

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-0001821

Owner: CF Industries Sales, LLC
Address: 4 Parkway North, Suite 400, Deerfield, IL 60015

Continuing Authority: Same as above
Address: Same as above

Facility Name: CF Industries Sales, LLC – Palmyra Terminal
Facility Address: 2834 County Road 359, Palmyra, MO 63461-2626

Legal Description: Sec. 10, T58N, R5W, Marion County
UTM Coordinates: See Page Two

Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.: (07110004-0304)

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

FACILITY DESCRIPTION

The CF Industries terminal outside Palmyra, MO, receives anhydrous ammonia by barge on the Mississippi River from the company's Donaldsonville nitrogen complex. The ammonia is pumped to an aboveground storage tank and distributed to customers via truck and barge. Terminal operations are supported by two evaporative condensers. SIC#5191. No certified operator required.

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.

February 10, 2012 September 2, 2014
Effective Date Modification Date

Sara Parker Pauley, Director, Department of Natural Resources

February 9, 2017
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – Eliminated in 2013 permit modification with establishment of Outfall #005

Outfall #002 – Eliminated in 2013 permit modification with establishment of Outfall #005

Outfall #003 – Eliminated in 2012 permit renewal, because the water discharged is well water that does not go through any process or receive any wastes.

Outfall #004 – Eliminated in 2013 permit modification, because the onsite septic system should not have been required to have monitoring associated with it.

Outfall #005- SIC#5191

Evaporative condensers for noncontact cooling water and stormwater runoff

Design flow:	0.07 MGD
Legal Description:	SW ¼, SE ¼, Sec. 03, T58N, R5W, Marion County
UTM Coordinates:	X=633459, Y=4411978
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (03699)
USGS Basin & Sub-watershed No.:	(07110004-0304)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 5
	PERMIT NUMBER MO-0001821

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #005****</u>						
Flow	MGD	*		*	once/quarter***	24 hr. total
Chemical Oxygen Demand	mg/L	*		*	once/quarter***	grab
Total Suspended Solids	mg/L	*		*	once/quarter***	grab
Ammonia as N	mg/L	*		*	once/quarter***	grab
Oil & Grease	mg/L	15		10	once/quarter***	grab
pH – Units	SU	**		**	once/quarter***	grab
Temperature	°F	*		*	once/quarter***	grab
Iron, Total Recoverable	µg/L	*		*	once/quarter***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- *** See table below for quarterly sampling.

Minimum 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

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I and III standard conditions dated November 1, 2013 and October 1, 1980, and hereby incorporated as though fully set forth herein.

C. SPECIAL CONDITIONS

1. 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.

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

3. Water Quality Standards

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

4. Changes in Discharges of Toxic Substances

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

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

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

C. SPECIAL CONDITIONS (continued)

6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
7. 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.
8. 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 SWPPP and made available to the department upon request.

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF MODIFICATION
OF
MO-0001821
CF INDUSTRIES SALES, LLC- PALMYRA TERMINAL

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below. A Factsheet is not an enforceable part of an operating permit. This Factsheet is for an Industrial Facility.

Part I – Facility Information

Facility Type: Industrial
Facility SIC Code(s): 5191

Facility Description:

The CF Industries terminal outside Palmyra, MO, receives anhydrous ammonia by barge on the Mississippi River from the company's Donaldsonville nitrogen complex. The ammonia is pumped to an aboveground storage tank and distributed to customers via truck and barge. Terminal operations are supported by two evaporative condensers. Water used for cooling is pulled from two onsite wells.

40 CFR 418.20-27 is the federal effluent limit guidelines (ELG) for the manufacturing of ammonia, providing effluent limits for ammonia and pH. The ELG is not applicable, because this facility is not in the process of manufacturing ammonia, only storage and shipping. 40 CFR 418.20 states discharges attributable to shipping losses and cooling tower blowdown are excluded. The previous permit required the 126 Priority Pollutants identified in 40 CFR 423 to be monitored for as the facility discharges noncontact cooling water. However as part of this review, the monitoring requirement for the 126 Priority Pollutants has been removed as the discharge is to the Mississippi River and the noncontact cooling water serves to keep the product stable, not to generate electricity as the once through cooling requirements of 40 CFR 423 reference.

Minor Air Permit 2912700005
Hazardous waste:, MOD000246553
EPA ID number: 110002078484

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

Yes : This modification reflects the combination of outfalls 001 and 002 to one outfall (outfall 005) and the elimination of outfall 004, which is the onsite septic system and should not have been required to have monitoring associated with it previously. With the establishment of Outfall 005, the receiving stream changed from a tributary to the Mississippi River to the Mississippi River (Appendix A). With that change, an Antidegradation Review (Appendix B) was completed for the facility and was found to be minimally degrading. Other changes to reflect the change to the Mississippi River was the changed in temperature limits to monitoring only, as the Mississippi River has monthly standards for temperature and allows for a temperature mixing zone. The permit previously required monitoring of the 126 Priority Pollutants; however the noncontact cooling water serves to keep the product stable, not to generate electricity as the once through cooling requirements of 40 CFR 423 reference.

Application Date: 06/10/2013 Expiration Date: 02/09/2017 Last Inspection: 03/13/2009 In Compliance

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
005	0.1085	BMPs	Noncontact cooling water, Stormwater

Facility Performance History & Comments:

Facility does not qualify for general permit, MOR240 and MOR241 because the facility has noncontact cooling water discharged, not just stormwater. The facility was in existence before August 2008, is not expanding and was not constructed as a no-discharge facility.

Below is average from discharge monitoring reports since 2009 for discharge to Tributary to Mississippi River. This permit modification combines the outfalls into one discharging outfall (#005).

	Effluent Limit	Unit	001	002	004
Flow	*	MGD	0.00038	0.044	0.00008
Temperature	90	°F	63.47	--	--
BOD	*	mg/L	--	--	2.7
TSS	*	mg/L	--	--	18.8
Ammonia	17	mg/L	2.152	6.87	--
Iron	*	µg/L	--	2.12	--
Oil and Grease	15	mg/L	--	1.35	--

Part II – Receiving Stream Information

Receiving Water Body’s Water Quality

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

Missouri or Mississippi River [10 CSR 20-7.015(2)]:

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

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	DISTANCE TO CLASSIFIED SEGMENT	12-DIGIT HUC**
Mississippi River	P	3699	LWW, AQL, IND, WBC(A), SCR	0.0	07110004-0304

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

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Mississippi River*	56,882	60,981	67,374

*Low flow values were gathered from USGS gaging station 07010000 at St. Louis, MO from 1983-2013 .

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)...]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)...]*		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
14,221	15,245	16,843	1.085	1.085	1.085

*ZID is limited to 10 times the design flow or a tenth of the mixing zone. For CF Industries, 10 times the design flow is the limiting ZID.

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements 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:

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

Applicable : Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44. The previous monitoring requirements on Outfall 004 were in error. With the facility combining the flows of the noncontact cooling water and dewatering tanks to establish a new outfall, effluent limits for iron and ammonia were reevaluated in comparison to the water quality standard for the Mississippi River. Monitoring for the 126 priority pollutants was removed because however the noncontact cooling water serves to keep the product stable, not to generate electricity as the once through cooling requirements of 40 CFR 423 reference.

ANTIDegradation:

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

Applicable : New discharge to the Mississippi River, please see **APPENDIX B: ANTIDegradation ANALYSIS**. The facility is moving and combining their outfalls to discharge directly into the Mississippi River, rather than discharging into a tributary to the Mississippi River. Existing outfalls were within 1,000 feet from the Mississippi River. With the combining of outfalls into one outfall (Outfall 005), the design flow of the facility is not increasing. Effluent limits for Ammonia and Iron were recalculated to reflect the direct discharge to the Mississippi River. Temperature for the noncontact cooling water was changed to also reflect the requirements of temperature on the Mississippi River.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

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.

INTAKE WATER CREDITS (NET LIMITS):

In accordance with federal regulation 40 CFR 122.45(g), technology-based effluent limitations or standards shall be adjusted to reflect credit for pollutants in the discharge's intake water if: (1) The applicable effluent limitations and standards contained in 40 CFR subchapter N specifically provide that they shall be applied on a net basis; or (2) The discharger demonstrates that the control system it proposes or uses to meet applicable technology-based limitations and standards would, if properly installed and operated, meet the limitations and standards in the absence of pollutants in the intake waters. Additionally, credit for generic pollutants such as biochemical oxygen demand (BOD) or total suspended solids (TSS) should not be granted unless the permittee demonstrates that the constituents of the generic measure in the effluent are substantially similar to the constituents of the generic measure in the intake water or unless appropriate additional limits are placed on process water pollutants either at the outfall or elsewhere. Credit shall be granted only to the extent necessary to meet the applicable limitation or standard, up to a maximum value equal to the influent value. Additional monitoring may be necessary to determine eligibility for credits and compliance with permit limits. Credit (Net Limits) do not apply to the discharge of raw water clarifier sludge generated from the treatment of intake water.

Not Applicable : The facility does not qualify for intake water credits as the water used for non-contact cooling is pulled from two onsite wells, not the Mississippi River.

MIXING CONSIDERATIONS THERMAL:

Missouri's Water Quality Standards [10 CSR 20-7.031(4)(A)1.], specifically state that mixing considerations for toxics do not apply to thermal mixing considerations and that thermal mixing considerations are located in [10 CSR 20-7.031(4)(D)6.], which states thermal mixing considerations are limited to 25% of the cross-sectional area or volume of a river, unless a biological survey performed in response to 316(a) of the Clean Water Act indicate no significant adverse effect on aquatic life. For the purpose of mixing considerations, the Department uses the 25% of the daily flow vs. cross-sectional area.

SCHEDULE OF COMPLIANCE (SOC):

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

Not Applicable : This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable : This permit does not contain the requirement to have a SWPPP. The facility's SIC of 5191(wholesale distribution of non-durable goods-farm supplies, including fertilizer) is not listed in 10 CSR 20-6.200(2) or 40 CFR 122.26(b)(14)(i)-(xi). for facilities requiring a SWPPP.

VARIANCE:

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

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

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

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

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID). Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

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

WLA MODELING:

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

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

WATER QUALITY STANDARDS:

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

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

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

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs. A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

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

Part IV – Effluent Limits Determination

Outfall #005 – Main Facility Outfall

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

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	*		*	Y	***
COD	MG/L	*		*	Y	***
TSS	MG/L	*		*	Y	***
pH	SU	**		**	Y	***
AMMONIA AS N	MG/L	*		*	Y	***
OIL & GREASE	MG/L	15		10	Y	***
IRON, TOTAL RECOVERABLE	µg/L	*		*	Y	***
TEMPERATURE	°F	*		*	Y	***

* - Monitoring requirement only.

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

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

OUTFALL #005 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Chemical Oxygen Demand (COD).** Previous permit included monitoring for biochemical oxygen demand; however as this is industrial facility handling ammonia and noncontact cooling water, chemical oxygen demand is required for monitoring to determine if reasonable potential exists and to verify that the BMPs established by the facility are protective.
- **Total Suspended Solids (TSS).** Previous permit included total suspended solids monitoring, with this modification the TSS monitoring requirement remains to verify that the facility’s BMPs and operations are still protective of the receiving stream’s Water Quality.
- **pH.** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- **Total Ammonia Nitrogen.** Monitoring only. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.10 mg/L (based on average of Mississippi River averages, 1980-2013). See Appendix B for Antidegradation discussion on ammonia and effluent limit. See Part V for discussion on 2013 Water Quality Criteria for Ammonia.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Iron, Total Recoverable.** Monitoring requirement only. This facility previously had a schedule of compliance to meet iron effluent limits; however with the movement of the outfall to the Mississippi River, collection of monitoring data to determine if reasonable potential exists for this facility’s discharge to exceed water quality standards for Iron (Total Recoverable).
- **Temperature.** Previous permit included temperature requirement of 90° F for discharge to Tributary to Mississippi River. With moving the discharge to the Mississippi River, there is a mixing zone available for temperature compliance, however the Mississippi River has monthly temperature criteria. CF Industries is Zone A. per 10 CSR 20-7.031(4)(D)5.

