth shall be measured and reported as feet below the top or overflow level of the structure.
- (o) Fact Sheets. Fact sheets shall be prepared for each application site giving the following information: Land owner's name, address, telephone number, acreage, designation of buffer zones around limiting features, nutrient content of sludge and the application rates with the maximum per year.
- (p) Daily Log Sheets. Daily log sheets shall be prepared and kept for each application site showing amounts of sludge applied per acre, dates of application, nutrients applied, and crop yields.

C. SPECIAL CONDITIONS (continued)

- (q) Technical Standards. Sludge storage, handling and land application systems shall be designed and operated in accordance with 10 CSR 20-8.020(15). Where minimum storage capacity is not provided, alternate sludge disposal shall be provided such as hauling to a landfill or other permitted treatment system. Hazardous waste regulated under the Missouri Hazardous Waste Law and regulations shall not be land applied under this permit.
- (r) Slope and Runoff Restrictions.
- (1) Do not place sludge in a location where it is reasonably certain that pollutants will be transported into waters or the state during storm water runoff.
 - (2) All application sites shall have a Soil and Water Conservation Plan to minimize soil erosion and storm water runoff. The plan shall be developed in accordance with standards of the USDA, Natural Resources Conservation Service (NRCS). The plan shall be developed by a "certified" soil & water conservation planner and shall be included in the O&M Manual.
 - (3) Subsurface injection should be applied along the contour of the slope to minimize surfacing of liquids at the down gradient end of the injection trench.
 - (4) Sludge shall not be applied to slopes exceeding ten (10%) percent.
13. Annual Report. An annual report is required in addition to the reporting requirements in Table A of this permit. The annual report shall be submitted by January 28 of each year for the previous growing season from January 1st to December 31st or an alternate 12 month period approved by the Department and listed in the Operation and Maintenance Manual. This report shall be submitted using report forms provided by the Department and shall include a summary of the monitoring and record keeping required by the Special Conditions and Standard Conditions of this permit. The report shall include the following:
- (a) Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
 - (b) The number of days the storage basins have discharged during the year, the discharge flow, and the reasons discharge occurred; and
 - (c) A summary of the irrigation operations including:
 - (1) a map showing location of land application sites, name and address of land owners;
 - (2) storage basins freeboard at the start and end of the land application season;
 - (3) the number of days of application for each month, the total gallons land applied, the total acres used, crops grown, crop yields per acre, the application rate in inches/acre per day and for the year, the monthly and annual precipitation received at the facility; and
 - (4) a summary of testing results for sludge, including loading of total pounds per year of each constituent, for each field.
 - (d) Narrative summary of any problems or deficiencies identified, permit violations, corrective action taken and improvements planned. Include such items as over-application of sludge or nutrients, lower crop yields than predicted, spills, runoff during land application, citizen complaints, odors, nuisance conditions, improper application practices, failure to follow buffer zones, etc.
 - (e) Plant Available Nutrient calculations, nutrient application amounts, and crop removal rates shall be listed in the annual report.
 - (f) A list of specific industries from which the permittee receives industrial sludge and a summary of sampling data from the Industrial Users.
14. Antibiotic Requirements.
- (a) The permittee shall comply and/or require that sludge received from the TEVA Pharmaceuticals USA facility in Mexico, Missouri complies with the Water Protection Program's letter dated February 20, 2008 granting approval to land apply sludge generated during the manufacturing of antibiotics.
 - (b) Antibiotic monitoring shall be conducted in accordance with test methods developed by TEVA Pharmaceuticals USA and approved by the Department of Natural Resources' Water Protection Program.
 - (c) Copies of the approved test methods shall be placed in the operation and maintenance manual required by Special Condition #17.
 - (d) If additional antibiotics are to be produced that are not listed in Table A, the department shall be notified within 30 days of becoming aware of the production change. Notification shall include proposed monitoring test methods for the additional antibiotics for review and approval.
 - (e) Sludge from the manufacture of antibiotics not listed in Table A shall not be land applied until the department is notified and a test method approved.
 - (f) Industrial sludge received by the permittee from TEVA Pharmaceuticals USA shall be stabilized in the sludge storage basin(s) for a minimum of 14 days before land application. This will provide an additional margin of safety for the breakdown of any residual antibiotics present in the sludge.

