

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-0003999
Owner: US Department of Interior (USDOI), USGS
Address: 4200 E New Haven Road, Columbia, MO 65201
Continuing Authority: Same as above
Address: Same as above
Facility Name: Columbia Environmental Research Center
Facility Address: 4200 E New Haven Road, Columbia, MO 65201
Legal Description: See page 2
UTM Coordinates: See page 2
Receiving Stream: See page 2
First Classified Stream and ID: See page 2
USGS Basin & Sub-watershed No.: See page 2

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

FACILITY DESCRIPTION

SEE PAGE 2

This permit authorizes only wastewater 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 Sections 640.013, 621.250, and 644.051.6 of the Law.

January 1, 2017
Effective Date

Harry D. Bozobian, Director, Department of Natural Resources

March 31, 2020
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (CONTINUED)

OUTFALL #001 – Process Wastewater; SIC # 8733; NAICS # 541712

Receives process water from research aquaculture and a wet chemistry laboratory.

Legal Description: NW¼, SW¼, Sec.28, T48N, R12W, Boone County
UTM Coordinates: X = 562052, Y = 4307186
Receiving Stream: Clear Creek (C)
First Classified Stream and ID: 8-20-13 MUDD V 1.0 (C) 3960
USGS Basin & Sub-watershed No.: Little Bonne Femme Creek-Missouri River (10300102-0903)
Design Flow: 1.0 MGD
Average Flow: 0.57 MGD

OUTFALL #002 – Process Wastewater; SIC # 8733; NAICS # 541712

Emergency overflow for outfall #001. Discharges from this outfall are authorized, with the same limit set as outfall #001.

Legal Description: NW¼, SW¼, Sec.28, T48N, R12W, Boone County
UTM Coordinates: X = 562071, Y = 4307159
Receiving Stream: Clear Creek (C)
First Classified Stream and ID: 8-20-13 MUDD V 1.0 (C) 3960
USGS Basin & Sub-watershed No.: Little Bonne Femme Creek-Missouri River (10300102-0903)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
OUTFALL #001, #002 <i>Wastewater Lagoon Outfalls</i>						
TABLE A-1 INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective on January 1, 2017 and remain in effect through December 31, 2019 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
PHYSICAL						
Flow	MGD	*		*	once/month	24 hr. total
CONVENTIONAL						
Chemical Oxygen Demand	mg/L	60		40	once/month	grab
pH ^Ω	SU	6.5 to 9.0		6.5 to 9.0	once/month	grab
Total Suspended Solids	mg/L	80		60	once/month	grab
METALS						
Hardness (as CaCO ₃)	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	34.3		13.0	once/month	grab
Lead, Total Recoverable	µg/L	*		*	once/month	grab
NUTRIENTS						
Ammonia (as N)						
Summer (April 1 – Sept 30)	mg/L	*		*	once/month	grab
Winter (Oct 1 – March 31)	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>FEBRUARY 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
NUTRIENTS						
Nitrogen, Total (TN)	mg/L	*		*	once/quarter ◊	grab
Phosphorus, Total (TP)	mg/L	*		*	once/quarter ◊	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity, Chronic [±]	TU _c	*			twice/year ^φ	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>SEMI-ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

See notes on page 5

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, CONTINUED

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
OUTFALL #001, #002 <i>Wastewater Lagoon Outfalls</i>						
TABLE A-2 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on January 1, 2020 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
PHYSICAL						
Flow	MGD	*		*	once/month	24 hr. total
CONVENTIONAL						
Chemical Oxygen Demand	mg/L	60		40	once/month	grab
pH ^Ω	SU	6.5 to 9.0		6.5 to 9.0	once/month	grab
Total Suspended Solids	mg/L	80		60	once/month	grab
METALS						
Hardness (as CaCO ₃)	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	*		*	once/month	grab
Copper, Total Recoverable	µg/L	34.3		13.0	once/month	grab
Lead, Total Recoverable	µg/L	18.6		6.0	once/month	grab
NUTRIENTS						
Ammonia (as N)						
Summer (April 1 – Sept 30)	mg/L	*		*	once/month	grab
Winter (Oct 1 – March 31)	mg/L	10.1		2.8	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>FEBRUARY 28, 2020</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
NUTRIENTS						
Nitrogen, Total (TN)	mg/L	*		*	once/quarter [◇]	grab
Phosphorus, Total (TP)	mg/L	*		*	once/quarter [◇]	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2020</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity, Chronic [±]	TU _c	*			twice/year [Ⓟ]	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>SEMI-ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2020</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

See notes on page 5

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

* Monitoring requirement only.

Ω The facility will report the minimum and maximum values. pH is not to be averaged.

± Wet testing is required on outfall #001 only. See special condition #22 for more information on WET testing requirements.

◇ Quarterly sampling

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

φ Twice yearly sampling schedule:

MINIMUM BI-ANNUAL SAMPLING REQUIREMENTS			
	MONTHS	WET TEST	REPORT IS DUE
First Half of Year	January, February, March, April, May, June	Sample at least once during any month of the half year	July 28th
Second Half of Year	July, August, September, October, November, December	Sample at least once during any month of the half year	January 28th

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I standard conditions dated August 1, 2014 and hereby incorporated as though fully set forth herein.

C. SPECIAL CONDITIONS

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

2. This permit may be reopened and modified, or alternatively revoked and reissued, to:

- (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test, or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
- The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

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

C. SPECIAL CONDITIONS, CONTINUED

4. Water Quality Standards

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

5. Changes in Discharges of Toxic Pollutant

In addition to the reporting requirements under §122.41(1), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

- (a) That an activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile;
 - (3) Five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol;
 - (4) One milligram per liter (1 mg/L) for antimony;
 - (5) Five (5) times the maximum concentration value reported for the pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - (6) The notification level established by the department in accordance with 40 CFR 122.44(f).
- (b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 µg/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with §122.21(g)(7).
 - (4) The level established by the Director in accordance with §122.44(f).

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

7. Reporting of Non-Detects

- (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
- (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non-Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
- (c) The permittee shall report the "Non-Detect" result using the less than sign and the minimum detection limit (e.g. <10).
- (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
- (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
- (f) When calculating monthly averages, one-half of the minimum detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (C).

C. SPECIAL CONDITIONS, CONTINUED

8. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
9. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 *et. seq.*) and the use of such pesticides shall be in a manner consistent with its label.
10. To protect the general criteria found at 10 CSR 20-7.031(4), before releasing water accumulated in secondary containment areas, it must be examined for hydrocarbon odor and presence of sheen. If the presence of odor or sheen is indicated, the water shall be treated using an appropriate method or disposed of in accordance with legally approved methods, such as being sent to a wastewater treatment facility. Following treatment, the water shall be tested for oil and grease, benzene, toluene, ethylbenzene, and xylene using 40 CFR part 136 methods. All pollutant levels must be below the most protective, applicable standards for the receiving stream, found in 10 CSR 20-7.031 Table A. Records of all testing and treatment of water accumulated in secondary containment shall be stored in the SWPPP to be available on demand to DNR and EPA personnel.
11. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the NPDES documents and made available to the department upon request.
12. The permittee shall maintain a record of all chemicals and compounds used in ongoing environmental testing for a period of three years, to be stored with the facility NPDES documents and available on demand to DNR personnel. If a WET test is failed, this information shall be reviewed by the permittee, along with other available information, and a report detailing possible failure reasons shall be submitted to NERO within five business days of notification of the known failure.
13. The wastewater treatment facility must be sufficiently secured to restrict entry by children, livestock, and unauthorized persons as well as to protect the facility from vandalism.
14. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain locked except when opened by the permittee to perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department.
15. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be WASTEWATER TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
16. A minimum of two (2) feet freeboard must be maintained in each lagoon cell. A lagoon level gauge, which clearly marks the minimum freeboard level, shall be provided in each lagoon cell.
17. Access to the treatment facility lagoon shall be possible in all weather conditions, barring emergency flooding or other disaster.
18. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
19. The berms of the lagoons and storage basins shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
20. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the lagoons and storage basins and to divert stormwater runoff around the lagoon and protect embankments from erosion.
21. Chlorine used for disinfection shall not enter the lagoon or be released to waters of the state without prior authorization from DNR Northeast Regional Office. If chlorine is to be released, additional water quality sampling for residual chlorine, cyanide amenable to chlorine, or other pollutants may be required.

