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-0137243
Owner:	Calumet Specialty Partners, L.P.
Address:	2780 Waterfront Pkwy. East Dr. Suite 200, Indianapolis, IN 46214
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Calumet Missouri, LLC
Facility Address:	11089 Highway D, Louisiana, MO 63353
Legal Description:	see page 2
UTM Coordinates:	see page 2
Receiving Stream:	see page 2
First Classified Stream and ID:	see page 2
USGS Basin & Sub-watershed No.:	see page 2

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

FACILITY DESCRIPTION

Outfall 001 - Manufacture of Synthetic Lubricants - SIC Code 2869

This permit authorizes only wastewater and stormwater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

May 1, 2013
Effective Date

September 27, 2016
Modification Date

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

April 30, 2018
Expiration Date

John Madras
John Madras, Director, Water Protection Program

Facility Description continued

Outfall 001a - Steam Condensate – Design Flow and Stormwater
Design flow is 5,000 gallons per day (GPD) (previously 10,000 GPD total with cooling tower bleed)
Actual average flow is 11,600 GPD (includes precipitation)

Legal Description:	SE ¼ NE ¼ Sec. 29, T54N, R1W, Pike County
UTM Coordinates:	X = 669931, Y = 4365584
Receiving Stream:	Buffalo Creek (P)
First Classified Stream and ID:	Buffalo Creek (P) (0014)
USGS Basin & Sub-watershed No.:	07110004-0702

Outfall 001b
001b –Calumet's 001b corresponds to Dyno Nobel's 001
Discharges combined effluent from Calumet Outfall 002, which now includes cooling tower bleed (design flow of 5,000 GPD) and Dyno Nobel process wastewater.
Design flow is 3.6 million gallons per day (MGD).
Actual average flow is 0.8 MGD.

Legal Description:	E ¼, SW ¼, Sec 21, T54N, R1W, Pike County
UTM Coordinates	X = 670531, Y = 4366585
Receiving Stream	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0702

Outfall 002 – Internal outfall that discharges effluent from an activated sludge plant which is used to treat industrial process wastewater and contaminated water from secondary containment. Sludge disposal by contract hauler. The waste stream now includes cooling tower bleed with a design flow of 5,000 GPD.
Design flow is 0.564 MGD.
Actual average process flow is 20,000 GPD.
Actual average stormwater flow is 36,000 GPD.

Legal Description:	SE ¼, NE ¼, Sec 29, T54N, R1W, Pike County
UTM Coordinates:	X = 669758, Y = 4365797
Receiving Stream	Mississippi River
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	07110004-0702

Outfall 003 – Stormwater discharge from the southern portion of the property. Stormwater in contact with industrial activity and secondary containment water.
Design flow is 1.0 MGD (based on 10-year, 24-hour precipitation event of 5 inches on approximately 9 acres).
Actual average stormwater flow is dependent upon precipitation.

Legal Description:	NE ¼, SE ¼, Sec 29, T54N, R1W, Pike County
UTM Coordinates:	X = 669759, Y = 4365472
Receiving Stream	Tributary to Buffalo Creek
First Classified Stream and ID:	Buffalo Creek (P) (0014)
USGS Basin & Sub-watershed No.:	07110004-0702

OUTFALL #001a	EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 17
		PERMIT NUMBER MO-0137243

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:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L	1.0		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions			once/permit cycle in the first year	grab
WET TEST REPORTS SHALL BE SUBMITTED ONCE / PERMIT CYCLE; THE FIRST REPORT IS DUE JANUARY 28, 2014.						