C. SPECIAL CONDITIONS (continued)

15. Industrial Sludge Requirements.

- (a) The facility must have each industrial client complete the following questions after any change in process that has the potential to add additional pollutants.
- (1) List of raw materials, chemicals, additives, products, and by-products used at the facility.
 - (2) Has any of the sludge been derived from or mixed with a Listed hazardous waste? If YES, this material cannot be land applied under this permit.
 - (3) Does the sludge exhibit any hazardous waste Characteristics as described in 40 CFR Part 261 Subpart C? If YES, this material cannot be land applied under this permit.
 - (4) Are any Pollutants listed in the applicable sections of 40 CFR 268.40 believed to be present in detectable concentrations?
 - (5) Are any Pollutants listed in EPA Process Design Manual for Land Treatment of Municipal Wastewater publication EPA-625/1-81-013, Table 4-5 and Table 4-16 believed present in detectable concentrations?
- The facility shall have the industrial client provide a copy of testing results for any pollutants listed in Special Condition #15 a. that may be present in detectable concentrations.
- (b) Authorization for new industrial sludges may be added either by submitting an application to modify this permit. Alternatively, if the sludge is substantially similar to sludges already accepted at the facility, via the 60-day notification procedure in Standard Conditions Part 1, Section B.1. If the change is requested via Standard Conditions, the Department will evaluate the request and determine if a permit modification is necessary. Either method for requesting authorization shall be accompanied by the testing data in application Form R.
- (c) The facility shall require industrial clients to provide the facility sample results once per year for the sludge that the facility accepts, unless an exemption for that sludge type is provided in this permit. In addition, the industrial clients shall provide the facility sample results after any process change that has the potential to add additional pollutants. The sample results shall be from a composite sample from the industrial user's sludge prior to mixing with sludge from other sources. Please review the TESTING REQUIREMENTS FOR ORGANIC TOXIC POLLUTANTS INDUSTRY CATEGORY on Page 15 to determine what categories are to be sampled. In addition, the facility is to have each industrial client provide sample results once per year for all Tier II reported chemicals and chemicals listed in Table 1 on Page 14. The facility shall submit the results to the Northeast Regional Office by January 28th of each year.

METALS, CYANIDE, AND TOTAL PHENOLS

Antimony, Total (7440-36-9)	Nickel, Total (7440-02-0)
Arsenic, Total (7440-38-2)	Selenium, Total (7782-49-2)
Beryllium, Total (7440-41-7)	Silver, Total (7440-22-4)
Cadmium, Total (7440-43-9)	Thallium, Total (7440-28-0)
Chromium, Total (7440-47-3)	Zinc, Total (7440-66-6)
Copper, Total (7550-50-8)	Cyanide, Total (57-12-5)
Lead, Total (7439-97-6)	Phenols, Total
Mercury, Total (7439-97-6)	

C. SPECIAL CONDITIONS (continued)

16. Industrial Sludge Requirements (continued)

GC/MS FRACTION – VOLATILE COMPOUNDS

Acrolein (107-02-8)	1,2-Dichloropropane (78-87-5)
Acrylonitrile (107-13-1)	1,2-Dichloropropylene (542-75-6)
Benzene (71-43-2)	Ethylbenzene (100-41-4)
Bis (Chloromethyl) Ether (542-88-1)	Methyl Bromide (74-83-9)
Bromoform (75-25-2)	Methyl Chloride (74-87-3)
Carbon Tetrachloride (56-23-5)	Methylene Chloride (75-09-2)
Chlorobenzene (108-90-7)	1,1,2,2-Tetrachloroethane (79-34-5)
Chlorodibromomethane (124-48-1)	Tetrachloroethylene (127-18-4)
Chloroethane (75-00-3)	Toluene (108-88-3)
2-Chloroethylvinyl Ether (110-75-8)	1,2-Trans Dichloroethylene (156-60-5)
Chloroform (67-66-3)	1,1,1-Trichloroethane (71-55-6)
Dichlorobromomethane (75-27-4)	1,1,2-Trichloroethane (79-00-5)
Dichlorodifluoromethane (75-71-8)	Trichloroethylene (79-01-6)
1,1-Dichloroethane (75-34-3)	Trichlorofluoromethane (75-69-4)
1,2-Dichloroethane (107-06-2)	Vinyl Chloride (75-01-4)
1,1-Dichloroethylene (75-35-4)	

GC/MS FRACTION – ACID COMPOUNDS

2-Chlorophenol (95-57-8)	4-Nitrophenol (100-02-7)
2,4-Dichlorophenol (120-83-2)	P-Chloro-M-Cresol (59-50-7)
2,4-Dimethylphenol (105-67-9)	Pentachlorophenol (87-86-5)
4,6-Dinitro-O-Cresol (534-52-1)	Phenol (108-95-2)
2,4-Dinitrophenol (51-28-5)	2,4,6-Trichlorophenol (88-06-2)
2-Nitrophenol (88-75-5)	