C. SPECIAL CONDITIONS, CONTINUED

22. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT						
Outfall	AEC	Toxic Unit		FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Chronic TU _c *		twice per year	grab	See twice yearly sampling table in permit above
Dilution Series						
100%	50%	25%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

*monitoring only

Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:

- (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136)*. The permittee shall concurrently conduct 7-day, static, renewal toxicity tests with the following species:
 - o The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
 - o The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
- (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
- (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
- (d) The Allowable Effluent Concentration (AEC) for this facility is 100% with the dilution series being: 100%, 50%, 25%, 12.5%, and 6.25%.
- (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
- (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units (TU_c = 100/IC₂₅) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC₂₅) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations

D. SCHEDULE OF COMPLIANCE

Schedules of compliance are allowed under 40 CFR 122.47. The facility shall attain compliance with final effluent limitations established in this permit as soon as reasonably achievable:

1. Within six months of the effective date of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits.
2. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from effective date.
3. Within 3 years of the effective date of this permit, the permittee shall attain compliance with the final effluent limits at outfall #001 and #002, for lead and ammonia.

Please submit progress reports to:

Northeast Regional Office
1709 Prospect Drive
Macon, MO 63552-2602

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0003999
USDOJ COLUMBIA ENVIRONMENTAL RESEARCH CENTER**

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 stormwater 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 for less.

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 (MSOP or operating permit) listed below. A factsheet is not an enforceable part of an operating permit.

Part I. FACILITY INFORMATION

Facility Type: Industrial, Research
 Facility SIC Code(s): 8733
 Application Date: 09/04/2013
 Expiration Date: 03/19/2014
 Last Inspection: 10/14/2015 found to be Not in Compliance at time of inspection

FACILITY DESCRIPTION:

United States Department of the Interior (USDOJ) Columbia Environmental Research Center (CERC) is a United States Geological Survey (USGS) research center focusing on the study of the health of aquatic ecosystems.

A single cell retention lagoon receives wastewater from the facility. The facility has a central wet laboratory and several satellite research laboratories where specialized aquatic toxicology and chemistry are done. Ecology; fish, amphibian, and invertebrate culture; analytical chemistry; contaminated sediment and hazardous chemical testing; and sample processing and identification occur in these laboratories. Two 1,100 feet wells provide groundwater to the research facility and ponds. The hazard assessment laboratory allows for investigations of highly toxic chemicals too hazardous to test in a normal laboratory setting. Facilities also include a number of small ponds and three constructed streams used for field studies. Domestic wastewater and a large proportion of laboratory wastewater are discharged to the City of Columbia's sanitary sewer system for treatment at the Columbia Wastewater Treatment Plant.

PERMITTED FEATURES TABLE:

OUTFALL	AVERAGE FLOW (MGD)	DESIGN FLOW (MGD)	TREATMENT LEVEL	EFFLUENT TYPE
#001	0.6	1.0	primary	Research laboratory and aquaculture water
#002	overflow only	1.0	primary	Research laboratory and aquaculture water

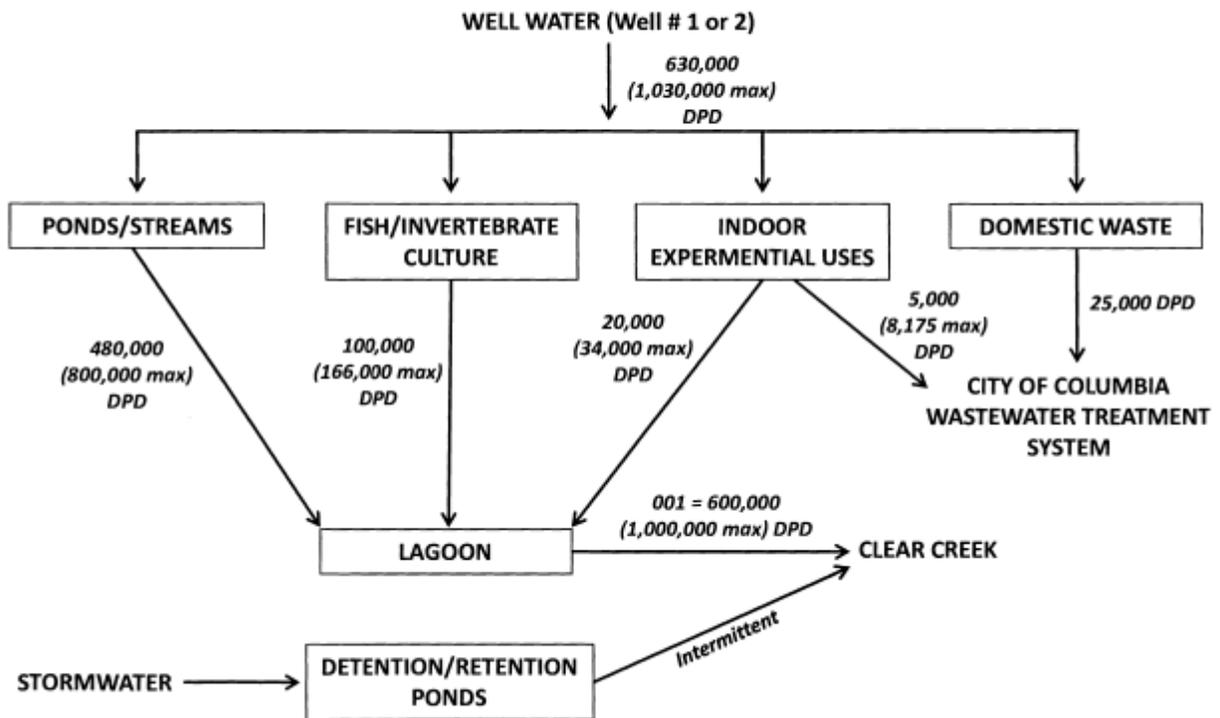
FACILITY PERFORMANCE HISTORY & COMMENTS:

The electronic discharge monitoring reports were reviewed for the last five years. Exceedances of cadmium and copper were reported at outfall #001, but after review of available DMR records and correspondence between NERO and the permittee, these exceedances were found to be non-detects. The testing methods performed on those samples were not sufficiently sensitive; however, the facility switched back to a more sensitive method and has been in compliance since that time. The last inspection of the facility occurred on 10/14/2015. The facility was found to be not in compliance due to lack of notification of NERO when DMR exceedances occurred. After a letter of explanation, the facility was returned to compliance. The facility has passed all required WET testing, both chronic and acute. No other relevant compliance or performance history information was found.

FACILITY MAP:



WATER BALANCE DIAGRAM:



MAJOR WATER USER:

CERC is registered in the Major Water User registry as a user of groundwater. The 2014 registry lists them as using 118,933,000 gallons of groundwater. Their registry number is 55120245.

Part II. RECEIVING STREAM INFORMATION

RECEIVING WATER BODY'S WATER QUALITY:

The receiving stream Clear Creek (C) has no concurrent water quality data available. No relevant stream survey or aquatic life assessment data was found. Clear Creek (C) (3960) is now classified whereas it was not classified in the previous permit, as EPA has approved the Department's new stream classifications.

303(D) LIST:

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

✓ Not applicable; this facility does not discharge to an impaired segment of a 303(d) listed stream.

TOTAL MAXIMUM DAILY LOAD (TMDL):

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; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan or TMDL may be developed. The TMDL shall include the WLA calculation. <http://dnr.mo.gov/env/wpp/tmdl/>

✓ Not applicable; this facility is not associated with a TMDL.

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

✓ As per Missouri’s Effluent Regulations [10 CSR 20-7.015(1)(B)], the waters of the state are divided into the following seven categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall’s effluent limitation table and further discussed in the derivation & discussion of limits section.

- Missouri or Mississippi River:
- Lake or Reservoir:
- Losing:
- Metropolitan No-Discharge:
- Special Stream:
- Subsurface Water:
- All Other Waters:

RECEIVING STREAMS TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	DISTANCE TO SEGMENT (MILES)	12-DIGIT HUC
#001	Clear Creek	C	3960	AQL, IRR, LWW, SCR, WBC-B, HHP	<0.01	10300102-0903 Little Bonne
#002	Clear Creek	C	3960	AQL, IRR, LWW, SCR, WBC-B, HHP	<0.01	Femme Creek- Missouri River

n/a not applicable

WBID = Waterbody Identification: Missouri Use Designation Dataset 8-20-13 MUDD V1.0 data can be found as an ArcGIS shapefile on MSDIS at http://msdis.missouri.edu/pub/Inland_Water_Resources/MO_2014_WQS_Stream_Classifications_and_Use_shp.zip

* As per 10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission’s water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream’s beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(C)].

Uses which may be found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:

AQL = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; CLH = Cool Water Habitat; CDH = Cold Water Habitat; EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;

WBC-A = Whole body contact recreation supporting swimming uses and has public access;

WBC-B = Whole body contact recreation supporting swimming;

SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:

HHP (formerly HHP) = Human Health Protection as it relates to the consumption of fish;

IRR = Irrigation for use on crops utilized for human or livestock consumption;

LWW = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);

DWS = Drinking Water Supply;

IND = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

WSA = Storm- and flood-water storage and attenuation; **WHP** = Habitat for resident and migratory wildlife species;

WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; **WHC** = Hydrologic cycle maintenance.