Part V –2013 Water Quality Criteria for Ammonia

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

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

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

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

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 include two seasons of ammonia effluent limitations. Current ammonia effluent limitations in this permit are monitoring only for both summer and winter seasons:

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 IV of the Fact Sheet will be:

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	0.69	3.4
Winter	6	7.8	2.3	8.1

Summer: April 1 – September 30

Chronic WLA: $C_e = ((0.108 + 16843)0.69 - (16843 * 0.1))/0.108$ $C_e = 105563.64$ mg/L
 Acute WLA: $C_e = ((0.108 + 1.085)3.4 - (1.085 * 0.1))/0.108$ $C_e = 37.30$ mg/L

$LTA_c = 105563.64$ mg/L (0.780) = 82339.64mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 1237.30$ mg/L (0.321) = **11.97 mg/L** [CV = 0.6, 99th Percentile]
 MDL = 11.97 mg/L (3.11) = 37.24 mg/L [CV = 0.6, 99th Percentile]
 AML = 11.97 mg/L (1.19) = 14.25 mg/L [CV = 0.6, 95th Percentile, n = 30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((0.108 + 16843)2.3 - (16843 * 0.1))/0.108$ $C_e = 355501$ mg/L
 Acute WLA: $C_e = ((0.108 + 1.085)8.1 - (1.085 * 0.1))/0.108$ $C_e = 89$ mg/L

$LTA_c = 3.1$ mg/L (0.780) = 277290 mg/L [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 12.1$ mg/L (0.321) = **28.57 mg/L** [CV = 0.6, 99th Percentile]
 MDL = 28.57 mg/L (3.11) = 88.85 mg/L [CV = 0.6, 99th Percentile]
 AML = 28.57 mg/L (1.19) = 34.00 mg/L [CV = 0.6, 95th Percentile, n=30]

	MDL (mg/L)	AML (mg/L)
Summer	37.24	14.25
Winter	88.85	34.00

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

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

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

Part VI – Administrative Requirements

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

PERMIT SYNCHRONIZATION:

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. This facility would be in group 2, which includes facilities in the 8-digit HUC: 07110004, the Synchronization date would be: 3rd quarter of 2018.

PUBLIC NOTICE:

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

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit was from January 10 to February 10, 2014. No responses received.

DATE OF FACT SHEET: November 20, 2013

Leasue Meyers, EIT
Engineering Section
Water Protection Program
leasue.meyers@dnr.mo.gov

APPENDIX A-1: FACILITY MAP:



APPENDIX A-2: OUTFALL DESCRIPTIONS:

Outfall #001 – ELIMINATED in 2013 permit modification with establishment of Outfall 005

Fertilizer – Refrigerated Ammonia Storage – SIC #5191

Non-contact cooling water from ammonia storage tank.

Design flow is 0.046 MGD.

Actual Flow is 0.00185 MGD.

Legal Description: NE ¼, NW ¼, Sec. 10, T58N, R5W, Marion County
UTM Coordinates: X=633248.557, Y=4411663.719
Receiving Stream: Tributary to Mississippi River (U)
First Classified Stream and ID: Mississippi River (P) (03699)
USGS Basin & Sub-watershed No.: (07110004-0304)

Outfall #002 – ELIMINATED in 2013 permit modification with establishment of Outfall 005

Dewatering tank area – SIC #5191

Stormwater runoff / dewatering from ammonia terminal area. Flow is dependent upon precipitation.

Legal Description: NE ¼, NW ¼, Sec. 10, T58N, R5W, Marion County
UTM Coordinates: X=633201.990, Y=4411695.469
Receiving Stream: Tributary to Mississippi River (U)
First Classified Stream and ID: Mississippi River (P) (03699)
USGS Basin & Sub-watershed No.: (07110004-0304)

Outfall #003 – Eliminated in 2012 permit renewal, because the water being discharged is well water that does not go through any process or receive any wastes.

Legal Description: SW ¼, SE ¼, Sec. 03, T58N, R5W, Marion County
UTM Coordinates: X=633453, Y=441971
Receiving Stream: Tributary to Mississippi River (U)
First Classified Stream and ID: Mississippi River (P) (03699)
USGS Basin & Sub-watershed No.: (07110004-0304)

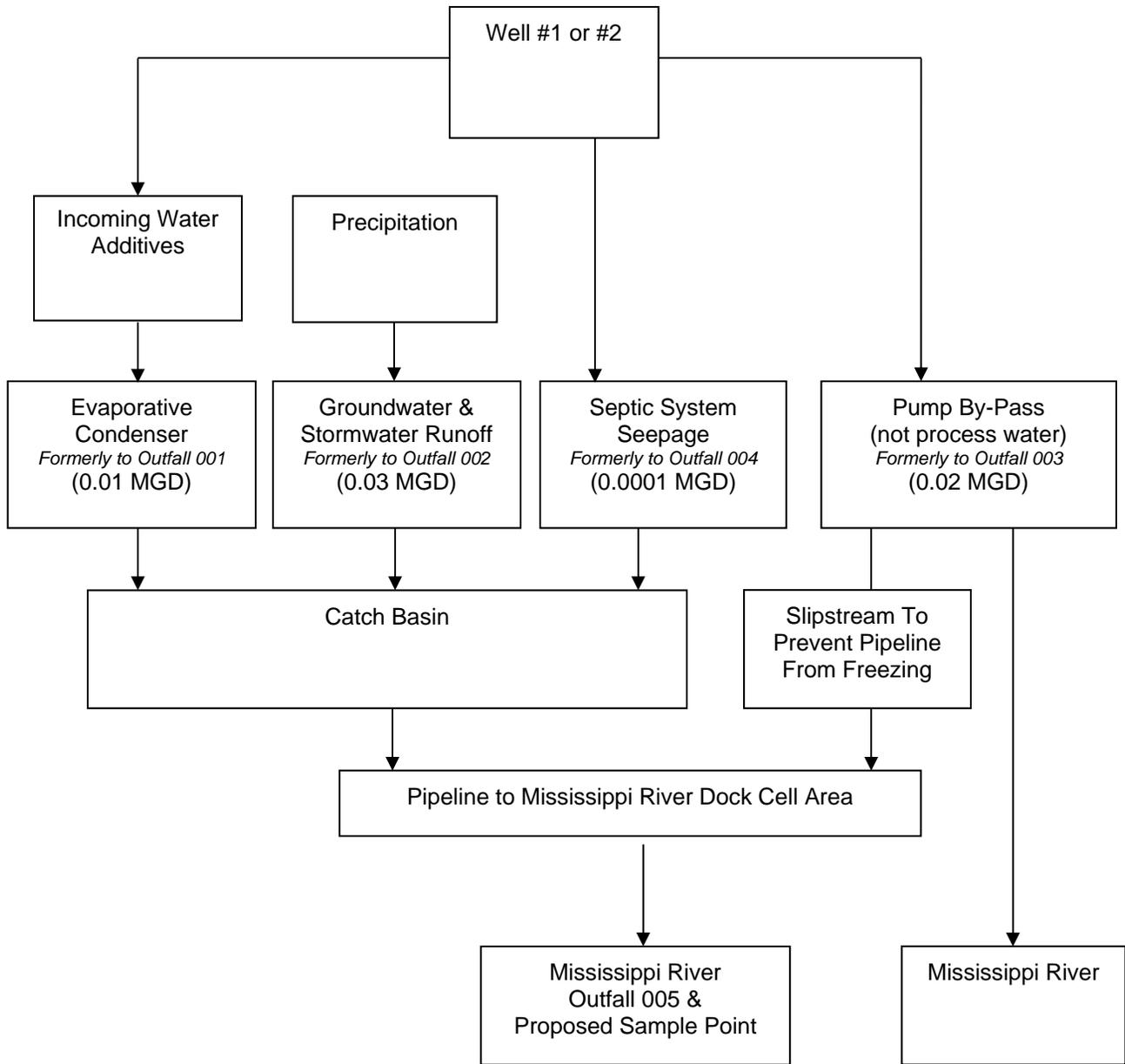
Outfall #004 – Eliminated in 2013 permit modification, because the onsite septic system should not have been required to have monitoring associated with it.

Domestic Wastewater – SIC #5191

Septic Tank / leach field inside dewatering area.

Legal Description: SE ¼, SW ¼, Sec. 3, T58N, R5W, Marion County
UTM Coordinates: X=633149.073, Y=4411775.903
Receiving Stream: Tributary to Mississippi River (U)
First Classified Stream and ID: Mississippi River (P) (03699)
USGS Basin & Sub-watershed No.: (07110004-0304)

APPENDIX A-3: PROCESS FLOW DIAGRAM:



APPENDIX B: ANTIDegradation Analysis:

CF Industries is moving and combining their three outfalls to discharge directly into the Mississippi River, rather than discharging into a tributary to the Mississippi River. The existing outfalls were within 1000 feet from the Mississippi River. With the combining of outfalls into one outfall (Outfall 005), the design flow of the facility is not increasing, 0.07 MGD. In the existing permit, ammonia, iron and temperature were the pollutants of concern. With the discharge location moved to the Mississippi River, the expected discharge concentrations are not increasing, however a mixing zone is provided.

In evaluation of alternatives available for compliance for the ammonia and iron effluent limits in the permit, land application of wastewater was not an option due to the limited property available onsite and the closest regional treatment plant (Palmyra) is 8.0 miles away. The cost effective option was to pipe the discharges less than 1000 feet to the Mississippi River rather than building a treatment plant for ammonia and iron. As ammonia is the product CF Industries is selling, CF Industries uses various techniques to limit the amount of product lost as part of shipping losses.

Ammonia as N. For ammonia, the existing effluent limit guideline does not apply to this facility. The ammonia present in the discharge is expected to come from shipping losses at the facility or from seepage from the septic system. Ammonia effluent limits were recalculated with the Mississippi River mixing zone and compared to the discharge concentrations of the last five years. Only summer effluent limits are calculated below, as the acute criteria are the limiting standard for the effluent limit. Background total ammonia nitrogen = 0.10 mg/L (based on average of Mississippi River averages, 1980-2013). Monitoring only is recommended.

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

Summer: April 1 – September 30

Chronic WLA: $C_e = ((0.108 + 16843)1.5 - (16843 * 0.1))/0.108$ $C_e = 231308.55 \text{ mg/L}$

Acute WLA: $C_e = ((0.108 + 1.085)12.1 - (1.085 * 0.1))/0.108$ $C_e = 133.0 \text{ mg/L}$

$LTA_c = 231308.5 \text{ mg/L} (0.780) = 180420.7 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 133.0 \text{ mg/L} (0.321) = \mathbf{42.69 \text{ mg/L}}$ [CV = 0.6, 99th Percentile]
 $MDL = 42.69 \text{ mg/L} (3.11) = 132.78 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 42.69 \text{ mg/L} (1.19) = 50.8 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n = 30]

	MDL (mg/L)	AML (mg/L)
Summer	132.8	50.8

Iron, Total Recoverable. The iron in the discharge is believed to come from the groundwater used for cooling in the evaporative condensers. Iron effluent limits were recalculated below and compared to the discharge concentrations of the last five years. Monitoring only is recommended. Protection of Aquatic Life Chronic Criteria = 1,000 µg/L.