OUTFALL #001b	EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001b						
Flow	MGD	*		*	once/weekday	24 hr. estimate
Biochemical Oxygen Demand$_5$	lbs/day	*		*	once/week	24 hr. comp.****
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/week	24 hr. comp.****
Total Suspended Solids	lbs/day	925		283	once/week	24 hr. comp.****
Total Suspended Solids	mg/L	*		*	once/week	24 hr. comp.****
pH – Units	SU	***		***	continuous	
Ammonia as N	lbs/day	399		122	once/week	grab
Ammonia as N	mg/L	*		*	once/week	grab
Nitrate as N	lbs/day	893		341	once/week	24 hr. comp.****
Oil and Grease	mg/L	15		10	once/week	grab
Sulfate	mg/L	*		*	once/month	grab
Aluminum, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Barium, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Iron, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Delta BHC	µg/L	*		*	once/quarter*****	grab
Total Residual Chlorine – Note 1	µg/L	17 (130 ML)		8 (130 ML)	once/month	grab

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

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	twice/year	24 hr. comp.*****

MONITORING REPORTS SHALL BE SUBMITTED JULY 28TH AND JANUARY 28TH; THE FIRST REPORT IS DUE JULY 28, 2014.

OUTFALL #001b	EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 5 of 17
		PERMIT NUMBER MO-0137243

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001b						
Flow (Effluent)	cfs	*			once/day	grab
Flow (Stream) (Note 2)	cfs	*			once/day	grab
Temperature (Stream) (Note 3 & 4)	°F	*			once/day	grab
Temperature (Effluent)	°F	*			once/day	grab
ΔT (Note 4)	°F	5°F		5°F	once/day	grab
T_{cap} (Note 5) (*Zone A)*	°F				once/day	grab
January		45		45		
February		45		45		
March		57		57		
April		68		68		
May		78		78		
June		86		86		
July		88		88		
August		88		88		
September		86		86		
October		75		75		
November		65		65		
December		52		52		
T_{max} (Note 5) (*Zone A*)	°F				once/day	grab
January		48		48		
February		48		48		
March		60		60		
April		71		71		
May		81		81		
June		89		89		
July		91		91		
August		91		91		
September		86		86		
October		78		78		
November		68		68		
December		55		55		

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

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002 – sample prior to comingling with any other discharge						
Flow	MGD	*		*	once/weekday	24 hr. estimate
Biochemical Oxygen Demand$_5$	lbs/day	15		5.6	once/week	24 hr. comp.***
Biochemical Oxygen Demand$_5$	mg/L	*		*	once/week	24 hr. comp.***
Total Suspended Solids	lbs/day	36.4		9.4	once/week	24 hr. comp.***
Total Suspended Solids	mg/L	*		*	once/week	24 hr. comp.***
pH – Units	SU	**		**	once/week	grab
Ammonia as N	mg/L	*		*	once/month	grab
Sulfate	mg/L	*		*	once/month	grab
Aluminum, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Barium, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Iron, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Delta BHC	µg/L	*		*	once/quarter*****	grab

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

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002- sample prior to comingling with any other discharge						
Organic Priority Pollutants, Total	lbs/day	*		*	once annually	grab
1,1,1-Trichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1,2-Trichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1-Dichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1-Dichloroethylene	lbs/day	0.003		0.002	once annually	grab
1,2,4-Trichlorobenzene	lbs/day	0.018		0.009	once annually	grab
1,2-Dichlorobenzene	lbs/day	0.02		0.01	once annually	grab
1,2-Dichloroethane	lbs/day	0.026		0.009	once annually	grab
1,2-Dichloropropane	lbs/day	0.029		0.019	once annually	grab
1,2-trans-Dichloroethylene	lbs/day	0.007		0.003	once annually	grab
1,3-Dichlorobenzene	lbs/day	0.006		0.004	once annually	grab
1,3-Dichloropropylene	lbs/day	0.006		0.004	once annually	grab
1,4-Dichlorobenzene	lbs/day	0.004		0.002	once annually	grab
2,4-Dichlorophenol	lbs/day	0.014		0.005	once annually	grab
2,4-Dimethylphenol	lbs/day	0.005		0.002	once annually	grab
2,4-Dinitrophenol	lbs/day	0.015		0.009	once annually	grab
2,4-Dinitrotoluene	lbs/day	0.036		0.014	once annually	grab
2,6-Dinitrotoluene	lbs/day	0.08		0.032	once annually	grab
2-Chlorophenol	lbs/day	0.012		0.004	once annually	grab
2-Nitrophenol	lbs/day	0.009		0.005	once annually	grab
3,4-Benzofluoranthene	lbs/day	0.008		0.003	once annually	grab
4,6-Dinitro-o-cresol	lbs/day	0.035		0.010	once annually	grab