10 CSR 20-7.031(6): **GRW** = Groundwater

RECEIVING STREAM LOW-FLOW VALUES:

OUTFALL	RECEIVING STREAM (C, P)	LOW-FLOW VALUES (CFS)		
		1Q10	7Q10	30Q10
#001, #002	Clear Creek (C)	0.0	0.0	0.1

MIXING CONSIDERATIONS TABLE: Class C defaults

MIXING ZONE (CFS) (CHRONIC) [10 CSR 20-7.031(5)(A)4.B...]			ZONE OF INITIAL DILUTION (CFS) (ACUTE) [10 CSR 20-7.031(5)(A)4.B...]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0	0	0.025	0	0	0.0025

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements are recommended at this time.

Part III. 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:

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

- ✓ New facility, backsliding does not apply.
- ✓ All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.
- ✓ Limitations in this operating permit for the reissuance conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
- ✓ Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) which would have justified the application of a less stringent effluent limitation.
 - Five years of DMR data were available to the permit writer and support elevated effluent limitations on copper. An RPA supported removing zinc from monitoring due to no reasonable potential to exceed water quality standards. Cadmium is reduced to monitoring only due to no reasonable potential to exceed water quality standards.
 - The requirement that the facility submit a monthly list of chemicals discharged to outfall #001 is removed as is total toxic organics. The list of chemicals will be stored onsite with other NPDES documents. Submission of a report is necessary if chemicals are discharged which cause failure of a WET test. The total toxic organics test was initially added to cover incidences of spills or unknown chemicals entering the wastewater lagoon. This is covered under special condition #5, and is therefore un-necessary.
 - This permit changes WET testing requirements from pass/fail to monitoring for toxic units. This change reflects modifications to Missouri’s Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limit without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concludes the facility does not currently have reasonable potential but monitoring is required. Implementation of the toxic unit monitoring requirement will allow the department to effect numeric criteria in accordance with water quality standards established under CWA §303.
- ✓ The Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
 - Per a memorandum issued by the EPA entitled *Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies* (4/19/1996), the department has found the permittee eligible for reduced monitoring frequency. Acute WET testing has been reduced from quarterly to twice yearly due to the facility passing all required WET testing in previous permit cycles. Chronic WET testing has been increased from one test per year to two tests per year in order to determine reasonable potential at this site.

ANTIDegradation Review:

For process water discharge with new, altered, or expanding discharges, the department is to document, by means of antidegradation review, if the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the department prior to establishing, altering, or expanding discharges. See <http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm>

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

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for beneficial use (i.e. fertilizer). Sewage sludge is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information: <http://extension.missouri.edu/main/DisplayCategory.aspx?C=74> (WQ422 through WQ449).

- ✓ Not applicable; this condition is not applicable to the permittee for this facility.

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.

EFFLUENT LIMITATION GUIDELINE:

Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. All are technology based limitations which must be met by the applicable facility at all times.

- ✓ The facility does not have an associated ELG.

GROUNDWATER MONITORING:

Groundwater is a water of the state according to 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6) and must be protected accordingly.

- ✓ This facility is not required to monitor groundwater for the water protection program.

INDUSTRIAL SLUDGE:

Industrial sludge is solid, semi-solid, or liquid residue generated during the treatment of industrial process wastewater in a treatment works; including but not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment process; scum and solids filtered from water supplies and backwashed; and a material derived from industrial sludge.

- ✓ Permittee is not authorized to land apply industrial sludge. Sludge is retained in the lagoon.

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 causing or have the reasonable potential to cause (or contribute to) an in-stream excursion above narrative or numeric water quality standards. If the permit writer determines 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 [40 CFR Part 122.44(d)(1)(iii)].

- ✓ Applicable; a RPA was conducted on appropriate parameters and was conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request. See Wasteload Allocations (WLA) for Limits in this section. Please see **APPENDIX A – RPA RESULTS**.

SCHEDULE OF COMPLIANCE (SOC):

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, effluent limits, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. SOCs are allowed under 40 CFR 122.47 providing certain conditions are met.

- ✓ Applicable; the time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(12)]. The facility has been given a schedule of compliance to meet final effluent limits for ammonia, lead, and total residual chlorine. Three years will allow the permittee to adjust the components discharged to the lagoon to control for TRC and/or institute de-chlorination procedures. Treatment mechanisms may need to be installed to treat for lead and/or ammonia in the effluent which could possibly require construction.

SPILL REPORTING:

Per 10 CSR 24-3.010, any emergency involving a hazardous substance must be reported to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. <http://dnr.mo.gov/env/esp/spillbill.htm>

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k), Best Management Practices (BMPs) must be used to control or abate the discharge of pollutants when: 1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; 3) Numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges.

A SWPPP must be prepared by the permittee if the SIC code is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2). A SWPPP may be required of other facilities where stormwater has been identified as necessitating better management. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. Failure to implement and maintain the chosen BMP is a permit violation. For further guidance, consult the antidegradation implementation procedure (<http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf>).

Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs that are reasonable and cost effective. The AA evaluation should include practices that are designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why "no discharge" or "no exposure" is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the department

to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification; the application is found at: <http://dnr.mo.gov/forms/index.html>.

✓ Not applicable; at this time, the permittee is not required to develop and implement a SWPPP.

VARIANCE:

Per the Missouri Clean Water Law §644.061.4, variances shall be granted for such period of time and under such terms and conditions as 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; the operating permit is not drafted under premise of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the WLA is the amount of pollutant each discharger is allowed to discharge into the receiving stream without endangering water quality. Two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs) are reviewed. If one limit does provide adequate protection for the receiving waters, then the other must be used.

✓ Applicable; wasteload allocations were calculated where relevant using water quality criteria or water quality model results and by applying 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

- Acute wasteload allocations designated as daily maximum limits (MDL) 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).
- Chronic wasteload allocations designated as monthly average limits (AML) 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).
- Water quality based MDL and AML effluent limitations were calculated using methods and procedures outlined in USEPA’s *Technical Support Document For Water Quality-based Toxics Control* or TSD EPA/505/2-90-001; 3/1991.
- Number of Samples “n”: 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, targeted to comply with the values dictated by the WLA. Therefore, it is recommended 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:

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

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

WATER QUALITY STANDARDS:

Per 10 CSR 20-7.031(4), 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 the 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 the provisions in 10 CSR 20-6 and the Water Quality Standards in 10 CSR 20-7 are being met. Under 10 CSR 20-6.010(8)(A)4, the department may require other terms and conditions it deems necessary to assure compliance with the CWA and related regulations of the Missouri Clean Water Commission. The following Missouri Clean Water Laws (MCWL) apply: §644.051.3 requires the department to set permit conditions complying 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); and §644.051.5 is the basic authority to require testing conditions.

WET tests are required by all facilities meeting the following criteria:

- Facility is a designated a Major
- Facility continuously or routinely exceeds its design flow
- Facility that exceeds its design population equivalent (PE) for BOD₅ whether or not its design flow is being exceeded
- Facility (whether primarily domestic or industrial) that alters its production process throughout the year
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts
- Facility has Water Quality-Based Effluent Limitations for toxic substances (other than NH₃)
- Facility is a municipality with a Design Flow \geq 22,500 GPD
- Other – Facility uses a variety of chemicals in laboratory procedures. This permit is unable to capture all of them as individual requirements due to alterations in testing procedures throughout the year. WET testing can be used to determine the toxicity of effluent in lieu of monitoring every known or possible pollutant.

Part IV. 2013 WATER QUALITY CRITERIA FOR AMMONIA

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

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

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

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

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

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Current effluent limitations in this permit are:

Summer – Monitoring only

Winter – 10.0 mg/L daily maximum, 2.7 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this that discharges to a receiving stream with the mixing consideration listed in Part II of the Fact Sheet will be:

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

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

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

Part V. EFFLUENT LIMITS DETERMINATION

OUTFALL #001, #002 – LAGOON OUTFALLS

Effluent limitations derived and established in the below effluent limitations table are based on current operations of the facility. Effluent means both process water and stormwater. Any flow through the outfall is considered a discharge and must be sampled and reported as provided below. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit. Daily maximums and monthly averages are required under 40 CFR 122.45(d)(1) for continuous discharges not from a POTW.