C. SPECIAL CONDITIONS (continued)

16. Industrial Sludge Requirements (continued)

GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS

Acenaphthene (83-32-9)	Dimethyl Phthalate (131-11-3)
Acenaphthylene (208-96-8)	Di-N-butyl Phthalate (84-74-2)
Anthracene (120-12-7)	2,4-Dinitrotoluene (121-14-2)
Benzidine (92-87-5)	2,6-Dinitrotoluene (606-20-2)
Benzo (a) Anthracene (56-55-3)	Di-N-Octyl Phthalate (117-84-0)
Benzo (a) Pyrene (50-32-8)	1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)
3,4-Benzofluoranthene (205-99-2)	Fluoranthene (206-44-0)
Benzo (ghi) Perylene (191-24-2)	Fluorene (86-73-7)
Benzo (k) Fluoranthene (207-08-9)	Hexachlorobenzene (118-74-1)
Bis (2-Chloroethoxy) Methane (111-91-1)	Hexachlorobutadiene (87-68-3)
Bis (2-Chloroethyl) Ether (111-44-4)	Hexachlorocyclopentadiene (77-47-4)
Bis (2-Chloroisopropyl) Ether (39638-32-9)	Hexachloroethane (67-72-1)
Bis (2-Ethylhexyl) Phthalate (117-81-7)	Indeno (1,2,3-c-d) Pyrene (193-39-5)
4-Bromophenyl Phenyl Ether (101-55-3)	Isophorone (78-59-1)
Butyl Benzyl Phthalate (85-68-7)	Naphthalene (91-20-3)
2-Chloronaphthalene (91-58-7)	Nitrobenzene (98-95-3)
4-Chlorophenyl Phenyl Ether (7005-72-3)	N-Nitrosodimethylamine (62-75-9)
Chrysene (218-01-9)	N-Nitroso N-Propylamine (621-64-7)
Dibenzo (a,h) Anthracene (53-70-3)	N-Nitrosodiphenylamine (86-30-6)
1,2-Dichlorobenzene (95-50-1)	Phenanthrene (85-01-8)
1,3-Dichlorobenzene (541-73-1)	Pyrene (129-00-0)
1,4-Dichlorobenzene (106-46-7)	Pyridine (110-86-1)
3,3'-Dichlorobenzidine (91-94-1)	1,2,4-Tri chlorobenzene (120-82-1)
Diethyl Phthalate (84-66-2)	

C. SPECIAL CONDITIONS (continued)

16. Industrial Sludge Requirements (continued)

TESTING REQUIREMENTS FOR ORGANIC TOXIC POLLUTANTS INDUSTRY CATEGORY

INDUSTRY CATEGORY	VOLATILE	GC/MS FRACTION		PESTICIDE
		ACID	BASE/NEUTRAL	
Adhesives and sealants	X	X	X	-
Aluminum forming	X	X	X	-
Auto and other laundries	X	X	X	X
Battery manufacturing	X	-	X	-
Coal mining	X	X	X	X
Coil coating	X	X	X	-
Copper forming	X	X	X	-
Electric and electronic compounds .	X	X	X	X
Electroplating	X	X	X	-
Explosives manufacturing	X	X	X	-
Foundries	X	X	X	-
Gum and wood chemicals	X	X	X	X
Inorganic chemicals manufacturing .	X	X	X	-
Iron and steel manufacturing	X	X	X	-
Leather tanning and finishing	X	X	X	X
Mechanical products manufacturing	X	X	X	-
Nonferrous metals manufacturing . .	X	X	X	X
Ore Mining	X	X	X	X
Organic chemicals manufacturing . .	X	X	X	X
Paint and ink formulation	X	X	X	X
Pesticides	X	X	X	X
Petroleum refining	X	X	X	X
Pharmaceutical preparations	X	X	X	-
Photographic equipment and supplies	X	X	X	X
Plastic and synthetic materials mfg. .	X	X	X	X
Plastic processing	X	-	-	-
Porcelain enameling	X	-	X	X
Printing and publishing	X	X	X	X
Pulp and paperboard mills	X	X	X	X
Rubber processing	X	X	X	-
Soap and detergent manufacturing .	X	X	X	-
Steam electric power plants	X	X	X	-
Textile mills	X	X	X	X
Timber products	X	X	X	X