Chronic WLA: $C_e = ((0.108 + 15245)1000 - (15245 * 0.0))/0.108$ $C_e = 141,158,407 \text{ µg/L}$

$LTA_c = 141,158,407 (0.527) = 74,390,481 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $MDL = 74,390,481 (3.11) = 231,354,395 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 74,390,481 (1.55) = 115,305,245 \text{ µg/L}$ [CV = 0.6, 95th Percentile, n = 4]
 $MDL = 231 \text{ g/L}$
 $AML = 115 \text{ g/L}$

Temperature. Temperature for the noncontact cooling water was changed to monitoring only. The Mississippi River has monthly water quality standards for discharges. In review of the data, there are data points above the water quality standards; however the DMRs do not account for the mixing zone that a direct discharge to the Mississippi River receives. The discharge is 1 cfs into the Mississippi River, which has a 7Q10 low flow of 60,000 cfs does not have the reasonable potential to exceed water quality standards.

	ZONE A	OUTFALL 001 TEMPS
JANUARY- MARCH	45-57	60 °F
APRIL- JUNE	68-86	70 °F
JULY-SEPTEMBER	86-88	63 °F
OCTOBER-DECEMBER	52-75	60 °F



STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
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MISSOURI CLEAN WATER COMMISSION
REVISED
NOVEMBER 1, 2013

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

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

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

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

Section B – Reporting Requirements

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



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
 - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
 - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
- a. **Twenty-Four Hour (24-Hour) Reporting.** The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. Relevant information shall be provided orally or via the current electronic method approved by the Department within 24 hours from the time the permittee becomes aware of the incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
 - b. **Incidents Reported via Discharge Monitoring Reports (DMRs).** The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.
4. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
5. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
7. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
8. **Discharge Monitoring Reports.**
- a. Monitoring results shall be reported at the intervals specified in the permit.
 - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
 - c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
 - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility.
 - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
 - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
 - b. Notice.
 - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
 - c. Prohibition of bypass.
 - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 3. The permittee submitted notices as required under paragraph 2. b. of this section.
 - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
 - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being properly operated; and
 - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
 - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
 - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.



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Section D – Administrative Requirements

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



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

7. **Permit Transfer.**
 - a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
 - b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
 - c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
 - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
 - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
 - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.

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

PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

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

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

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

SECTION B – DEFINITIONS

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

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS

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

SECTION F – INCINERATION OF SLUDGE

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

SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

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

SECTION H – LAND APPLICATION

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

6. Agricultural and Silvicultural Sites.

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

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

SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids, and ash. Permittee must maintain this permit until the facility is properly closed per 10 CSR 20-6.010 and 10 CSR 20-6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure shall not exceed the agricultural loading rates as follows:
 - a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
 - b. If a wastewater treatment lagoon has been in operation for 15 years or more, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. See WQ 423 and 424.
 - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works” definition. See WQ 422. Under the septage category, residuals may be left in place as follows:
 - a. Testing for metals or fecal coliform is not required.
 - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at the rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
 - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

SECTION J – MONITORING FREQUENCY

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

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

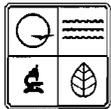
1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these Standard Conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records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

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

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

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

C11599
AP 15635



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

FOR AGENCY USE ONLY	
CHECK NUMBER	1108497
DATE RECEIVED	6/10/13
FEES SUBMITTED	\$375.00 ⁸⁸

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

1. This application is for:
- An operating permit and antidegradation review public notice
 - A construction permit following an appropriate operating permit and antidegradation review public notice
 - A construction permit and concurrent operating permit and antidegradation review public notice
 - A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
 - An operating permit for a new or unpermitted facility Construction Permit # _____
 - An operating permit renewal: permit # MO- _____ Expiration Date _____
 - An operating permit modification: permit # MO- 0001821 Reason: new combined Outfall

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

2. FACILITY

NAME CF Industries Sales, LLC - Palmyra Terminal		TELEPHONE WITH AREA CODE (573) 769-2184	
ADDRESS (PHYSICAL) 2838 County Road 359		CITY Palmyra	FAX (573) 769-2186
		STATE MO	ZIP CODE 63461

3. OWNER

NAME CF Industries Sales, LLC		E-MAIL ADDRESS jfoster@cfindustries.com	TELEPHONE WITH AREA CODE (847) 405-2439	
ADDRESS (MAILING) 4 Parkway North, Suite 400		CITY Deerfield	FAX (847) 405-2711	
		STATE IL	ZIP CODE 60015	

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

4. CONTINUING AUTHORITY

NAME		TELEPHONE WITH AREA CODE		
ADDRESS (MAILING)		CITY	STATE	ZIP CODE

5. OPERATOR

NAME		CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE	
ADDRESS (MAILING)		CITY	STATE	ZIP CODE

6. FACILITY CONTACT

NAME Ken Philbert		TITLE Superintendent	TELEPHONE WITH AREA CODE (573) 769-2184	
			FAX (573) 769-2186	

7. ADDITIONAL FACILITY INFORMATION

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

005 SW 1/4 SE 1/4 Sec 3 T 58N R 5W Marion County
UTM Coordinates Easting (X): 633459 Northing (Y): 4411971
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

002 1/4 1/4 Sec T R County
UTM Coordinates Easting (X): Northing (Y):

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 5191 and NAICS 424910 002 - SIC and NAICS
003 - SIC and NAICS 004 - SIC and NAICS

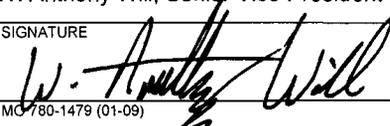
8. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION
(Complete all forms that are applicable.)

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

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

NAME Northeast Missouri Electric Power Cooperative			
ADDRESS 3705 Business 61, PO Box 191	CITY Palmyra	STATE MO	ZIP CODE 63461-0191

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) W. Anthony Will, Senior Vice President of Manufacturing and Distribution	TELEPHONE WITH AREA CODE (847) 405-2512
SIGNATURE 	DATE SIGNED 6/5/13

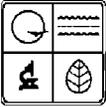
MO 780-1479 (01-09)

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?



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
FORM C – APPLICATION FOR DISCHARGE PERMIT –
MANUFACTURING, COMMERCIAL, MINING,
SILVICULTURE OPERATIONS, PROCESS & STORM WATER

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

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

1.00 NAME OF FACILITY
 CF Industries Sales, LLC - Palmyra Terminal

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER
 MO-0001821

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).
 N/A

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

A. FIRST 5191 B. SECOND _____
 C. THIRD _____ D. FOURTH _____

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.

005 OUTFALL NUMBER (LIST) SW 1/4 SE 1/4 SEC 3 T 58N R 5W Marion COUNTY

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER

OUTFALL NUMBER (LIST)	RECEIVING WATER
005	Mississippi River

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS

Storage and distribution of anhydrous ammonia (agricultural fertilizer).

Ammonia is received by barge from the Mississippi River. The ammonia is pumped to an aboveground storage tank and distributed to customers via barge and truck.

Terminal operations are supported by two evaporative condensers which discharge non-contact cooling water.

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	
005	Evaporative condensers - non-contact cooling water	7	12	0.01	0.01	0.01 MGD	0.01 MGD	365

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 THAT MAY AFFECT YOUR DISCHARGES) YOU NOW HAVE UNDER WAY OR ARE YOU PLANNING. 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)

3.20 CONTRACT ANALYSIS INFORMATION

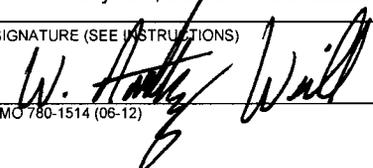
WERE ANY OF THE ANALYSES REPORTED PERFORMED BY A CONTRACT LABORATORY OR CONSULTING FIRM?

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)
Perry Ag Lab	PO Box 418 Bowling Green, MO 63334	573-324-2931	BOD, TSS, Iron (total), ammonia-N
PDC Laboratories, Inc.	2231 W. Altorfer Drive Peoria, IL 61615	309-692-9688	Priority Pollutants

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 the information is true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) W. Anthony Will, Senior Vice President of Manufacturing and Distribution	TELEPHONE NUMBER WITH AREA CODE (847) 405-2512
SIGNATURE (SEE INSTRUCTIONS) 	DATE SIGNED 6/5/13

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

Lease Meyers indicated previously submitted data will suffice.

FORM C
 TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS OUTFALL NO.

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. CONCEN- TRATION	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	
A. Biochemical Oxygen Demand (BOD)												
B. Chemical Oxygen Demand (COD)												
C. Total organic Carbon (TOC)												
D. Total Suspended Solids (TSS)												
E. Ammonia (as N)												
F. Flow	VALUE		VALUE		VALUE					VALUE		
G. Temperature (winter)	VALUE		VALUE		VALUE			°C		VALUE		
H. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
I. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results 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		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCEN- TRATION	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	
A. Bromide (24959-67-9)														
B. Chlorine Total Residual														
C. Color														
D. Fecal Coliform														
E. Fluoride (16984-48-8)														
F. Nitrate— Nitrate (as N)														

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)														
H. Oil and Grease														
I. Phosphorus (as P) Total (7723-14-0)														
J. Sulfate (as SO ₄) (14808-79-8)														
K. Sulfide (as S)														
L. Sulfite (as SO ₃) (14265-45-3)														
M. Surfactants														
N. Aluminum Total (7429-90-5)														
O. Barium Total (7440-39-3)														
P. Boron Total (7440-42-8)														
Q. Cobalt Total (7440-48-4)														
R. Iron Total (7439-89-6)														
S. Magnesium Total (7439-95-4)														
T. Molybdenum Total (7439-98-7)														
U. Manganese Total (7439-96-5)														
V. Tin Total (7440-31-5)														
W. Titanium Total (7440-32-6)														

1. POLLUTANT AND CAS NUMBER <i>(if available)</i>	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE <i>(optional)</i>			
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE <i>(if available)</i>		C. LONG TERM AVRG. VALUE <i>(if available)</i>		D. NO. OF ANALYSES	A. CONCEN- TRATION	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	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)														
2M. Beryllium, Total (7440-41-7)														
3M. Magnesium, Total (7439-95-4)														
4M. Molybdenum, Total (7439-98-7)														
5M. Tin, Total (7440-31-5)														
6M. Titanium, Total (7440-32-6)														
7M. Mercury, Total (7439-97-6)														
8M. Selenium, Total (7782-49-2)														
9M. Thallium, Total (7440-28-0)														
10M. Phenols, Total														
RADIOACTIVITY														
(1) Alpha Total														
(2) Beta Total														
(3) Radium Total														
(4) Radium 226 Total														