EFFLUENT LIMITATIONS TABLE:

PARAMETERS OUTFALL #001, #002	UNIT	BASIS FOR LIMITS	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*	*	SAME	ONCE/MONTH	ONCE/MONTH	24 Hr. Tot
TEMPERATURE	REMOVED FROM THIS PERMIT							
CONVENTIONAL								
BOD ₅	REMOVED FROM THIS PERMIT							
COD	mg/L	6	60	40	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
pH †	SU	1, 3	6.5 TO 9.0	6.5 to 9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TSS	mg/L	6	80	60	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
METALS								
HARDNESS (AS CaCO ₃)	mg/L	6	*	*	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
CADMIUM, TOTAL RECOVERABLE	µg/L	6	*	*	0.6/0.3	ONCE/MONTH	ONCE/MONTH	GRAB
COPPER, TOTAL RECOVER.	µg/L	1, 2, 3, 6	34.3	13.0	18.3/9.8	ONCE/MONTH	ONCE/MONTH	GRAB
LEAD, TOTAL RECOVERABLE	µg/L	1, 2, 3, 6	18.6	6.0	*/*	ONCE/MONTH	ONCE/MONTH	GRAB
ZINC, TOTAL RECOVERABLE	REMOVED FROM THIS PERMIT							
NUTRIENTS								
AMMONIA AS N (SUMMER)	mg/L	2, 3	*	*	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
AMMONIA AS N (WINTER)	mg/L	2,3	10.1	2.8	*/*	ONCE/MONTH	ONCE/MONTH	GRAB
NITROGEN, TOTAL N (TN)	mg/L	1	*	*	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB
PHOSPHORUS, TOTAL P (TP)	mg/L	1	*	*	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB
OTHER								
TOTAL TOXIC ORGANICS (TTO)	mg/L	REMOVED FROM THIS PERMIT						
CHRONIC WET TEST	TUc	8	*	*	PASS/FAIL	TWICE/YEAR	TWICE/YEAR	GRAB
CHEMICALS DISCHARGED TO #001	REMOVED FROM THIS PERMIT							

* - Monitoring requirement only

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

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

Basis for Limitations Codes:

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

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to 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. The facility will report the total flow in millions of gallons per day (MGD).

Temperature

This parameter is removed from this permit. The previous permit required this parameter; however, it is in the best professional judgment of the permit writer to remove this from monitoring due to the fact that the outfall is an outlet for a lagoon. The temperature outdoors affects the discharge temperature at the outfall and is not controllable by the permittee. No heating or cooling of the water in the lagoon is part of the industrial process at this facility.

CONVENTIONAL:

Biochemical Oxygen Demand (BOD₅)

This parameter is removed from this permit. The previous permit required monitoring only for this parameter. It is the best professional judgment of the permit writer to remove this parameter after reviewing five years of DMR data. No reasonable potential to violate the general criteria is demonstrated in the results data submitted for this parameter.

Chemical Oxygen Demand (COD)

Daily maximum limit of 60 mg/L with a monthly average limit of 40 mg/L. This is continued from the previous permit. There were no exceedances of the limit in the last five years of DMR data. It is in the best professional judgment of the permit writer to continue the limits from the previous permit. This parameter is a valuable indicator parameter and a sudden spike or increase in the COD from this outfall could indicate an increase in inorganic or organic pollutants in the lagoon.

Chlorine

Application materials received 09/04/2013 report the daily maximum chlorine released from outfall #001 to be 0.24 mg/L. This is above the water quality standard for chlorine; however, the permittee supplied evidence that this daily maximum amount was measured during an unusual decontamination event for invasive species. This permit addresses the release of chlorine through special condition #21, which requires the facility to receive the approval of the Northeast Regional Office before releases chlorine used for decontamination. Additional water quality sampling may be required of the effluent in relation to the release of chlorine, including residual chlorine, cyanide amenable to chlorine, or others.

pH

6.5 to 9.0 SU. The Water Quality Standard at 10 CSR 20-7.031(5)(E) states water contaminants shall not cause pH to be outside the range of 6.5 to 9.0 standard pH units.

Total Suspended Solids (TSS)

Daily maximum limit of 80 mg/L with an average monthly limit of 60 mg/L. Effluent limitations from the previous state operating permit have been reassessed and verified they are still protective of the receiving stream's water quality. Increased suspended solids in runoff can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Suspended solids can also be carriers of toxins, which can adsorb to the suspended particles; therefore, total suspended solids are a valuable indicator parameter for other pollution.

METALS:

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the *Technical Support Document For Water Quality-based Toxic Controls* (EPA/505/2-90-001) and *The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007). General warm-water habitat criteria apply (WWH) designated as AQL in 10 CSR 20-7.031 Table A. Additional use criterion (HHP, DWS, GRW, IRR, or LWV) may also be used as applicable to determine the most protective effluent limit for the stream class and uses.

When there are no site specific translator studies, partitioning between the dissolved and absorbed phases is assumed minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, the department may integrate those findings into derivation of the water quality limits. Conversion factors for Cd and Pb are hardness dependent. N/A means not applicable.

METAL	CONVERSION FACTORS USING HARDNESS OF 259 MG/L	
	ACUTE	CHRONIC
Cadmium	0.904	0.869
Copper	0.960	0.960
Lead	0.652	0.652
Zinc	0.978	0.986

Cadmium, Total Recoverable

Monitoring only. The previous permit required a daily maximum limit of 0.6 µg/L and an average monthly limit of 0.3 µg/L. An RPA showed no reasonable potential for exceedance of this parameter. The data was unable to be statistically calculated as all points were non-detects; however, RPA guidance for developing limits states that all non-detect points in data indicates no reasonable potential for exceedances. (See Appendix A-RPA Results for more information.)

Copper, Total Recoverable

Daily maximum limit of 34.3 µg/L and a monthly average limit of 13.0 µg/L. The previous permit required a daily maximum limit of 18.3 µg/L, with a monthly average limit of 9.8 µg/L. The limit on this parameter has been retained and raised after an RPA was run using five years of DMR data which found reasonable potential to exceed water quality standards. A site specific CV of 1.114232 for copper and a site specific hardness of 259 led to an increase in the previous limits. The new limits are protective of aquatic life in the receiving stream. (See Appendix A-RPA Results for more information.)

Acute AQL WQS:	$e^{(0.9422 * \ln 259 - 1.7003)} * 0.960 = 32.9345$	[at Hardness 259]
Chronic AQL WQS:	$e^{(0.8545 * \ln 259 - 1.7020)} * 0.960 = 20.196061$	[at Hardness 259]
Acute TR WQS:	$32.9345 \div 0.96 = 34.3067$	[Total Recoverable Conversion]
Chronic TR WQS:	$20.1961 \div 0.96 = 21.0376$	[Total Recoverable Conversion]
Acute WLA:	$C_e = 34.3067$	[WLA=WQS when no mixing]
Chronic WLA:	$C_e = 21.0376$	[WLA=WQS when no mixing]
LTA _a :	$34.31 (0.185) = 6.3467395$	[CV = 1.11, 99 th Percentile]
LTA _c :	$21.0376 (0.342) = 7.1948592$	[CV = 1.11, 99 th Percentile]
	Use most protective number of LTA _a or LTA _c .	
MDL:	$6.34735 (5.40) = 34.27 = \mathbf{34.3 \mu g/L}$	[CV = 1.11, 99 th Percentile]
AML:	$6.34735 (2.05) = 13.01 = \mathbf{13.0 \mu g/L}$	[CV = 1.11, 95 th Percentile, n = 4]

Lead, Total Recoverable

Daily maximum limit of 18.6 µg/L and a monthly average limit of 6.0 µg/L. The previous permit required monitoring only. Limits are placed on this parameter after an RPA was run using five years of DMR data which found reasonable potential to exceed water quality standards. The limits are protective of aquatic life in the receiving stream. (See Appendix A-RPA Results for more information.)

Acute AQL WQS:	$e^{(1.273 * \ln 259 - 1.460448)} * (1.46203 - \ln 259 * 0.145712) = 178.7869$	[at Hardness 259]
Chronic AQL WQS:	$e^{(1.273 * \ln 259 - 4.704797)} * (1.46203 - \ln 259 * 0.145712) = 6.9716$	[at Hardness 259]
Acute TR WQS:	$178.7870 \div 0.652 = 274.21$	[Total Recoverable Conversion]
Chronic TR WQS:	$6.9716 \div 0.652 = 10.693$	[Total Recoverable Conversion]
Acute WLA:	$C_e = 274.21$	[WLA=WQS when no mixing]
Chronic WLA:	$C_e = 10.69$	[WLA=WQS when no mixing]
LTA _a :	$274.21 (0.116) = 31.81$	[CV = 2.04, 99 th Percentile]
LTA _c :	$10.69 (0.201) = 2.149$	[CV = 2.04, 99 th Percentile]
	Use most protective number of LTA _a or LTA _c .	
MDL:	$2.149 (8.65) = 18.59 = \mathbf{18.6 \mu g/L}$	[CV = 2.04, 99 th Percentile]
AML:	$2.149 (2.81) = 6.03869 = \mathbf{6.0 \mu g/L}$	[CV = 2.04, 95 th Percentile, n = 4]

Zinc, Total Recoverable

This parameter has been removed from this permit. The previous permit required monitoring only for this pollutant. No exceedances occurred in the last permit cycle. An RPA showed no reasonable potential for exceedance of this parameter. (See Appendix A-RPA Results for more information.)