Table 1

Barium (7440-39-3)	Lindane (58-89-9)
o-Cresol (95-48-7)	Methoxychlor (72-43-5)
m-Cresol (108-39-4)	Methyl ethyl ketone (78-93-3)
p-Cresol (106-44-5)	Pyridine (110-86-1)
Cresol	2,4,5-Trichlorophenol (95-95-4)
2,4-D (94-75-7)	2,4,5-TP (Silvex) (93-72-1)

C. SPECIAL CONDITIONS (continued)

17. Other Pollutant Limitations and Loading Rates

- (a) Oil and Grease Limitations. Oil and grease application shall not exceed 0.5% of soil weight or 10,000 pounds oil/acre/year for subsurface injection or soil incorporation. For surface application to growing vegetation, the sludge shall not exceed 15% oil & grease content and shall not exceed 1,000 pounds oil/acre. Avoid heavy application of oil and grease within 30 days before planting of row crops. Oil and grease sludges with low nitrogen content, more than 20:1 Carbon to Nitrogen ratio, may require supplemental nitrogen application to provide proper decomposition of the oil content and prevent nitrogen deficiencies for the crop.
- (b) Metals Loading Limitations. Application of trace metals shall not exceed the concentrations and loading limits for each metal as specified in University of Missouri publication WQ 425, revised 4/95. When metals concentrations exceed values in Table 2 and Table 4 of WQ-425, the remaining metals capacity of the site will be calculated each time industrial sludge is spread. When the cumulative limit is reached, sludge addition will be halted.
- (c) Soil Sodium Content. Soil content of sodium shall not exceed 10% Exchangeable Sodium Percentage.
- (d) Chlorides Loading Limitations. Application of chlorides shall not exceed 500 pounds/acre/year. Chlorides are extremely mobile and will be leached into the soil with percolating water.
- (e) Boron Loading Limitations. Application of boron shall not exceed a cumulative total of 600 pounds/acre.
- (f) Toxic Organic Chemicals Limitations. Toxic organic chemicals shall not exceed background levels found in soils or concentrations listed in 40 CFR 268.40 unless alternate pollutant limits are listed in this permit. Consideration of alternate limits will be based on review of detailed environmental assessment submitted in accordance with 10 CSR 20-8.020(3)(D).

18. Operation and Maintenance Manual

The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. The O&M Manual shall be reviewed and updated at least every five years. A copy of the revised O&M Manual shall be submitted to the Northeast Regional Office by **January 28, 2013**. Subsequent revisions shall be submitted within 30 days of completion. The O&M Manual shall include, but not limited to, the following:

- (a) Detailed topographic maps of the property showing all land application fields including the identification numbers for each field and tract. Each field and tract shall have an identification number for record keeping and tracking purposes. The maps shall also indicate separation distances from streams, ponds, wells, and property lines and shall indicate areas exceeding 10 percent slopes and other areas that are not suitable for land application. The maps shall also include the location of all buildings, pump stations, land application pipelines, land application riser connections, underground terrace outlets, domestic wastewater treatment systems and other waste handling units.
- (b) Start up procedures, field supervision during operation, and shutdown procedures of irrigation equipment.
- (c) Procedures for providing the separation distances required by this permit and as specified in 10 CSR 20-8.020 (15) (B).
- (d) Sample collection, preservation, and testing procedures.
- (e) Procedures for determining Plant Available Nutrient (PAN) loading rates.
- (f) Record keeping forms for tracking each field, tract and storage structure. This shall include testing results, crops, yields, and application rates for each field. Records for each field and tract shall include dates and amounts applied.
- (g) A procedure for promptly reporting spills or discharges to the permittee plant manager and to DNR.
- (h) A procedure for recording repair work on application equipment and irrigation lines to include the reason for the repair work and the material used for the repair.
- (i) A procedure for routine visual inspections of the storage and application system for overflows or other operational problems.
- (j) A procedure to assure that all appropriate employees are properly trained in operation of the waste systems and are familiar with the O&M Manual.
- (k) Procedure for adjusting application periods and rates based on soil infiltration capacity, soil moisture content, and percent of soil field (saturation) capacity.
- (l) List of number, size, and capacity of waste removal, hauling and land application equipment.
- (m) Number of suitable days each year when land application will occur based on historical one in ten year wettest precipitation and capacity of spreading equipment and personnel available.
- (n) Procedure to avoid application if there is a weather forecast for significant precipitation within 24 hours.
- (o) Nutrient Management Plan.
- (p) Approved Antibiotic Testing Methods
- (q) List of approved industry groups as required by Special Condition #4.