FORMULA 3338 STABILIZED BROMINE CHLORIDE

USE	<p>Garratt-Callahan Formula 3338 is EPA-registered for use as a fungicide, algicide, slimicide and microbiocide in commercial and industrial recirculating cooling and process water systems, heat transfer systems, industrial once-through cooling water systems, pulp and paper mills, wastewater systems, containerized ponds and decorative fountains, and air washers and industrial scrubbing systems. It is also EPA-registered to control biofilm deposits from pumps, pipework, heat exchangers and filters associated with industrial water treatment systems.</p> <p>Note: Please refer to the product label for a complete list of approved applications and use instructions.</p>
DESCRIPTION	<p>Formula 3338 is a single-feed, ready to use, liquid stabilized bromine chloride biocide for industrial water treatment applications. Product activity is 11% as BrCl; equivalent to approximately 15% as Br₂ or 7% as Cl₂.</p>
DIRECTIONS	<p>For recirculating cooling water systems, add an initial dose of 2.5-6.25 fl oz per 1,000 gallons of system volume to achieve 4-10 ppm total bromine and until control is evident.</p> <p>Subsequent Dose: For continuous feed, add 1.25 fl oz per 1,000 gallons of system volume to achieve 2 ppm total bromine. For slug feed, add 2.5-6.25 fl oz per 1,000 gallons of system volume to achieve 4-10 ppm total bromine. Maintenance dose may be lowered depending on system contamination or demand.</p> <p>Refer to TB3330 for frequently asked technical, application and regulatory questions.</p>
RECOMMENDATIONS	<p>Feed to the tower basin or to a recirculating or make-up water line. To avoid scaling at the point of injection especially in high-hardness water, feed where there is adequate water flow and good mixing. A conventional feed pump such as a diaphragm pump is suitable for feeding Formula 3338. For best results, minimize the length and increase the diameter of the pump suction line, use a degassing pump head, and keep the suction line flooded and as cool as possible. The use of a degassing pump head or a positive displacement pump will minimize the potential for pump air-lock resulting from product off-gassing. Maintain (i.e., flushing, replacement) chemical feed lines to ensure proper and safe operation.</p> <p>For a list of compatible and incompatible materials, please refer to Garratt-Callahan Technical Bulletin TB3330.</p>
SAFETY & HANDLING	<p>Please refer to MSDS before handling any products.</p> <p>For Medical Emergencies call (650) 697-5811 (Garratt-Callahan Company) from 8:00 AM to 4:30 PM Pacific Time or call (303) 623-5716 (Rocky Mountain Poison Center, 24-hour number).</p> <p>For Non-emergency Product Information please call (650) 697-5811 from 8:00 AM to 4:30 PM Pacific Time.</p>

PRODUCT DATATypical Values

Appearance	:	clear liquid
Color	:	yellow to orange
pH (neat)	:	12.4-13.7
Specific Gravity	:	1.30-1.44 (10.8-11.9 lbs/gal)

STORAGE

Product does not readily deteriorate, but has a suggested in-plant storage limit of one year. Protect from extremes in temperature. Store between 50-104°F (10-40°C).

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME:	FORMULA 3338
PRODUCT USE:	BIOCIDE
UN NUMBER:	3266
PROPER SHIPPING NAME:	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (HALOGENATED COMPLEX, SODIUM HYDROXIDE), 8, PGIII
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	North America: CHEMTREC: 1-800-424-9300 Outside North America: +1-703-527-3887
BUSINESS PHONE:	Product Information: 650-697-5811
MSDS NUMBER:	SD3338
DATE OF REVISION:	10/6/2011

SECTION 2 - HAZARDS IDENTIFICATION

GHS LABELING AND CLASSIFICATION: This product has not been classified as defined by the Globally Harmonized System (GHS). Components of this product that have GHS hazard and precautionary statements include: Sodium hydroxide (1310-73-2).

SIGNAL WORD: DANGER
GHS HAZARD STATEMENT:
H302: Harmful if swallowed.
H312: Harmful if contact with skin.
H314: Causes severe skin burns and eye damage.

GHS PREVENTATIVE STATEMENTS:
P101: If medical advice is needed, have product container or label at hand.
P102: Keep out of reach of children.
P103: Read label before use.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P264: Wash all exposed skin/hair thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

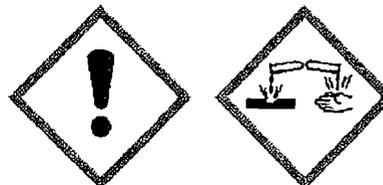
CORROSIVE - causes irreversible eye damage. Causes skin burns. Harmful if swallowed. Harmful in contact with skin. Can decompose exothermically at elevated temperatures (see Handling and Storage Section for details).

HEALTH EFFECTS OR RISKS FROM EXPOSURE:
ACUTE: Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress. Inhalation of vapor, mist or dust may cause respiratory tract irritation.
CHRONIC: Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage
TARGET ORGANS:
ACUTE: Skin, eyes, respiratory system, central nervous system.
CHRONIC: Lung, liver, skin, kidneys.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	3
FLAMMABILITY HAZARD (RED)	0
REACTIVITY HAZARD (YELLOW)	0

Hazard Scale
0=Minimal
1=Slight
2=Moderate
3=Serious
4=Severe
*=Chronic hazard



SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	CAS#	EC#	ICSC#	WT%	GHS Hazard Statement
HALOGENATED COMPLEX	PROPRIETARY	NE	NE	18	NOT CLASSIFIED
SODIUM HYDROXIDE	1310-73-2	215-185-5	0360	<10	H314

SECTION 4 - FIRST AID MEASURES

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take copy of label and MSDS to health professional with contaminated individual. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

SKIN EXPOSURE: P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P302+P352: IF ON SKIN: Wash with soap and water. If this product contaminates the skin, begin decontamination with running water and soap. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. P363: Wash contaminated clothing before reuse. Wash clothing prior to reuse. The exposed individual must seek medical attention if any adverse effect occurs.

EYE EXPOSURE: P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If vapors, mists, splashes or sprays are generated by this product and enter the eyes, open the exposed individual's eyes while under gently running water. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. The exposed individual must seek immediate medical attention.

INHALATION: P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If vapors, mists, dust or sprays generated by this product are inhaled, remove exposed individual to fresh air. Remove or cover gross contamination to avoid exposure to rescuers. If not breathing or if breathing is difficult, seek immediate medical attention. If trained, administer CPR or oxygen if available.

INGESTION: P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Routine use of this product is not expected to cause a situation which could lead to ingestion. If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT ASSISTANCE INFORMATION. Exposed individual must seek immediate medical attention. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 2, Hazards Identification) which may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

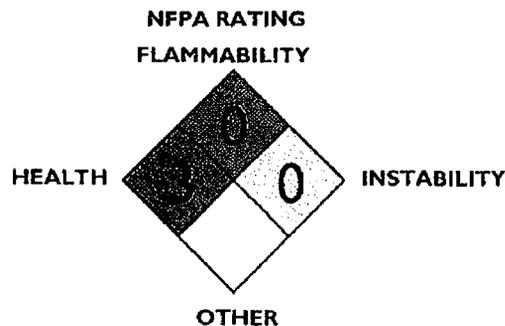
NOTES TO PHYSICIAN: Treat symptoms as demonstrated by signs and distress in the patient.

SECTION 5 - FIRE FIGHTING MEASURES

FIRE EXTINGUISHING MATERIALS: Use media appropriate for the surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Avoid breathing fumes, hazardous combustion products include bromine and chlorine.

SPECIAL FIRE-FIGHTING PROCEDURES: Wear self-contained breathing apparatus (pressure-demand NIOSH approved or equivalent) and full protective gear. Use water spray to cool containers exposed to fire. Minimize exposure. DO NOT breathe fumes. Contain run-off.



SECTION 6 - ACCIDENTAL RELEASE MEASURES

WARNING: Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening. **Warning:** Product can decompose exothermically at elevated temperatures.

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used.

Small Spill: Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

Large Spill: Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits.

Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

SECTION 7 - HANDLING AND STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: **Warning:** Product can decompose exothermically at elevated temperatures. Avoid freezing, excessive heat or exposure to light, especially direct sunlight. If heating is necessary to prevent freezing, care must be taken to prevent overheating. Precautions should be taken to ensure that the average product temperature is maintained below 110°F. Temperature monitoring is recommended. At elevated temperatures, self-heating can lead to vigorous gas generation and over-pressurization of storage containers if appropriate controls are not in place. Avoid exposure of this product to incompatible materials/chemicals (see Stability and Reactivity section). Use of incompatible materials can promote the exothermic decomposition of the product. In extreme cases this could result in vigorous gas formation and over-pressurization of the storage container.

STORAGE CONTAINER: Vented and opaque containers: As the product ages, activity is gradually lost and pressure can build-up in the headspace (nitrogen); therefore, the product should be stored in vented containers. Product should also be stored in opaque containers to prevent exposure to light. To maximize product shelf life, store the product in an opaque container, in a cool, dry, well-ventilated area. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a cool, dry location, away from direct sunlight, at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used.

EXPOSURE LIMITS/GUIDELINES:

EXPOSURE LIMITS IN AIR

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
HALOGENATED COMPLEX	PROPRIETARY	NE	NE	NE	NONE
SODIUM HYDROXIDE	1310-73-2	NE	2 mg/m3 (Ceiling)	2 mg/m3 (Ceiling)	NONE

NE = Not Established

RESPIRATORY PROTECTION: P260: Do not breathe dust/fume/gas/mist/vapours/spray. P270: Do not eat, drink or smoke when using this product. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product.

EYE PROTECTION: Chemical safety goggles. P280: Wear protective gloves/protective clothing/eye protection/face protection. A face shield may also be necessary if splashing is possible.

SKIN PROTECTION: Use chemically-resistant gloves when handling this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use body protection appropriate for task (e.g. lab coat, overalls). P264: Wash all exposed skin/hair thoroughly after handling.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE and COLOR:	Yellow to orange liquid	VAPOR PRESSURE :	19 mm Hg (25°C)
ODOR :	Mild, sweet	VAPOR DENSITY (Air=1):	Not established
pH:	12.4 (min.)	SPECIFIC GRAVITY (water=1)	1.29 - 1.37 g/ml (25°C)
MELTING/FREEZING POINT:	~0°C/32°F	SOLUBILITY IN WATER:	Miscible
BOILING POINT:	106°C	PARTITION COEFFICIENT(n-octanol/water)	Not established
FLASHPOINT:	Not established	AUTOIGNITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	DECOMPOSITION TEMPERATURE:	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established	VISCOSITY:	dynamic ~2.7cPs(25°C)

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY: Not established

STABILITY: Stable

HAZARDOUS DECOMPOSITION: None under normal use.

HAZARDOUS POLYMERIZATION: None under normal processing.

INCOMPATIBLE MATERIALS: This product is strongly basic and an oxidizing agent. Avoid contact with alcohols, aldehydes, strong reducing agents, strong oxidizers, acids, ammonia-containing products, and common metals such as steel, aluminum, iron and copper. Use of incompatible materials can promote the exothermic decomposition of the product.

CONDITIONS TO AVOID: Protect from light. Extremes of temperature and direct sunlight. Keep away from heat. Freezing.

SECTION 11 - TOXICOLOGICAL INFORMATION

Routes of Exposure - No information available

HEALTH AND HAZARDOUS INFORMATION

Acute toxicity – Not expected to be acutely toxic.

Skin contact – Causes burns. It is not considered to be a contact dermal sensitizer.

Eye contact – Possible risks of irreversible effects.

Inhalation – Not expected to be a primary route of exposure.

Skin sensitization – It is not considered to be a contact dermal sensitizer.

Signs and Symptoms of Overexposure – No information available

LD50 Oral: 2491 mg/kg

LD50 Dermal: >2000 mg/kg

Inhalation LC50: >20.37 mg/l

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, or CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product is very irritating to skin, eyes and respiratory system.

SENSITIZATION TO THE PRODUCT: This product may cause allergic skin reactions (e.g., rashes, welts) in sensitive individuals.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

The components of this product are not reported to produce mutagenic effects in humans.

The components of this product are not reported to produce embryotoxic effects in humans.

The components of this product are not reported to cause teratogenic effects in humans.