NUTRIENTS:

Ammonia, Total as Nitrogen

Ammonia limits have two seasons in the state of Missouri. At this facility, summer months are monitoring only. Winter month limits are a daily maximum of 10.1 mg/L and a monthly average of 2.8 mg/L. An RPA using the last five years of DMR data showed no reasonable potential to exceed water quality standards in the summer months, so monitoring only is required. The same RPA showed reasonable potential to exceed limits in the winter months, therefore limits are instituted. (See Appendix A-RPA Results for more information.)

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 No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

Winter: October 1 – March 31

Acute WLA: $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01))/1.55$

$C_e = 12.1 \text{ mg/L}$

Chronic WLA: $C_e = ((1.55 + 0.0)3.1 - (0.0 * 0.01))/1.55$

$C_e = 3.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.208) = 2.5$

[CV = 0.98, 99th Percentile]

$LTA_c = 3.1 \text{ mg/L} (0.672) = 2.1$

[CV = 0.98, 99th Percentile, 30 day avg.]

Use most protective number of LTA_a or LTA_c .

MDL = 2.1 mg/L (4.82) = **10.1 mg/L**

[CV = 0.98, 99th Percentile]

AML = 2.1 mg/L (1.32) = **2.8 mg/L**

[CV = 0.98, 95th Percentile, n =30]

Nitrogen, Total N (TN)

Per 10 CSR 20-7.015(9)(D)7, nutrient monitoring shall be instituted on a quarterly basis for facilities with a design flow greater than 0.1 MGD.

Phosphorous, Total P (TN)

Per 10 CSR 20-7.015(9)(D)7, nutrient monitoring shall be instituted on a quarterly basis for facilities with a design flow greater than 0.1 MGD.

OTHER:

Chemicals Discharged to Outfall #001

This requirement is removed from this permit. It has been replaced by a special condition requiring a record of all chemicals discharged to the lagoon to be stored with other NPDES documents, with a report submitted in cases of WET test failure.

Total Toxic Organics

This parameter has been removed from this permit. The results of this test have been non-detects for the last five years, therefore it is in the permit writer's best professional judgment there is no reasonable potential for discharge of pollutants measured in this test. Additionally, accidental spills or releases of pollutants are adequately accounted for under special condition #5.

Whole Effluent Toxicity (WET) Test, Chronic

Monitoring is required to determine if reasonable potential exists for the discharge to cause toxicity within the receiving stream. The standard Allowable Effluent Concentration (AEC) for facilities discharging to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] is 100%. The standard dilution series for facilities discharging to unclassified, Class C, Class P (with default mixing considerations), or lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] is 100%, 50%, 25%, 12.5%, & 6.25%.

Part VI. SAMPLING AND REPORTING REQUIREMENTS:

Refer to each outfall's derivation and discussion of limits section to review individual sampling and reporting frequencies and sampling type. Additionally, see Standard Conditions Part I attached at the end of this permit and fully incorporated within.

ELECTRONIC DISCHARGE MONITORING REPORTING:

Due to new federal regulations, all facilities must begin submitting their discharge monitoring reports electronically, called the eDMR system (certain exemptions are allowed; see National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule in 80 FR 64063; effective 12/21/2015). To begin the process with the department, please visit <http://dnr.mo.gov/pubs/pub2474.pdf>. This process will save time, lessen paperwork, and reduce operating costs for both facilities and the water protection program. Additional information may also be found at <http://dnr.mo.gov/env/wpp/edmr.htm>.

SAMPLING FREQUENCY JUSTIFICATION:

Sampling and reporting frequency was generally retained from previous permit. 40 CFR 122.45(d)(1) indicates all continuous discharges shall be permitted with daily maximum and monthly average limits. The facility may sample more frequently if additional data is required to determine if best management operations and technology are performing as expected.

WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits/WET Testing for Compliance Bio-monitoring*. When I&I is an issue, it is recommended that WET testing be conducted during the period of lowest stream flow. The acute WET testing requirement at this facility has been removed from this permit. The facility previously passed all required acute WET testing, and twice yearly chronic WET testing will be adequate to assess toxicity in the effluent. The chronic WET testing for this facility has been increased to twice yearly from the previous requirement of once yearly. Chronic WET testing is appropriate at this facility given the receiving stream is effluent dominated, and aquatic life in the stream likely has chronic exposure to pollutants in the discharge. Twice yearly testing will ensure the changing experimental processes and variability are more likely captured by chronic WET testing.

These minimum testing frequencies may be increased based on toxic parameters present in a facility's effluent, demonstrated toxicity in previous WET tests, or based on impacts to a sensitive receiving stream

Acute Whole Effluent Toxicity

It is in the best professional judgment of the permit writer to include chronic wet testing only, as the receiving stream is effluent dominated. Organisms in the receiving stream will be exposed chronically to effluent. Acute toxicity from constituents in the water can also be determined through chronic testing, by evaluating laboratory results.

Chronic Whole Effluent Toxicity

- No less than **Once/Year:**
- POTW facilities with a design flow of greater than 10 million gallons per day), and which have less than 15:1 dilution available in mixing zone shall conduct and submit to the Department a chronic WET test no less than once per calendar year.
 - Facility incorporates a pretreatment program and dilution of the receiving stream is less than 100:1
 - Discharges with pollutants that pose a strong probability of causing chronic toxicity, such as pesticides or certain other chemicals.
 - Industrial dischargers with toxic parameters in the discharge; that may alter production processes; or facilities which handle large quantities of toxic substances or substances that are toxic in large amounts shall conduct chronic WET test at a frequency of once per year.

SAMPLING TYPE JUSTIFICATION:

Sampling type was continued from the previous permit, except the WET test type was switched from composite to grab. The effluent at this facility will be consistent over the period of discharge, and a composite sample is unnecessary. The sampling types are representative of the discharges, and are protective of water quality.

As per 10 CSR 20-7.015, BOD₅ and TSS test samples collected for lagoons/sand filters may be grab samples. Grab samples must be collected for pH, Ammonia as N, *E. coli*, TRC, Oil & Grease, Dissolved Oxygen and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia and TRC, and the fact that pH and DO cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved with acid, these samples are to be collected as a grab. For further information on sampling and testing methods see 10 CSR 20-7.015(9)(D)2.

SUFFICIENTLY SENSITIVE ANALYTICAL METHODS:

Please review Standard Conditions Part 1, section A, number 4. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 and/or 40 CFR 136 unless alternates are approved by the department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method quantifies the pollutant below the level of

the applicable water quality criterion or; 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015 and or 40 CFR 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established. A permittee is responsible for working with their contractors to ensure the analysis performed is sufficiently sensitive. 40 CFR 136 lists the approved methods accepted by the department. Table A at 10 CFR 20-7.031 shows water quality standards.

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. <http://dnr.mo.gov/env/wpp/cpp/docs/watershed-based-management.pdf>. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than three years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

✓ *This permit will become synchronized by expiring the end of the first quarter, 2020.*

PUBLIC NOTICE:

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. <http://dnr.mo.gov/env/wpp/permits/pn/index.html>. 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 11/10/2016 to 12/12/2016. No responses were received. This permit was altered after public notice to remove a laboratory requirement for the chronic WET testing report. This change does not alter limits or conditions of this permit and is thus considered minor.

DATE OF FACT SHEET: 09/13/2016

COMPLETED BY:

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL UNIT
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APPENDIX A – RPA RESULTS:

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

Parameter *	CMC	RWC Acute	CCC	RWC Chronic	n	Range min; max	CV	MF	RP Yes/No
Metals									
Cadmium, Total Recoverable	13.26	**	0.55	**	65	0.026/5.0	1.895	**	No
Copper, Total Recoverable	34.31	36.26	21.04	36.26	65	0.5/57.0	1.114	0.636	Yes
Lead, Total Recoverable	274.07	52.49	10.69	52.49	65	0.24/100.0	2.037	0.525	Yes
Zinc, Total Recoverable	268.90	44.50	266.72	44.50	59	0.12/26.0	0.666	1.712	No
Nutrients									
Total Ammonia as Nitrogen (Summer) mg/L	12.1	1.22	1.5	1.22	30	1/0.3	0.57	1.22	No
Total Ammonia as Nitrogen (Winter) mg/L	12.1	4.13	2.3	4.13	29	2.5/0.2	0.98	1.65	Yes

N/A Not Applicable

* Units are (µg/L) unless otherwise noted.