19. Records of sludge received shall be maintained for five years and made available to the Department upon request. The record must include the generator, date and volume of waste received, and any testing records provided by the generator.

C. SPECIAL CONDITIONS (continued)

20. Whole Effluent Toxicity (WET)

Tests shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	FREQUENCY		SAMPLE TYPE	MONTH
001	100%	once per discharge event per basin		grab	ANY

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

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) Chemical and physical analysis of the 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 analyses 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.
- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) 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.
- (3) If the effluent fails the test, 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:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (4) 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 third failed test.
- (5) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall 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. 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 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.
- (6) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (7) 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.
- (8) 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.
- (9) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a multiple-dilution test:
 - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC₅₀ concentration for the most sensitive of the test organisms; **OR**,

C. SPECIAL CONDITIONS (continued)

20. Whole Effluent Toxicity (WET) (continued)

- (b) For facilities with an AEC greater than 30%, the LC50 concentration must be greater than 100%; **AND**,
- (c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be 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 mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance 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 or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) 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.
- (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 "Acceptable Effluent Concentration" (AEC) specified above.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (6) 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, 1/2 AEC and 1/4 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.
- (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.

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF MODIFICATION
OF
MO-0131342
MISSOURI BIOSOLIDS, LLC

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 Address: 2927 County Road 253, Columbia, Missouri 65202
Facility Type: Industrial and Domestic Sludge Storage and Land Application. No discharge is authorized 24 hour catastrophic or 1 year chronic rainfall occurs, as defined in the permit.
Facility SIC Code(s): 4953

OUTFALL(S) TABLE:

OUTFALL	TREATMENT LEVEL	EFFLUENT TYPE	STORAGE VOLUME (GALLONS)	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	Sludge Storage	Emergency Discharge	2,212,000	3.9*
#002	Sludge Storage	Emergency Discharge	2,397,000	3.9*

*The basin outfalls are 3.9 miles from the first classified segment of Manacle Creek. A portion of the land application area is also about 6 miles upstream of the first classified segment of Auxvasse Creek.

Water Quality History:

This facility is a no-discharge, sludge storage and land application facility. The facility has never reported an emergency discharge.

Comments:

The permit action is to modify the existing permit per the settlement agreement reached on August 24, 2012 by the Department and the Permittee. Monitoring is shifted from soil sampling to sludge sampling.

This facility blends biosolids with industrial sludges for land application. 10 CSR 20-6.015(2) requires that such land application facilities obtain a Missouri State Operating Permit. 10 CSR 20-6.015(4)(B)3. requires these facilities to comply with the limitations and requirements contained in 40 CFR Part 503, and any additional requirements and limitations deemed necessary by the department. 10 CSR 20-6.015(4)(C)1. states: *“The department shall develop permit conditions containing limitations, monitoring, reporting and other requirements to protect soils, crops, surface waters, groundwater, public health and the environment.”*

40 CFR Part 503 was developed for biosolids, and did not consider various industrial sludges. This forces the Permit Writer to use Best Professional Judgment [in accordance with Section 402(a)(1)(B) of the Clean Water Act and 644.051.3 RSMo] to determine what additional requirements are necessary in accordance with 10 CSR 20-6.015(4)(B)3. Based upon the type of industrial sludge being collected, it has been determined that in addition to the monitoring for the metals in 40 CFR Part 503, monitoring for certain solvents and antibiotics is required when industrial sludge from TEVA pharmaceuticals is also necessary. The current permit also requires TEVA sludge to be screened for hazardous waste constituents. If the permittee applies for authorization to receive sludges from additional industrial sources, permit requirements will be re-evaluated.

Part II – Operator Certification Requirements

As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

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

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category list 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.

Please mark the correct designated waters of the state categories of the receiving stream.