The components of this product are not reported to cause reproductive effects in humans.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

3.8 mg whole material/L; LC50/96-Hour; Bluegill sunfish *Lepomis Macrochirus*

4.8 mg whole material/L; LC50/48-Hour; Waterflea *Daphnia Magna*

2.6 mg whole material/L; LC50/96-Hour; Unicellular Green Alga, *Selenastrum capricornutum*

Ecotoxicity effects – No information available

Persistence/Degradability – No information available

Bioaccumulation/Accumulation – No information available

Mobility in Environmental Media - No information available

Other adverse effects - No information available

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL: P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14 - TRANSPORTATION INFORMATION

DOT

Proper Shipping Name: UN3266, CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
(HALOGENATED COMPLEX, SODIUM HYDROXIDE), 8, PGIII
Emergency response guidebook, guide no.: 154



IMDG/IMO

IMO Labeling and Marking: 8

Proper Shipping Name: UN3266, CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
(HALOGENATED COMPLEX, SODIUM HYDROXIDE), 8, PGIII

EmS: F-A, S-B • Marpol – Annex II: Not determined

Marpol – Annex III: Unregulated

IATA/ICAO

IATA/ICAO Labeling: 8

Proper Shipping Name: UN3266, CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
(HALOGENATED COMPLEX, SODIUM HYDROXIDE), 8, PGIII

Passenger Aircraft: 5L

Cargo Aircraft only: 60L

PRODUCT REQUIRES CORROSIVE LABEL

SECTION 15 - REGULATORY INFORMATION

United States and International Regulations

United States Regulations: U.S. SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act, listed below:

CHEMICAL NAME

HALOGENATED COMPLEX	SARA 302(40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
SODIUM HYDROXIDE	SARA 302(40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - YES SARA 313 (40 CFR 372.65) - NO

U.S. Regulations

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactivity: No

U.S. CERCLA REPORTABLE QUANTITY (RQ): Sodium Hydroxide 1000 Lbs. (454 kg).

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

State Regulations:

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the Proposition 65 List.

This product contains SODIUM HYDROXIDE, CAS. NO. 1310-73-2, regulated in Massachusetts, New Jersey and Pennsylvania.

International Regulations

CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are on the DSL or NDSL Inventories

CANADIAN WHMIS CLASSIFICATION: CLASS D2B Toxic Materials

CLASS E: Corrosive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations.

SECTION 16 - OTHER INFORMATION

PREPARED BY: Garratt Callahan

Revision Date: October 6, 2011 Supercedes: February 17, 2010

Formula 3338 is EPA-registered; with EPA Reg. No. 3377-55-8540. Refer to the approved label for details.

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FORMULA 241-M POLYMERIC DISPERSANT

USE	<p>Garratt-Callahan Formula 241-M can be used in boilers, open recirculating cooling systems and air washers. It is an excellent anti-scaling agent and will stabilize corrosion inhibitors such as zinc and phosphate in corrosive waters. It is a superior inorganic particulate dispersant especially for hydroxyapatite, calcium carbonate and iron oxide.</p> <p>Formula 241-M controls boiler deposits by keeping in suspension harmful foulants that can accumulate in boiler tubes; controls both dried iron and the more prevalent and difficult to control hydrated iron oxide in condensate return and well water.</p> <p>Formula 241-M is a stabilizer and dispersant for difficult cooling water applications. It is used to enhance the existing treatment program where the following conditions exist:</p> <ul style="list-style-type: none"> • An increase in scale inhibitor is needed due to low RSI values. • Old scale deposits must be removed while unit is in operation. • Iron must be dispersed or removed from the system. 															
DESCRIPTION	<p>Formula 241-M is a high performance, low molecular weight, water soluble polymer for scale control. A molybdenum tracer is added for testing purposes.</p>															
DIRECTIONS	<p>A dosage of 100-200 ppm of active product is required for most applications. Higher levels may be required for high hardness and/or phosphate conditions, and for online descale of iron, calcium and phosphate-containing sludges/deposits.</p> <p>Dosage can be controlled with a sodium molybdate test kit. Control is 1.7-3.4 ppm as sodium molybdate or 0.8-1.6 ppm as molybdenum.</p>															
RECOMMENDATIONS	<p>Formula 241-M can be slug fed or fed proportional to makeup. When pumping directly from the shipping drum, a plastic feed pump is required.</p> <p>For cooling towers, Formula 241-M should be fed along with a complete tower product. In a mix tank, it should only be blended with other acidic cooling water products. A good starting dose would be 100 ppm.</p>															
SAFETY & HANDLING	<p>Please refer to MSDS before handling any products.</p> <p>For Medical Emergencies call (650) 697-5811 (Garratt-Callahan Company) from 8:00 AM to 4:30 PM Pacific Time or call (303) 623-5716 (Rocky Mountain Poison Center, 24-hour number).</p> <p>For Non-emergency Product Information please call (650) 697-5811 from 8:00 AM to 4:30 PM Pacific Time.</p>															
PRODUCT DATA	<table border="0"> <thead> <tr> <th colspan="2"></th> <th style="text-align: center;"><u>Typical Values</u></th> </tr> </thead> <tbody> <tr> <td>Appearance</td> <td>:</td> <td>clear liquid</td> </tr> <tr> <td>Color</td> <td>:</td> <td>blue green to amber</td> </tr> <tr> <td>pH (neat)</td> <td>:</td> <td>3.0-5.0</td> </tr> <tr> <td>Specific Gravity</td> <td>:</td> <td>1.00-1.10 (8.3-9.2 lbs/gal)</td> </tr> </tbody> </table>			<u>Typical Values</u>	Appearance	:	clear liquid	Color	:	blue green to amber	pH (neat)	:	3.0-5.0	Specific Gravity	:	1.00-1.10 (8.3-9.2 lbs/gal)
		<u>Typical Values</u>														
Appearance	:	clear liquid														
Color	:	blue green to amber														
pH (neat)	:	3.0-5.0														
Specific Gravity	:	1.00-1.10 (8.3-9.2 lbs/gal)														
STORAGE	<p>Product does not readily deteriorate, but has a suggested in-plant storage limit of one year. Protect from extremes in temperature. Store between 50-104°F (10-40°C).</p>															



MATERIAL SAFETY DATA SHEET

Garratt-Callahan Company
50 Ingold Road
Burlingame, California 94010-2206

24 - HOUR EMERGENCY PHONE NUMBER: 303-623-5716

CHEMTREC: 1-800-424-9300

Customer Service, Product Information: 650-697-5811

Revision Date: 06/23/2009

MSDS Number: 2241

SECTION #1 - IDENTIFICATION

Product Name: FORMULA 241-M

Product Use: POLYMERIC DISPERSANT

SECTION #2 - COMPONENTS*

EXPOSURE LIMITS

COMPONENT	CAS NUMBER	PERCENT	ACGIH TLV	OSHA PEL	OTHER
SODIUM MOLYBDATE	7631-95-0	< 5	5 mg/m3 as Mo	5 mg/m3 as Mo	

*NOTE: OSHA requires only that hazardous components be listed in this section.

SECTION #3 - PHYSICAL DATA

APPEARANCE:	Clear blue green to amber	%VOLATILES:	80 (water)
BOILING POINT:	> 212°F (100 °C)	SOLUBILITY:	Complete
VAPOR DENSITY:	Not established	SPECIFIC GRAVITY:	1.00 - 1.10
VAPOR PRESSURE:	Not established	EVAPORATION RATE (where butyl acetate=1):	< 1
pH:	3.0 - 5.0	ODOR:	Odorless

SECTION #4 - FIRE AND EXPLOSION DATA

FLASHPOINT (PMCC)	Non-flammable	EXPLOSIVE LIMITS:	
AUTOIGNITION	Not established	LEL	Not established UEL Not established
EXTINGUISHING MEDIA	Use media appropriate for the surrounding fire.		
UNUSUAL FIRE AND EXPLOSION HAZARDS:	No special hazards		
FIRE FIGHTING INSTRUCTIONS	No special instructions		

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SECTION #5 - EXPOSURE AND EFFECT

Avoid eye contact. May cause eye irritation. Avoid repeated or prolonged skin contact, inhalation of aerosol, mist, spray, fume or vapor. May cause respiratory tract and skin irritation. Wash thoroughly after handling.

EMERGENCY AND FIRST AID PROCEDURES:

SKIN CONTACT: Wash with soap and water for at least 15 minutes; consult physician if pain, irritation or other problems persist.

EYE CONTACT: Flood the eye with copious amounts of water for at least 15 minutes. Have the patient blink as much as possible while flooding the eye. Seek medical attention if irritation occurs.

INGESTION: Treat symptomatically.

INHALATION: If affected, remove to fresh air. If not breathing, give artificial respiration.

NOTES TO PHYSICIAN: Treat symptomatically.

SECTION #6 - REACTIVITY AND POLYMERIZATION

STABILITY:	Stable
CONDITIONS TO AVOID:	Not established
INCOMPATIBLE MATERIALS:	Strong bases, alkali metals, copper
HAZARDOUS DECOMPOSITION:	Not established
HAZARDOUS POLYMERIZATION:	Will not occur

SECTION #7 - SPILL, LEAK AND DISPOSAL PROCEDURES

DISPOSAL: IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

WARNING: Any drum expansion or rounding indicates pressure buildup. Use extreme caution. When opening, release pressure slowly through bung.

SPILL/LEAK: Restrict access to area. Provide adequate protective equipment and ventilation. Remove chemicals which can react with the spilled material. Do not allow entry into sewers or waterways. Contain by diking with soil or other absorbent material. Scoop up with absorbent and place into chemical waste container.

SECTION #8 - SPECIAL PROTECTIVE MEASURES

VENTILATION:	Good general ventilation should be sufficient for most conditions.
RESPIRATORY PROTECTION:	None needed under normal conditions of use.
SKIN PROTECTION:	Use chemical resistant glove such as butyl rubber, nitrile or neoprene.
EYE PROTECTION:	Wear safety glasses or goggles.
OTHER:	None needed.
WORK HYGIENIC PRACTICES:	Remove contaminated clothing. Wash contaminated clothing before reuse. If liquid is absorbed into shoes or gloves, discard.

SECTION #9 - STORAGE AND HANDLING INFORMATION

STORAGE: Store in a cool, dry area, away from direct sunlight and any incompatible materials. Keep container closed when not in use. Protect from physical damage.

STORE AT TEMPERATURE BETWEEN 50°F-100°F.

SECTION #10 - TRANSPORTATION INFORMATION

NOT REGULATED

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SECTION #11 - REGULATORY INFORMATION

The following regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA TITLE III Section 311/312 Hazard Category: Acute Health

SARA TITLE Section 313 Toxic Chemical List (40CFR372)

This product does not contain a component which is listed in Section 313 at or above minimum concentrations.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (40CFR302.4)

This product is not regulated under CERCLA and SARA Title III Section 304.

This product is not or does not contain component(s) listed in 40CFR Table 302.4.

California Proposition 65:

No components are listed under Prop 65.

Toxic Substances Control Act (TSCA) Inventory Status:

All components are listed on the TSCA Inventory.

HMIS Rating: HEALTH: 1 FIRE: 0 REACTIVITY: 0
NFPA Rating: HEALTH: 1 FIRE: 0 REACTIVITY: 0

SECTION #12 - TOXICOLOGICAL INFORMATION

Toxicity

Oral: Not established

Inhalation: Not established

Dermal: Not established

Chronic Effects: Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

Ecological Data

Fish: 96 hr, LC50, Fathead minnow, > 10000 mg/l

Algae: Not established

Daphnia: 48 hr, LC50, Daphnia magna, 5743 mg/l

Bioaccumulation: Material is not expected to bioaccumulate.