** All data points for cadmium were non-detects. Statistical calculations for RP were not possible; however, 65 non-detects would indicate no reasonable potential to exceed water quality standards.

n number of samples. If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.

CV Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC Receiving Water Concentration: concentration of a toxicant or the parameter in the receiving water after mixing (if applicable).

MF Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP Reasonable Potential: an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).



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

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

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
 - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
 - a. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

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

Section B – Reporting Requirements

1. **Planned Changes.**
 - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
 - iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
 - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Non-compliance Reporting.**
 - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
 - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
 - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
 4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
 5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
 6. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
 7. **Discharge Monitoring Reports.**
 - a. Monitoring results shall be reported at the intervals specified in the permit.
 - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
 - c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.
- b. Notice.
 - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
 - c. Prohibition of bypass.
 - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 3. The permittee submitted notices as required under paragraph 2. b. of this section.
 - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
 - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being properly operated; and
 - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
 - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
 - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section C – Bypass/Upset Requirements

1. **Definitions.**
 - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
 - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
 - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.

Section D – Administrative Requirements

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



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

- imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
- c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
- d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
- a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
- b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
- c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
- a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
- i. Violations of any terms or conditions of this permit or the law;
- ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
- iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- iv. Any reason set forth in the Law or Regulations.
- b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
7. **Permit Transfer.**
- a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
- b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
- c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.



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MISSOURI CLEAN WATER COMMISSION
REVISED
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10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
 - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
 - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
 - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
 - c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.



United States Department of the Interior

U. S. GEOLOGICAL SURVEY

Columbia Environmental Research Center
4200 New Haven Road
Columbia, Missouri 65201

September 03, 2013

RECEIVED

SEP - 4 2013

Missouri Dept of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102

WATER PROTECTION PROGRAM

To Whom It May Concern

Attached please find our NPDES permit renewal application forms A and C and additional maps and graphics.

In the forms and maps you will see that outfall 001 is our only point of discharge from the lagoon. The outfall designated #002 is an emergency valve that would only discharge in case of a malfunction of the Center's outfall #001 or if there was a situation that necessitated a need for our lagoon level to be lowered for some reason. From the attached map you will see that any discharge that would occur from #002 would originate from the same source as #001. If a discharge from #002 would ever take place the Center would contact your office.

All of the coordinates in the forms and maps were acquired using a GPS.

Since that last permit application in 2008 we have upgraded our storm water runoff from CERC. Our storm water effluent now goes through detention/retention ponds before it is released to Clear Creek.

If you should have any questions, do not hesitate to call me at (573) 876-1823 or Randal Clark at (573) 876-1836.

Carl Orazio
CERC Deputy Director
Permit #MO-0003999

RECEIVED

AP 1631

SEP - 4 2013



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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	9/4/13
FEE SUBMITTED	ESB

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

1. This application is for:

- An operating permit and antidegradation review public notice
- A construction permit following an appropriate operating permit and antidegradation review public notice
- A construction permit and concurrent operating permit and antidegradation review public notice
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
- An operating permit for a new or unpermitted facility Construction Permit # _____
- An operating permit renewal: permit # MO- 0003999 Expiration Date 03/19/2014
- An operating permit modification: permit # MO- _____ Reason: _____

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

2. FACILITY

NAME		TELEPHONE WITH AREA CODE	
Columbia Environmental Research Center (CERC)		(573) 875-5399	
ADDRESS (PHYSICAL)		FAX (573) 876-1896	
4200 E. New Haven Road	CITY	STATE	ZIP CODE
	Columbia	MO	65201

3. OWNER

NAME		E-MAIL ADDRESS	TELEPHONE WITH AREA CODE
US Department of Interior (USDOI), USGS			
ADDRESS (MAILING)		FAX	
Same as above		STATE	ZIP CODE

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

4. CONTINUING AUTHORITY

NAME		TELEPHONE WITH AREA CODE	
Same as Above			
ADDRESS (MAILING)		FAX	
		STATE	ZIP CODE

5. OPERATOR

NAME		CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE
Same as Above			
ADDRESS (MAILING)		FAX	
		STATE	ZIP CODE

6. FACILITY CONTACT

NAME		TITLE	TELEPHONE WITH AREA CODE
Carl Orazio		CERC Deputy Director	(573) 876-1823
			FAX (573) 876-1896

7. ADDITIONAL FACILITY INFORMATION

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

001 NW 1/4 SW 1/4 Sec 28 T 48N R 12W Boon County
 UTM Coordinates Easting (X): 562052 Northing (Y): 4307186
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

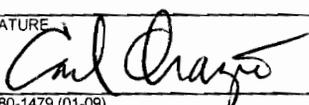
002 NW 1/4 SW 1/4 Sec 28 T 48N R 12W Boon County
 UTM Coordinates Easting (X): 562071 Northing (Y): 4307159

003 _____ 1/4 _____ 1/4 Sec _____ T _____ R _____ County
 UTM Coordinates Easting (X): _____ Northing (Y): _____

004 _____ 1/4 _____ 1/4 Sec _____ T _____ R _____ County
 UTM Coordinates Easting (X): _____ Northing (Y): _____

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

001 - SIC 8733 and NAICS 541712 002 - SIC 8733 and NAICS 541712
 003 - SIC _____ and NAICS _____ 004 - SIC _____ and NAICS _____

8. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION (Complete all forms that are applicable.)			
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
B.	Is your facility considered a "Primary Industry" under EPA guidelines: If yes, complete Forms C and D.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
C.	Is application for storm water discharges only? If yes, complete EPA Form 2F.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
D.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		
E.	Is wastewater land applied? If yes, complete Form I.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
F.	Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? If yes, complete Form R.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
9. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions. (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE).			
NAME University of Missouri (UMC) South Farms			
ADDRESS 3600 East New Haven Road		CITY Columbia	STATE ZIP CODE MO 65201
10. I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law to the Missouri Clean Water Commission.			
NAME AND OFFICIAL TITLE (TYPE OR PRINT) Carl Orazio, CERC Deputy Director		TELEPHONE WITH AREA CODE (573) 876-1823	
SIGNATURE 		DATE SIGNED 9-3-2013	

MO 780-1479 (01-09)

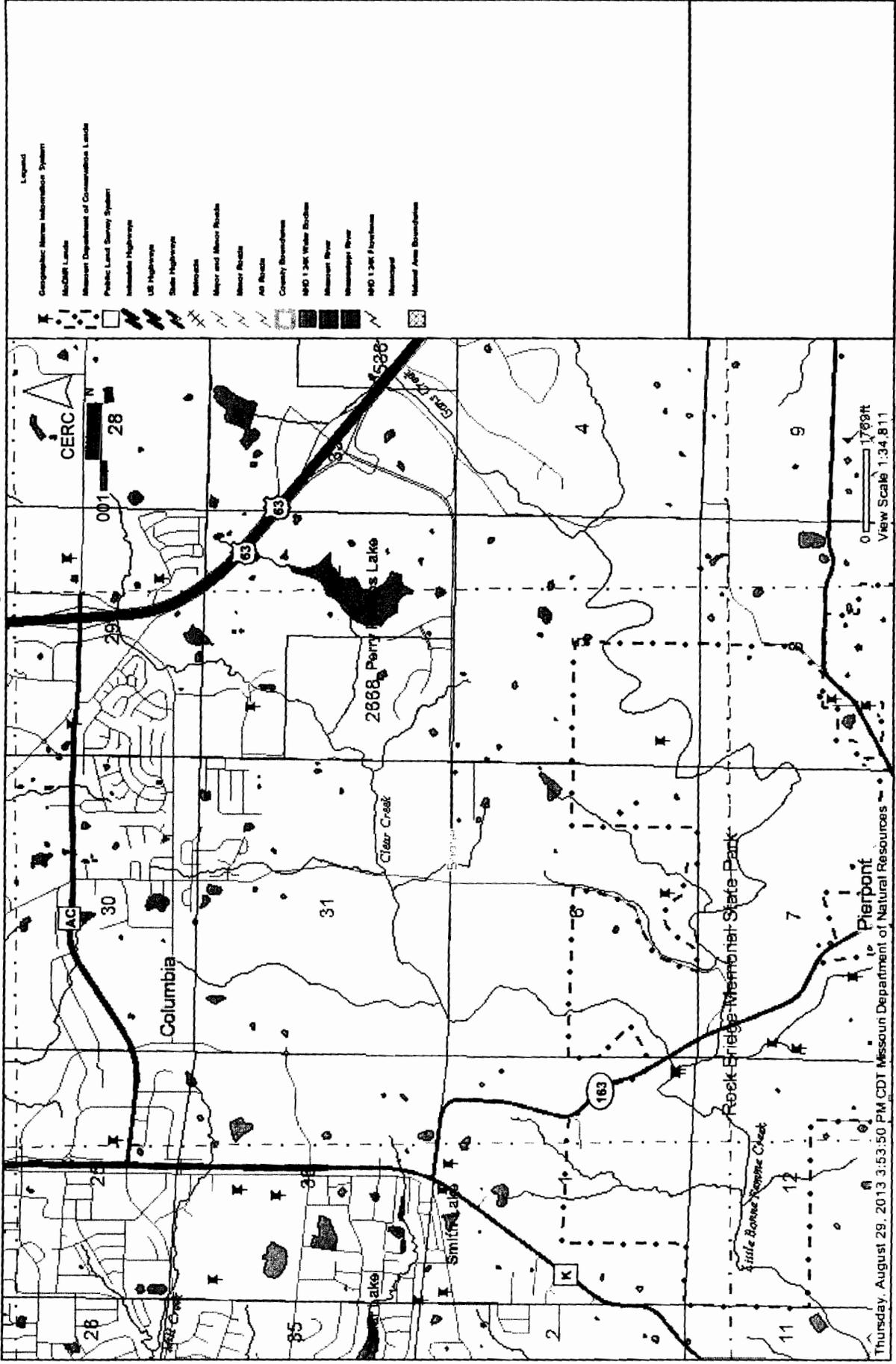
BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.