All Other Waters [10 CSR 20-7.015(8)]: Yes

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

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Storage Basin Outfalls and Land Application Area (Watershed 1)					
Unnamed tributary to Manacle Creek	U	NA	General Criteria	10300102	Ozark/Moreau/Loutre
Manacle Creek	C	00742	LWW, AQL, WBC***		
Land Application Area (Watershed 2)					
Unnamed tributary to Auxvasse Creek	U	NA	General Criteria	10300102	Ozark/Moreau/Loutre
Auxvasse Creek	C	00706	LWW, AQL, WBC***		

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

** - Ecological Drainage Unit

*** - UAA has not been conducted.

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, SLUDGE, & SEWAGE SLUDGE:

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. 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. Missouri Biosolids, LLC receives and land applies industrial sludge from various industries. Given the nature and variability of industrial sludge, the Permit Special Conditions require that Missouri Biosolids, LLC obtain approval to receive and land apply industrial sludge within every Standard Industrial Classification (SIC) System industry group that the company anticipates receiving. Once approved, Missouri Biosolids, LLC is authorized to receive and land apply sludge from any industrial facility within that SIC industry group. The first industry Missouri Biosolids is approved to land apply sludge from the TEVA Pharmaceuticals USA facility in Mexico, Missouri under SIC Industry Group 283: Drugs; and industrial sludge from the Coca-Cola Company in Warrenton, Missouri, Standard Industrial Classification (SIC) Industry Group 208: Beverages.

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.

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.

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

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm.

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

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

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

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

SCHEDULE OF COMPLIANCE (SOC):

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

Not Applicable ; This permit does not contain a SOC.

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:

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

Where C = downstream concentration
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 all facilities meeting the following criteria:

Facility (industrial) that alters its production process throughout the year.

40 CFR 122.41(M) - BYPASSES:

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

- Not Applicable, this facility does not bypass.

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

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

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

Applicable ; Manacle Creek is listed on the 2002 Missouri 303(d) List for low pH and sulfate from the Manacle Creek Abandoned Mine Lands.

– This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s).

Part V – Effluent Limits Determination

Outfall #001 and #002 – East and West Sludge Storage Basins

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*			No	S
BOD ₅	mg/L	1		45	30	No	S
TSS	mg/L	1		45	30	No	S
COD	mg/L	8	*			No	N
Ammonia as N (Summer)	mg/L	3/5/8	3.6		1.4	Yes	*
Ammonia as N (Winter)	mg/L	3/5/8	7.5		2.9	Yes	*
pH	SU	1	≥ 6.5		≥ 6.5	Yes	≥ 6.0
Sulfate plus Chloride	mg/L	9	960			N/A	N
Total Alkalinity	mg/L	9	40			N/A	N
Oil & Grease (mg/L)	mg/L	1	15		10	N/A	N
Acetone	µg/L	8	*			N/A	N
Methylene Chloride	µg/L	2/8	1,600			N/A	N
Toluene	µg/L	2/8	200,000			N/A	N
Methanol	µg/L	8	*			N/A	N
Whole Effluent Toxicity (WET) Test	Please see WET Test in the Derivation and Discussion Section below.						
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

- * - Monitoring requirement only
- N/A – Not applicable
- S – Same as previous operating permit

Basis for Limitations Codes:

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

OUTFALLS #001 & #002 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Suspended Solids (TSS).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Chemical Oxygen Demand (COD).** Monitoring requirement only.

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L.

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

Summer: May 1 – October 31

Chronic WLA: $C_e = ((0.001 + 0.0)1.5 - (0.0 * 0.01))/0.001$
 $C_e = 1.5 \text{ mg/L}$

Acute WLA: $C_e = ((0.001 + 0.0)12.1 - (0.0 * 0.01))/0.001$
 $C_e = 12.1 \text{ mg/L}$

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

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

Use most protective number of LTA_c or LTA_a .

MDL = 1.2 mg/L (3.11) = 3.6 mg/L
 AML = 1.2 mg/L (1.19) = 1.4 mg/L

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

Winter: November 1 – April 30

Chronic WLA: $C_e = ((0.001 + 0.0)3.1 - (0.0 * 0.01))/0.001$
 $C_e = 3.1 \text{ mg/L}$

Acute WLA: $C_e = ((0.001 + 0.0)12.1 - (0.0 * 0.01))/0.001$
 $C_e = 12.1 \text{ mg/L}$

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

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

Use most protective number of LTA_c or LTA_a .