Persistence/Degradability: Garratt-Callahan has not conducted biodegradation studies with this product since when dissolved/hydrolyzed in water it yields completely mineralized materials.

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MATERIAL SAFETY DATA SHEET

Product(s): Sulfuric Acid 66 Degree Baume Technical

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product

CAS Number: 7664-93-9
Formula: H₂SO₄
Molecular Weight: 98.08
CAS Name: Sulfuric Acid
Grade: 66 Deg Technical
Issue Date: April 7, 2011

Company Identification

Supplier

ACCO Unlimited Corporation
5300 NW 55 Avenue
Johnston, IA 50131
(515) 278-0487

FOR CHEMICAL EMERGENCY, CALL CHEMTREC (24 HOURS): 1-800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

Potential Health Effects

Exposure to Sulfuric Acid mists by inhalation may cause irritation of the nose and throat with sneezing, sore throat, or runny nose; non-specific effects such as headache, nausea, and weakness. Gross overexposure may cause irritation of nose, throat, and lungs with cough, difficulty breathing, or shortness of breath. Pulmonary edema (body fluid in the lungs) with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin; symptoms may be delayed. Repeated and/or prolonged exposure to mists may cause corrosion of teeth.

Skin contact with liquid Sulfuric Acid may cause skin corrosion, burns, or ulcers. Contact with a 1% solution may cause slight irritation with itching, redness, or swelling. Repeated and/or prolonged exposure to mists may cause irritation with itching, burning, redness, swelling, or rash.

Eye contact with liquid Sulfuric Acid may cause eye corrosion or ulceration; blindness may result. Repeated and/or prolonged exposure to mists may cause eye irritation with tearing, pain, or blurred vision.

Immediate effects of ingestion of Sulfuric Acid may include burns of the mouth, throat, esophagus, and stomach, with severe pain, bleeding, vomiting, diarrhea, and collapse of blood pressure - damage may appear days after exposure.

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the lungs.

The International Agency for Research on Cancer (IARC) classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for strong inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions. The basis for the IARC classification rests on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking, etc.) and included small numbers of subjects.

Based on the overall weight of evidence from all human and chronic animal studies, no definitive casual relationship between sulfuric acid mist exposure and respiratory tract tumors has been shown.

Strong inorganic acid mists containing sulfuric acid are also listed by The National Toxicology Program (NTP) as known human carcinogens. This limits the classification to sulfuric acid aerosols and does not extend to the liquid product, unless the acid is used under conditions that result in the formation of mists or aerosols. Fuming acid is covered by the classification.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA, or ACGIH as carcinogens.

<u>Material</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>	<u>ACGIH</u>
STRONG ACID MISTS CONTAINING SULFURIC ACID	1	X		A2

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
--

<u>Material</u>	<u>CAS Number</u>	<u>%</u>
SULFURIC ACID – 66 DEG TECHNICAL	7664-93-9	93.2
WATER	7732-18-5	Balance

SECTION 4: FIRST AID MEASURES

<u>Inhalation:</u>	If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Symptoms may be delayed; prompt medical attention may be required. Call a physician.
<u>Skin Contact:</u>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. While the patient is being transported to a medical facility, continue the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.
<u>Eye Contact:</u>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
<u>Ingestion:</u>	If swallowed, do not induce vomiting. Give large quantity of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
<u>Notes to Physicians:</u>	Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of the treatment.

SECTION 5: FIRE FIGHTING MEASURES
--

<u>Flammable Properties:</u>	Will not burn.
<u>Fire and Explosion Hazards:</u>	Reacts with most metals, especially when dilute, to give flammable, potentially explosive hydrogen gas. Follow appropriate National Fire Protection Association (NFPA) codes.
<u>Extinguishing Media:</u>	Use media appropriate for surrounding material. Use water spray to cool containers exposed to fire; do not get water inside containers.
<u>Fire Fighting Instructions:</u>	Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possible spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel): NOTE: Review Section 5 (FIRE FIGHTING MEASURES) and Section 7 (HANDLING - PERSONNEL) before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT (Section 8) during clean-up.

Accidental Release Measures: Stop flow if possible. Review "Fire and Explosion Hazards" and "Safeguards" before proceeding with clean up. Use appropriate protective equipment during clean up. Soak up small spills with dry sand, clay, or diatomaceous earth. Dike large spills, and cautiously dilute and neutralize with lime or soda ash, and transfer to waste water treatment system. Prevent liquid from entering sewers, waterways, or low areas.

If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the Reportable Quantity is 1,000 lbs. (based on the sulfuric acid content of the solution spilled). Comply with Federal, State, and local regulations on reporting releases.

DuPont Emergency Exposure Limits (EEL) are established to facilitate site or plant emergency evacuation and specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape. EEL's are expressed as airborne concentration multiplied by time (C x T) for up to a maximum of 60 minutes and as a ceiling airborne concentration. These limits are used in conjunction with engineering controls/monitoring and as an aid in planning for episodic releases and spills.

The DuPont Emergency Exposure Limit (EEL) for Sulfuric Acid is 10 mg/m³ for 15 to 60 minutes and 20 mg/m³ for up to 15 minutes with a not-to-exceed ceiling of 20 mg/m³.

SECTION 7: HANDLING AND STORAGE
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<u>Handling - Personnel:</u>	Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. Keep containers closed. Do not add water to contents while in container because of violent reaction.
<u>Storage:</u>	Keep out of sun and away from heat, sparks, and flame. Keep container tightly closed and (drum) closure up to prevent leakage. Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. Do not use pressure to empty. Be sure closure is securely fastened before moving container. Do not wash out container or use it for other purposes; replace closure after each withdrawal and return it with empty container.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits.

Personal Protective Equipment: Have available and wear as appropriate for exposure conditions when handling containers or operating equipment containing sulfuric acid: chemical splash goggles; full-length face shield/chemical splash goggles combination; acid-proof gauntlet gloves, apron, and boots; long sleeve wool, acrylic, or polyester clothing; acid proof suit and hood; and appropriate NIOSH respiratory protection. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NIOSH respiratory protection.

Exposure Guidelines**Exposure Limits**

Sulfuric Acid, 77 to 100%

PEL	(OSHA):	1 mg/m ³ , 8 Hr. TWA
TLV	(ACGIH):	0.2 mg/m ³ , 8 Hr. TWA
		A2 (Sulfuric acid contained in strong inorganic acid mists)
AEL*	(DuPont):	0.5 mg/m ³ , 8 & 12 Hr. TWA
		1.5 mg/m ³ , 15 minute TWA

*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**Physical Data**

Boiling Point:	279°C (535°F) @ 760 mm Hg	Evaporation Rate:	< 1 (Butyl Acetate = 1.0)
Vapor Pressure:	< 0.3 mm Hg @ 25°C (77°F)	Solubility in Water:	100 WT%
	< 0.6 mm Hg @ 38°C (100°F)	pH:	< 1
Vapor Density:	3.4	Odor:	Odorless
Melting Point:	- 35°C (- 31°F)	Form:	Oily; clear to turbid liquid
Specific Gravity:	1.835	Color:	Colorless to light gray

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable, but reacts violently with water and organic materials with evolution of heat.

Incompatibility with Other Materials: Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fluorates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

Decomposition: Releases sulfur dioxide at extremely high temperatures.

Polymerization: Polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION**Animal Data**

Sulfuric Acid	
Oral LD50:	2,140 mg/kg in rats
Inhalation 8 hour LC50:	30 mg/m ³ in guinea pigs

Concentrated Sulfuric Acid is a skin and eye corrosive. Animal testing indicates that Sulfuric Acid is a moderate eye irritant and a slight skin irritant when tested as a 10% solution.

Single and repeated **inhalation** exposures caused irritation of the respiratory tract, corrosion of the respiratory tract, lung damage, labored breathing, altered respiratory rate, and pulmonary edema. Repeated exposure caused altered red blood cell counts.

No adequate animal data are available to define carcinogenic potential of Sulfuric Acid. Limited studies do not suggest effects. In animal testing, Sulfuric Acid has not caused developmental toxicity. No animal data are available to define reproductive toxicity. Sulfuric Acid has not produced genetic damage in bacterial cultures.

SECTION 12: ECOLOGICAL INFORMATION**Ecotoxicological Information****AQUATIC TOXICITY:**

Slightly to moderately toxic.

96 hour LC50 - Bluegill sunfish: 10.5 ppm.

48 hour TLm - Flounder: 100-300 ppm

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Cleaned-up material may be an RCRA Hazardous Waste on disposal due to the corrosivity characteristic. Do not flush to surface water or sanitary sewer system. Comply with Federal, State, and local regulations. If approved, neutralize and transfer to waste treatment system.

SECTION 14: TRANSPORT INFORMATION**Shipping Information****DOT/IMO**

Proper Shipping Name: SULFURIC ACID

Hazard Class: 8

UN No.: 1830

DOT/IMO Label: CORROSIVE

Packing Group: II

Reportable Quantity: 1000 lb (454 kg)

SECTION 15: REGULATORY INFORMATION**U.S. Federal Regulations**

TSCA Inventory Status: Reported/Included

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute: Yes

Chronic: Yes

Fire: No

Reactivity: Yes

Pressure: No

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: Yes

CERCLA Hazardous Substance: Yes

SARA Toxic Chemical: No

State Regulations (U.S.)

Strong inorganic acid mists containing sulfuric acid are known to the State of California to cause cancer.

SECTION 16: OTHER INFORMATION**NFPA Rating**

Health: 3

Flammability: 0

Reactivity: 2

Water Reactive.

NPCA-HMIS Rating

Health: 3

Flammability: 0

Reactivity: 2

Personal Protection rating to be supplied by user depending on use conditions.

Because of its corrosive characteristics and inherent hazards, Sulfuric Acid should not be used in sewer or drain cleaners or any similar application; regardless of whether they are formulated for residential, commercial, or industrial use. Vendor will not knowingly sell sulfuric acid to individuals or companies who repackage the product for sale as sewer or drain cleaners, or any other similar use.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, ACCO Unlimited Corporation makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, ACCO Unlimited Corporation will not be responsible for damages of any kind resulting from the use of or reliance upon such information. No representations, or warranties, either express or implied, or merchantability fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers.



4 Parkway North, Suite 400
Deerfield, Illinois 60015-2590

847-405-2400
www.cfindustries.com

May 24, 2013

VIA CERTIFIED MAIL

Ms. Leasue Meyers
Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102

Re: Modification of NPDES Permit # MO-0001821
CF Industries Sales, LLC – Palmyra Terminal

RECEIVED
MAY 24 2013
WATER PROTECTION PROGRAM

Dear Ms. Meyers:

CF Industries Sales, LLC operates an ammonia storage and distribution terminal in Palmyra, MO (Marion County). The terminal discharges non-contact cooling water and stormwater/groundwater in accordance with NPDES permit #MO-0001821 issued February 10, 2012. We are applying for a modification in order to combine outfalls and discharge directly to the Mississippi River. This document constitutes an operating permit modification application, and contains the following information:

- Form A – Application for Construction or Operating Permit;
- Form C – Application for Discharge Permit – Manufacturing, Commercial, Mining, and Silviculture Operations;
- Figure 1 – USGS Topographic Map;
- Figure 2 – Current and Proposed Outfalls;
- Figure 3 – Proposed Outfall 005;
- Figure 4 – Catwalk and Dock Cell;
- Simplified Water/Wastewater Flow Schematic;
- Table 1 – Summary of Outfall 001 Analytical;
- Table 2 – Summary of Outfall 002 Analytical;
- Table 3 – Summary of Outfall 004 Analytical;
- Information Sheet and MSDS for Garratt Callahan Formula 3338 Stabilized Bromine Chloride (biocide)
- Information Sheet and MSDS for Garratt Callahan Formula 241-M Polymeric Dispersant
- MSDS for Sulfuric Acid 66 Degree Baume Technical (93%)

A check for \$375 is attached for the permit modification fee.