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

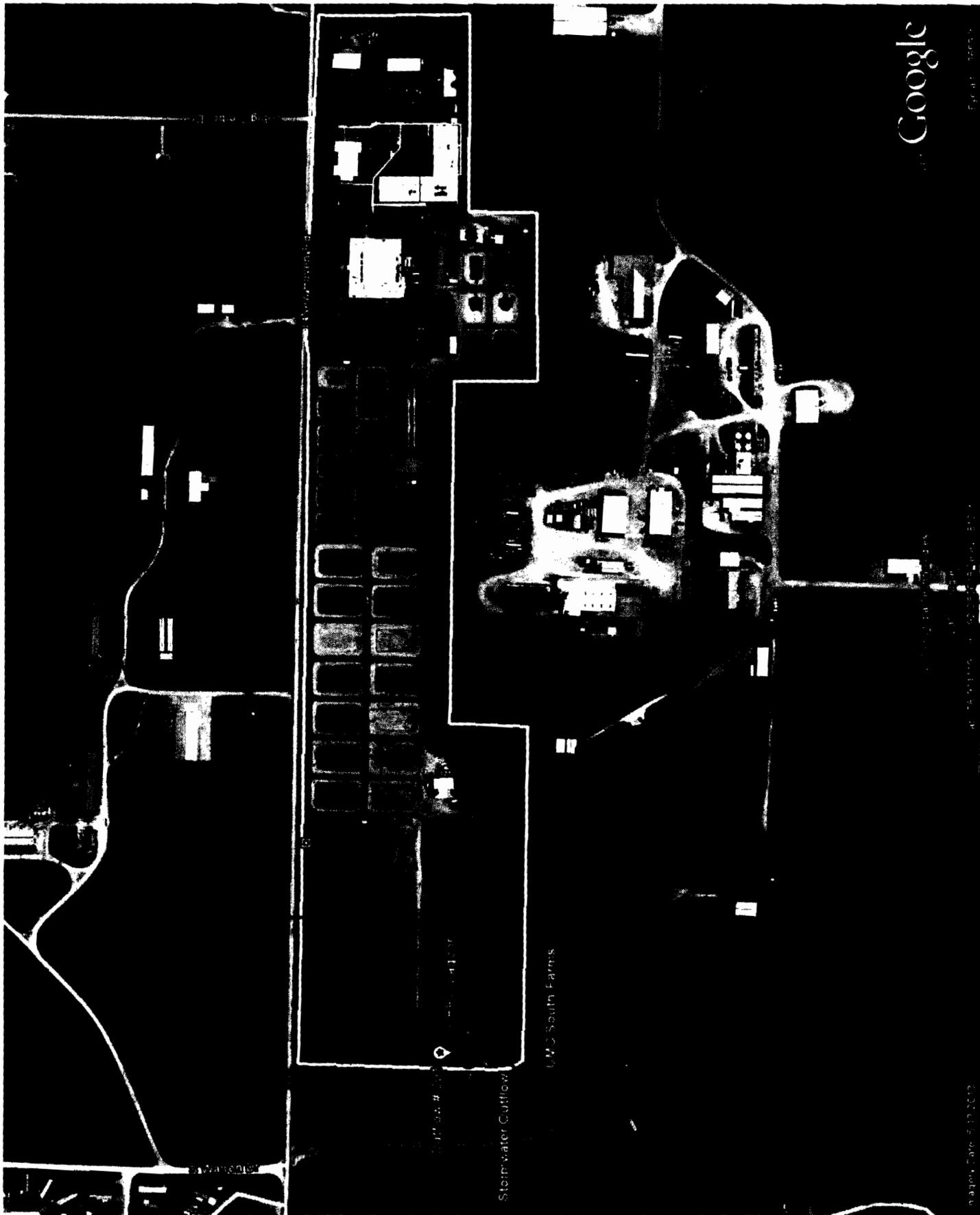
HAVE YOU INCLUDED:

- Appropriate Fees?
- Map at 1" = 2000' scale?
- Signature?
- Form C, if applicable?
- Form D, if applicable?
- Form 2F, if applicable?
- Form I (Irrigation), if applicable?
- Form R (Sludge), if applicable?

CERC and Clear Creek 1" = 2000' Map



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



Google

Earth - Terrain

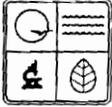
Storm water Cutflow

U.S. South Farms

Map data © 2007 Google

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SEP - 4 2013



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
FORM C - APPLICATION FOR DISCHARGE PERMIT PROGRAM
MANUFACTURING, COMMERCIAL, MINING,
SILVICULTURE OPERATIONS, PROCESS AND STORMWATER

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

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

1.00 NAME OF FACILITY
Columbia Environmental Research Center (CERC)

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER
MO-0003999

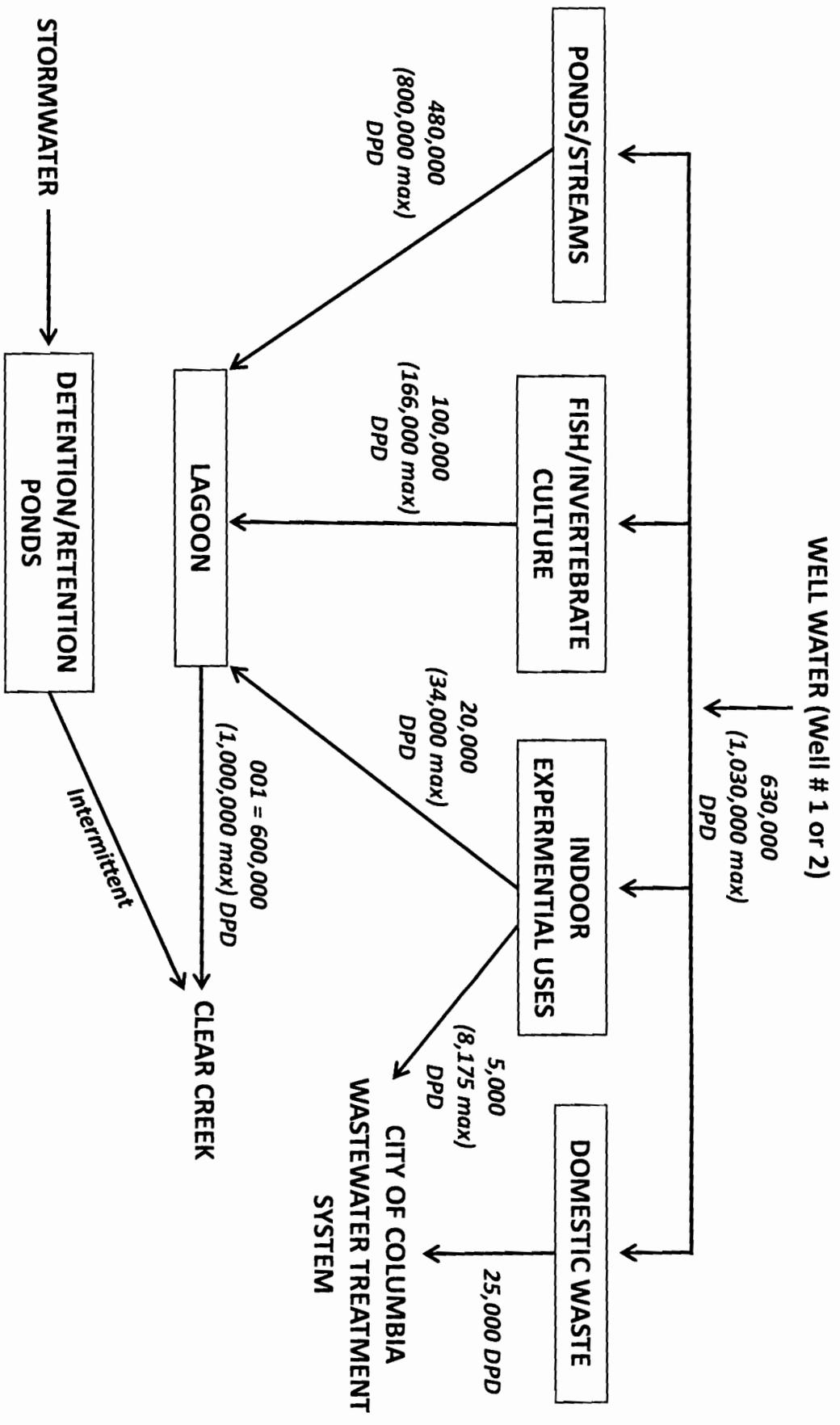
1.20 THIS IS A NEW FACILITY AND WAS CONSTRUCTED UNDER MISSOURI CONSTRUCTION PERMIT NUMBER (COMPLETE ONLY IF THIS FACILITY DOES NOT HAVE AN OPERATING PERMIT).