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

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

- **pH.** Effluent limitation range is ≥ 6.5 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- **Sulfate plus Chloride.** Effluent limitations have been included as required by the TMDL approved July 14, 2004.
- **Total Alkalinity.** Effluent limitations have been included as required by the TMDL approved July 14, 2004.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Acetone.** Monitoring requirement only. TEVA Pharmaceuticals discharges acetone distillation bottoms directly to the on-site wastewater treatment plant and are thus exempt from regulation under the Resource Recovery Act as a hazardous waste. It is best professional judgment that requirements to monitor emergency discharges for this pollutant be added.
- **Methylene Chloride.** Effluent limitations have been added for protection of human health – fish consumption; 1,600 µg/L daily maximum. The methylene chloride distillation process does not connect to the wastewater treatment plant according to the Hazardous Waste Program; however, because water quality standards have been set for methylene chloride, it is best professional judgment to add effluent limitations for toluene to the permit.
- **Toluene.** Effluent limitations have been added for protection of human health – fish consumption; 200,000 µg/L daily maximum. Toluene is a solvent used in the production process at TEVA Pharmaceuticals USA. The toluene distillation process does not connect to the wastewater treatment plant according to the Hazardous Waste Program; however, because water quality standards have been set for toluene, it is best professional judgment to add effluent limitations for toluene to the permit.

- **Methanol**. Monitoring requirement only. TEVA Pharmaceuticals discharges methanol distillation bottoms directly to the on-site wastewater treatment plant and are thus exempt from regulation under the Resource Recovery Act as a hazardous waste. It is best professional judgment that requirements to monitor emergency discharges for this pollutant be added.
- **WET Test**. Whole Effluent Toxicity test shall be conducted as follows:

Summary of Wet Testing for This Permit				
Outfall	A.E.C. %	Frequency	Sample Type	Month
#001 & #002	100	Once/discharge	grab	N/A

Since the facility will be receiving sludge from various industries for land application, it is unlikely that the department can predict every pollutant that will be stored in the sludge storage basins. Also, the interaction of the pollutants from these sludges cannot be predicted. Therefore, according to best professional judgment, a WET testing requirement was included in this permit in the event the sludge storage basins should discharge.

- **Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/DAY	ONCE/QUARTER
PRECIPITATION	ONCE/DAY	ONCE/QUARTER
BOD ₅	ONCE/DAY	ONCE/QUARTER
TSS	ONCE/DAY	ONCE/QUARTER
COD	ONCE/DAY	ONCE/QUARTER
AMMONIA AS N	ONCE/DAY	ONCE/QUARTER
pH (S.U.)	ONCE/DAY	ONCE/QUARTER
SULFATE PLUS CHLORIDE	ONCE/DAY	ONCE/QUARTER
TOTAL ALKALINITY	ONCE/DAY	ONCE/QUARTER
OIL & GREASE (MG/L)	ONCE/DAY	ONCE/QUARTER
ACETONE	ONCE/DAY	ONCE/QUARTER
METHYLENE CHLORIDE	ONCE/DAY	ONCE/QUARTER
TOLUENE	ONCE/DAY	ONCE/QUARTER
METHANOL	ONCE/DAY	ONCE/QUARTER
WET TEST	ONCE/DISCHARGE	ANNUALLY

Monitoring and sampling are only required when there is an emergency discharge. This facility is to be operated as a no-discharge facility.

All Outfalls – Land Application Sites

LAND APPLICATION MONITORING TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
STORAGE BASINS/LAND APPLICATION MONITORING REQUIREMENTS							
Storage Basin Freeboard	feet	8	*			No	S
Irrigation Period	hours	8	*			No	S
Volume Irrigated	gallons	8	*			No	S
Application Area	acres	8	*			No	S
Application Rate	inches	8	*			No	S
Precipitation	inches	8	*			No	S
SLUDGE MONITORING REQUIREMENTS							
Percent Solids	%	8	*			No	S
Acetone	mg/kg	8	*			No	S
Ammonia Nitrogen as N	mg/kg	8	*			No	S
Arsenic	mg/kg	8	*			No	S
Cadmium	mg/kg	8	*			No	S
Chromium	mg/kg	8	*			No	S
Copper	mg/kg	8	*			No	S
Lead	mg/kg	8	*			No	S
Methanol	mg/kg	8	*			No	S
Methylene Chloride	mg/kg	8	*			No	S
Nickel	mg/kg	8	*			No	S
Nitrate + Nitrite	mg/kg	8	*			No	S
Selenium	mg/kg	8	*			No	S
Toluene	mg/kg	8	*			No	S
Total Kjeldahl Nitrogen as N	mg/kg	8	*			No	S
Total Phosphorus	mg/kg	8	*			No	S
Zinc	mg/kg	8	*			No	S
Amoxicillin	mg/kg	8	*			No	S
Ampicillin	mg/kg	8	*			No	S
Cefadroxil	mg/kg	8	*			No	S
Cefdinir	mg/kg	8	*			No	S
Cefprozil	mg/kg	8	*			No	S
Cephalexin	mg/kg	8	*			No	S
Dicloxacillin	mg/kg	8	*			No	S