Please call me at 847-405-2439, if you have any questions or need further information.

Respectfully Submitted,

John A. Foster, CHMM,
Manager, Environmental Engineering
Distribution Facilities

cc: K. Philbert
M. Heavener

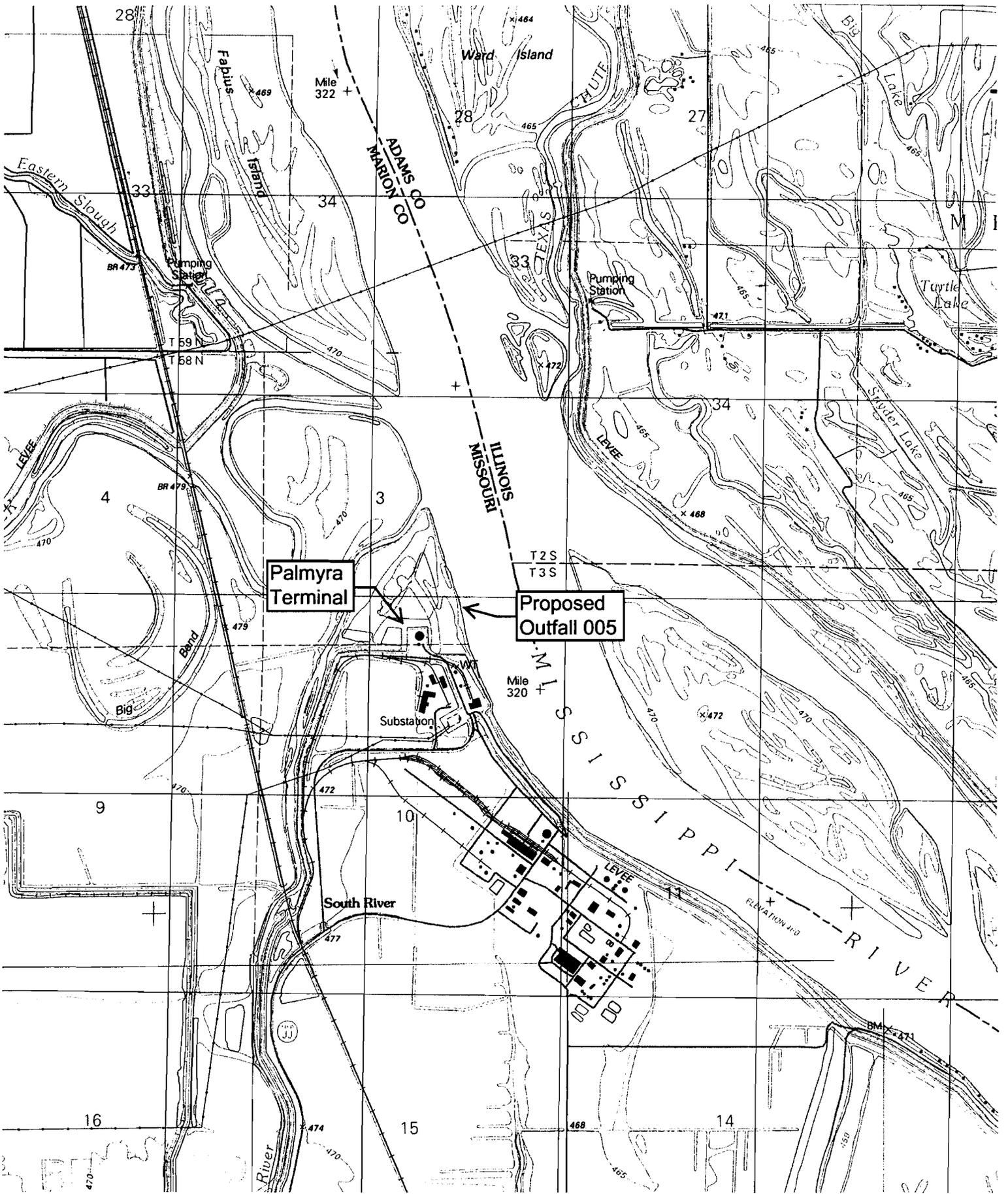
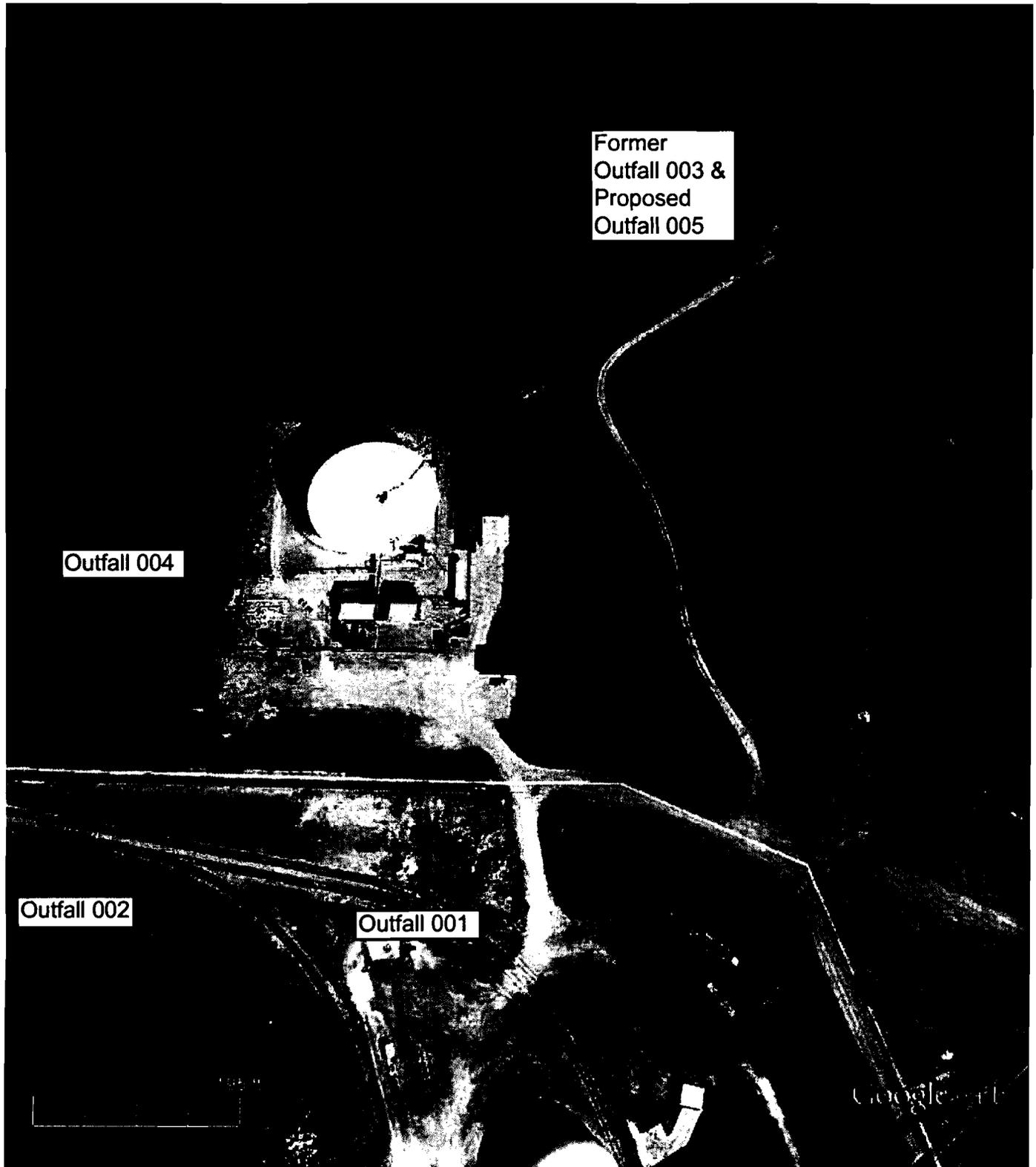


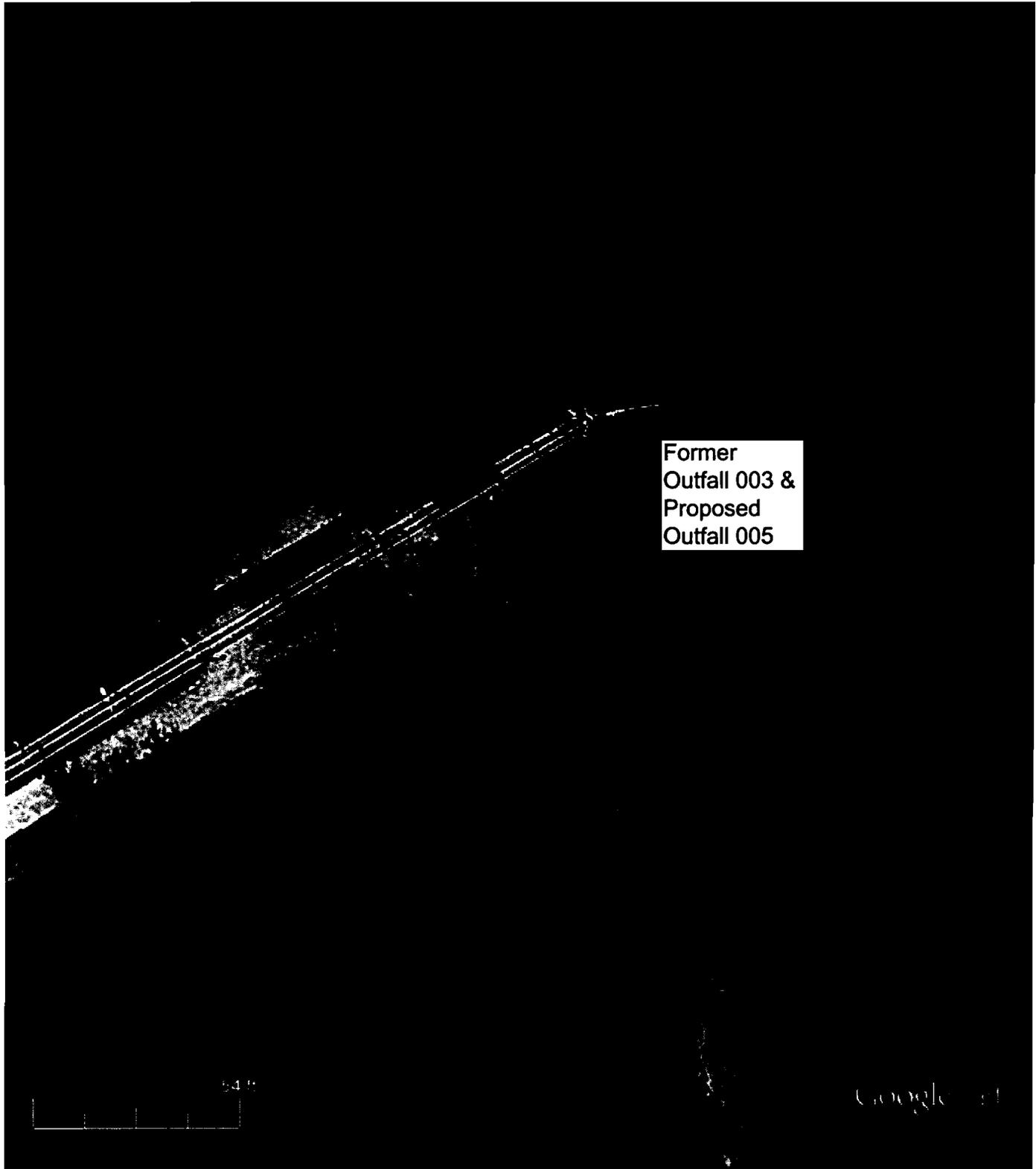
Figure 1 - USGS Topographic Map
 CF Industries Sales, LLC - Palmyra Terminal