2.00 LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES APPLICABLE TO YOUR FACILITY (FOUR DIGIT CODE)
A. FIRST 8733 Noncommercial Research Organization B. SECOND 9512 Land, Mineral, Wildlife, and Forest Cons
C. THIRD _____ D. FOURTH _____

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.
OUTFALL NUMBER (LIST) NW 1/4 SW 1/4 SEC 28 T 48N R 12W Boone COUNTY

OUTFALL NUMBER (LIST)	RECEIVING WATER
001	Clear Creek (tributary to Little Bonne Femme Creek)
002	Emergency Value, no discharge Clear Creek (tributary to Little Bonne Femme Creek)

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS
Federal government (USGS) environmental research center focusing on the study of the health of aquatic ecosystems.



2.40 CONTINUED

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

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

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

2.50 MAXIMUM PRODUCTION

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

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

C. IF YOU ANSWERED "YES" TO B. LIST THE QUANTITY THAT REPRESENTS AN ACTUAL MEASUREMENT OF YOUR MAXIMUM LEVEL OF PRODUCTION, EXPRESSED IN THE TERMS AND UNITS USED IN THE APPLICABLE EFFLUENT GUIDELINE AND INDICATE THE AFFECTED OUTFALLS.

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

2.60 IMPROVEMENTS

A. ARE YOU NOW REQUIRED BY ANY FEDERAL, STATE OR LOCAL AUTHORITY TO MEET, ANY IMPLEMENTATION SCHEDULE FOR THE CONSTRUCTION, UPGRADING OR OPERATION OF WASTEWATER TREATMENT EQUIPMENT OR PRACTICES OR ANY OTHER ENVIRONMENTAL PROGRAMS THAT MAY AFFECT THE DISCHARGES DESCRIBED IN THIS APPLICATION? THIS INCLUDES, BUT IS NOT LIMITED TO, PERMIT CONDITIONS, ADMINISTRATIVE OR ENFORCEMENT ORDERS, ENFORCEMENT COMPLIANCE SCHEDULE LETTERS, STIPULATIONS, COURT ORDERS AND GRANT OR LOAN CONDITIONS.

YES (COMPLETE THE FOLLOWING TABLE) NO (GO TO 3.00)

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

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

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

3.10 BIOLOGICAL TOXICITY TESTING DATA

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

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

Acute Whole Effluent Toxicity Wet Test (% Survival) was required each quarter by previous permit.

Chronic Whole Effluent Toxicity Wet Test (%Survival) was required once per year by previous permit.

3.20 CONTRACT ANALYSIS INFORMATION

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

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

A. NAME	B. ADDRESS	C. TELEPHONE (area code and number)	D. POLLUTANTS ANALYZED (list)
Engineering Surveys and Services Testing Laboratories (ESST)	1113 Fay Street Columbia, MO 65201	(573)499-2646	Acute Wet Test* Ammonia as Nitrogen Biochemical Oxygen Demand Cadmium Calcium Chemical Oxygen Demand Chloride Chlorine, Residual Copper Digestion Formaldehyde Lead PCBs Potassium Selenium Sodium Sulfate Total Suspended Solids Total Toxic Organics Zinc
Environmental Analysis South	4000 East Jackson Blvd. Jackson, MO 63755	(573)204-8817	*Conducts Acute Wet Test for ESST
Inovatia Laboratories	120 East Davis St. Fayette, MO 65248	(660)248-1911	7 Day Chronic Toxicity

3.30 CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS APPLICATION AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)

Carl Orazio, CERC Deputy Director

TELEPHONE NUMBER WITH AREA CODE

(573) 876-1823

SIGNATURE (SEE INSTRUCTIONS)



DATE SIGNED

9-3-2013

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

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

OUTFALL NO.
001 + 002 (if used)

INTAKE AND EFFLUENT CHARACTERISTICS

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

1. POLLUTANT	2. EFFLUENT				3. UNITS (specify if blank)				4. INTAKE (optional)		
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE (1) CONCENTRATION	B. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS					
A. Biochemical Oxygen Demand (BOD)	<6				<6		14	mg/L			
B. Chemical Oxygen Demand (COD)	11.6				6.7		14	mg/L			
C. Total organic Carbon (TOC)							14				
D. Total Suspended Solids (TSS)	23				13.3		14	mg/L			
E. Ammonia (as N)	0.6				0.3		14	mg/L			
F. Flow	VALUE 940,060				VALUE 600,000		14	GPD			
G. Temperature (winter)	VALUE 13				VALUE 7.86		7	°C			
H. Temperature (summer)	VALUE 28.5				VALUE 24.9		5	°C			
I. pH	MINIMUM 6.88	MAXIMUM 8.43		MAXIMUM			14	STANDARD UNITS			

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

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT				4. UNITS				5. INTAKE (optional)			
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	B. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	C. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	B. NO. OF ANALYSES
	A. Bromide (24959-67-9)		X											
B. Chlorine, Total Residual	X		0.24				0.10		11	mg/L				
C. Color		X												
D. Fecal Coliform		X												
E. Fluoride (16984-48-8)		X												
F. Nitrate - Nitrate (as N)		X												

CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS

A. Bromide (24959-67-9)		X												
B. Chlorine, Total Residual	X		0.24				0.10		11	mg/L				
C. Color		X												
D. Fecal Coliform		X												
E. Fluoride (16984-48-8)		X												
F. Nitrate - Nitrate (as N)		X												

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
G. Nitrogen, Total Organic (as N)		X												
H. Oil and Grease		X												
I. Phosphorus (as P), Total (7723-14-0)		X												
J. Sulfate (as SO ⁴) (14808-79-8)	X		51.9			49.7			3	mg/L				
K. Sulfide (as S)		X												
L. Sulfite (as SO ³) (14265-45-3)		X												
M. Surfactants		X												
N. Aluminum, Total (7429-90-5)		X												
O. Barium, Total (7440-39-3)		X												
P. Boron, Total (7440-42-8)		X												
Q. Cobalt, Total (7440-48-4)		X												
R. Iron, Total (7439-89-6)		X												
S. Magnesium, Total (7439-95-4)		X												
T. Molybdenum, Total (7439-98-7)		X												
U. Manganese, Total (7439-96-5)		X												
V. Tin, Total (7440-31-5)		X												
W. Titanium, Total (7440-32-6)		X												

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT				4. UNITS			5. INTAKE (optional)		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
		C. LONG TERM AVRG. VALUE (if available)										
METALS, AND TOTAL PHENOLS												
1M. Antimony, Total (7440-36-9)		X										
2M. Arsenic, Total (7440-38-2)		X										
3M. Beryllium, Total (7440-41-7)		X										
4M. Cadmium, Total (7440-43-9)		X	<0.3									
5M. Chromium III (16065-83-1)		X										
6M. Chromium VI (18540-29-9)		X										
7M. Copper, Total (7440-50-8)		X	<5									
8M. Lead, Total (7439-92-1)		X	<5									
9M. Mercury, Total (7439-97-6)		X										
10M. Nickel, Total (7440-02-0)		X										
11M. Selenium, Total (7782-49-2)		X										
12M. Silver, Total (7440-22-4)		X										
13M. Thallium, Total (7440-28-0)		X										
14M. Zinc, Total (7440-66-6)	X		10									
15M. Cyanide, Amenable to Chlorination		X										
16M. Phenols, Total		X										
RADIOACTIVITY												
(1) Alpha Total		X										
(2) Beta Total		X										
(3) Radium Total		X										
(4) Radium 226 Total		X										