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
SOIL MONITORING REQUIREMENTS							
Ammonia as N	mg/kg	8	*			NO	S
Nitrate + Nitrite	mg/kg	8	*			NO	S
Available Phosphorus as P (Bray 1-P method)	mg/kg	8	*			NO	S
Exchangeable Sodium Percentage	%	8	*			NO	S
Cation Exchange Capacity	CEC	8	*			YES	**
pH – Units (salt)	SU	8	*			NO	S

* - Monitoring requirement only

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

N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

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

LAND APPLICATION REQUIREMENTS

This facility blends biosolids with industrial sludges for land application. 10 CSR 20-6.015(2) requires that such land application facilities obtain a Missouri State Operating Permit. 10 CSR 20-6.015(4)(B)3. requires these facilities to comply with the limitations and requirements contained in 40 CFR Part 503, and any additional requirements and limitations deemed necessary by the department. 10 CSR 20-6.015(4)(C)1. states: “The department shall develop permit conditions containing limitations, monitoring, reporting and other requirements to protect soils, crops, surface waters, groundwater, public health and the environment.”

40 CFR Part 503 was developed for biosolids, and did not consider various industrial sludges. This forces the Permit Writer to use Best Professional Judgment [in accordance with Section 402(a)(1)(B) of the Clean Water Act and 644.051.3 RSMo] to determine what additional requirements are necessary in accordance with 10 CSR 20-6.015(4)(B)3. Based upon the type of industrial sludge being collected, it has been determined that in addition to the monitoring for the metals in 40 CFR Part 503, monitoring for certain solvents and antibiotics is required when industrial sludge from TEVA pharmaceuticals is also necessary. The current permit also requires TEVA sludge to be screened for hazardous waste constituents. If the permittee applies for authorization to receive sludges from additional industrial sources, permit requirements will be re-evaluated.

STORAGE BASINS/LAND APPLICATION MONITORING REQUIREMENTS

- **Storage Basin Freeboard.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Irrigation Period.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Volume Irrigated.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Application Area.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Application Rate.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Precipitation.** Monitoring requirement only. The parameter has been retained from previous state operating permit.

SLUDGE MONITORING REQUIREMENTS

- **Percent Solids.** Monitoring requirement only. Monitoring to determine levels in applied sludge.
- **Acetone.** Monitoring requirement only. The parameter has been retained from previous state operating permit.

- **Ammonia Nitrogen as N.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Arsenic.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Cadmium.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Chromium.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Copper.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Lead.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Methanol.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Methylene Chloride.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Nickel.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Nitrate + Nitrite.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Selenium.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Toluene.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Total Kjeldahl Nitrogen as N.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Total Phosphorus.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Zinc.** Monitoring requirement only. Monitoring to determine levels in applied sludge as the amount of metals and other pollutants in the biosolids determines the acceptability for land application and the appropriate loading rates to protect crops, soils and the environment.
- **Amoxicillin.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Ampicillin.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Cefadroxil.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Cefdinir.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Cefprozil.** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Cephalexin.** Monitoring requirement only. The parameter has been retained from previous state operating permit.

- **Decloxacillin**. Monitoring requirement only. The parameter has been retained from previous state operating permit.

SOIL MONITORING REQUIREMENTS

- **Ammonia as N**. Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Nitrate + Nitrite**. Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Available Phosphorus as P**. Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Exchangeable Sodium Percentage**. Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Cation Exchange Capacity**. Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **pH – Units (salt)** Monitoring requirement only. The parameter has been retained from previous state operating permit.
- **Minimum Sampling and Reporting Frequency Requirements**.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
STORAGE BASINS/LAND APPLICATION MONITORING REQUIREMENTS		
Storage Basin Freeboard	monthly	annually
Irrigation Period	daily	annually
Volume Irrigated	daily	annually
Application Area	Daily	annually
Application Rate	daily	annually
Rainfall	daily	annually
SLUDGE MONITORING REQUIREMENTS	once/quarter	annually
SOIL MONITORING REQUIREMENTS	once/permit cycle	once/permit cycle

Soil testing is to occur in the fourth year (2016) of the permit cycle.

Additional Requirements for industrial clients:

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 September 21, 2012 to October 22, 2012. No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

DATE OF FACT SHEET: SEPTEMBER 12, 2012

COMPLETED BY:

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