Google earth



Figure 2 - Current and Proposed Discharge Points
CF Industries Sales, LLC - Palmyra Terminal



Former
Outfall 003 &
Proposed
Outfall 005

64 ft

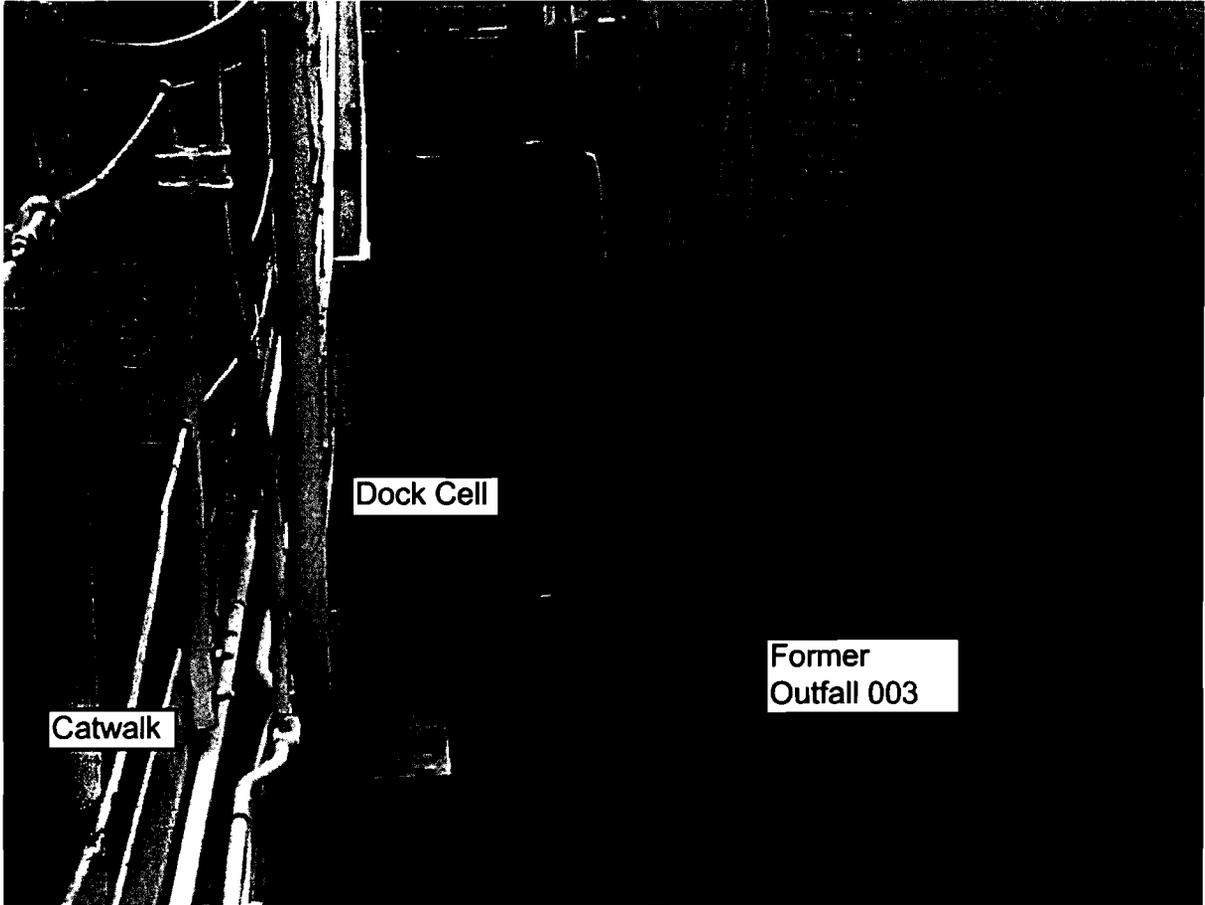
Google Earth

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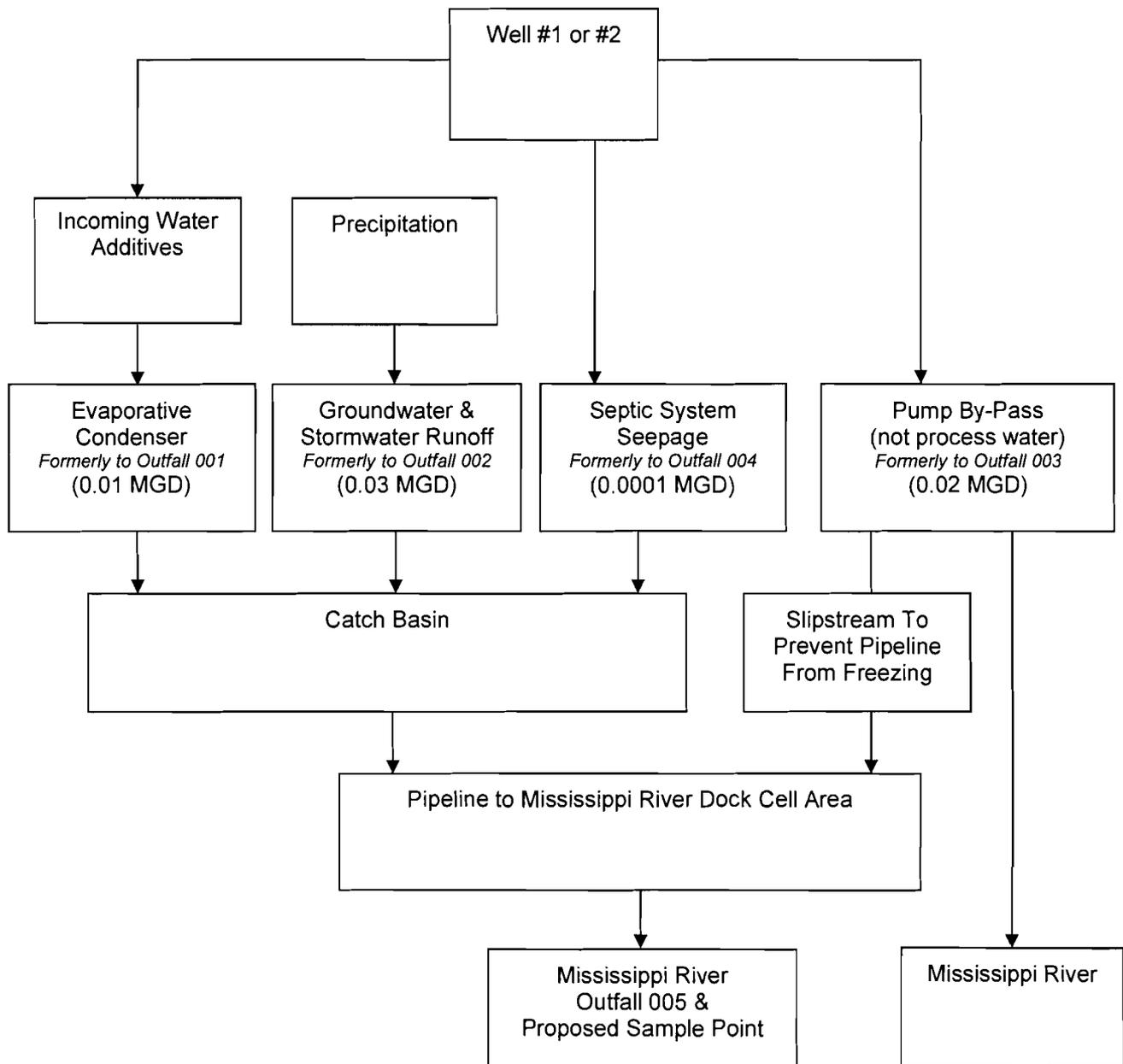
Figure 3 - Proposed Outfall 005
CF Industries Sales, LLC - Palmyra Terminal



Proposed outfall 005 will be suspended from the catwalk or the dock cell.

Figure 4 - Catwalk & Dock Cell
CF Industries Sales, LLC - Palmyra Terminal

Water/Wastewater Flow Schematic (estimated maximum daily discharges)
CF Industries Sales, LLC – Palmyra Terminal
NPDES Permit Modification Application
NPDES Permit # MO-0001821



**Table 1 - Summary of Outfall 001 Analytical
CF Industries Sales, LLC - Palmyra Terminal**

Date	Flow (MGD)	Ammonia as N (mg/L)	pH	Temperature (F)
3/14/2013	0.00013	6.10	6.4	58
12/12/2012	0.00013	7.18	7.1	70
9/21/2012	0.00013	0.67	7.1	70
6/6/2012	0.00013	0.30	7.1	80
3/20/2012	0.00013	0.01	7.6	80
12/14/2011	0.00013	0.01	6.9	60
9/7/2011	0.00013	0.04	7.9	65
6/1/2011	0.00013	1.53	6.9	68
3/3/2011	0.00011	0.42	7.8	68
12/20/2010	0.0001	0.56	6.7	68
9/22/2010	0.00011	0.43	7.8	65
6/9/2010	0.00019	1.89	7.8	78
3/10/2010	0.0001	2.30	7.3	42
Maximum	0.00019	7.18	7.9	80
Minimum	0.0001	0.01	6.4	42
Average	0.00013	1.65	7.3	67

**Table 2 - Summary of Outfall 002 Analytical
CF Industries Sales, LLC - Palmyra Terminal**

Date	Flow (MGD)	Iron, Total Recoverable (ug/L)	Ammonia as N (mg/L)	pH	Oil & Grease (mg/L)
3/14/2013	0.00887	1310	2.26	6.8	2.80
12/12/2012	0.0087	1240	4.26	7.2	0.60
9/21/2012	0.00887	70	3.62	6.7	0.63
6/6/2012	0.00887	1000	4.75	7.5	1.70
3/20/2012	0.0191	1000	4.34	7.3	1.04
12/14/2011	0.0191	20	3.58	7.7	NA
9/7/2011	0.0191	3840	4.21	7.8	NA
6/1/2011	0.0191	2670	3.25	7.6	NA
3/3/2011	0.0201	3610	5.00	7.2	NA
12/20/2010	0.0219	5270	7.29	7.2	NA
9/22/2010	0.5256	4630	0.79	7.2	NA
6/9/2010	0.0091	620	0.24	7.9	NA
3/10/2010	0.0083	1850	2.70	6.2	NA
Maximum	0.5256	5270	7.29	7.9	2.80
Minimum	0.0083	20	0.236	6.2	0.60
Average	0.053593	2087	3.56	7.3	1.35

**Table 3 - Summary of Outfall 004 Analytical
CF Industries Sales, LLC - Palmyra Terminal**

Date	Flow (MGD)	Biochemical Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	pH
3/14/2013	0.00008	1.3	7	7.2
12/12/2012	0.00008	2.96	15	7.1
9/21/2012	0.00008	5.14	7	7.1
6/6/2012	0.00008	2.05	49	7.1
3/20/2012	0.00008	2.11	16	6.9
Maximum	0.00008	5.14	49	7.2
Minimum	0.00008	1.30	7	6.9
Average	0.00008	2.71	19	7.1