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002 - sample prior to comingling with any other discharge						
4-Nitrophenol	lbs/day	0.016		0.009	once annually	grab
Acenaphthene	lbs/day	0.007		0.003	once annually	grab
Acenaphthylene	lbs/day	0.007		0.003	once annually	grab
Acrylonitrile	lbs/day	0.03		0.012	once annually	grab
Anthracene	lbs/day	0.007		0.003	once annually	grab
Benzene	lbs/day	0.017		0.005	once annually	grab
Benzo(a)anthracene	lbs/day	0.007		0.003	once annually	grab
Benzo(a)pyrene	lbs/day	0.008		0.003	once annually	grab
Benzo(k)fluoranthene	lbs/day	0.007		0.003	once annually	grab
Bis(2-ethylhexyl) phthalate	lbs/day	0.035		0.013	once annually	grab
Carbon Tetrachloride	lbs/day	0.005		0.002	once annually	grab
Chlorobenzene	lbs/day	0.004		0.002	once annually	grab
Chloroethane	lbs/day	0.034		0.013	once annually	grab
Chloroform	lbs/day	0.006		0.003	once annually	grab
Chrysene	lbs/day	0.007		0.003	once annually	grab
Diethyl phthalate	lbs/day	0.025		0.01	once annually	grab
Dimethyl phthalate	lbs/day	0.006		0.002	once annually	grab
Di-n-butyl phthalate	lbs/day	0.007		0.003	once annually	grab
Ethylbenzene	lbs/day	0.014		0.004	once annually	grab
Fluoranthene	lbs/day	0.009		0.003	once annually	grab
Fluorene	lbs/day	0.007		0.003	once annually	grab

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002- sample prior to comingling with any other discharge						
Hexachlorobenzene	lbs/day	0.004		0.002	once annually	grab
Hexachlorobutadiene	lbs/day	0.006		0.003	once annually	grab
Hexachloroethane	lbs/day	0.007		0.003	once annually	grab
Methyl Chloride	lbs/day	0.024		0.011	once annually	grab
Methylene Chloride	lbs/day	0.011		0.005	once annually	grab
Naphthalene	lbs/day	0.007		0.003	once annually	grab
Nitrobenzene	lbs/day	0.009		0.003	once annually	grab
Phenanthrene	lbs/day	0.007		0.003	once annually	grab
Phenol	lbs/day	0.003		0.002	once annually	grab
Pyrene	lbs/day	0.008		0.003	once annually	grab
Tetrachloroethylene	lbs/day	0.007		0.003	once annually	grab
Toluene	lbs/day	0.01		0.003	once annually	grab
Total Chromium	lbs/day	0.347		0.139	once annually	grab
Total Copper	lbs/day	0.423		0.181	once annually	grab
Total Cyanide	lbs/day	0.15		0.053	once annually	grab
Total Lead	lbs/day	0.086		0.04	once annually	grab
Total Nickel	lbs/day	0.498		0.211	once annually	grab
Total Zinc	lbs/day	0.327		0.131	once annually	grab
Trichloroethylene	lbs/day	0.007		0.003	once annually	grab
Vinyl Chloride	lbs/day	0.034		0.013	once annually	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003						
Flow	MGD	*			once/quarter	24 hr. estimate
Precipitation	Inches	*			once/quarter	measured
Chemical Oxygen Demand	mg/L	*			once/quarter	grab
Oil & Grease	mg/L	*			once/quarter	grab
pH – Units	SU	**			once/quarter	grab
Settleable Solids	mL/L/hr	*			once/quarter	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JULY 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 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. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes at outfall 001 in accordance with 40 CFR §401.17.
**** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
***** Sample once per quarter in the months of March, June, September, and December. See table below for quarterly sampling.

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

Note 1 - This permit contains a Total Residual Chlorine (TRC) limit.

This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. Do not chemically de-chlorinate **if it is not needed to meet the limits in your permit.** If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 µg/L" TRC.

Note 2: Stream flow. Stream flow is the daily flow of the receiving stream – intake flow.

Note 3: Temperature (Stream). It is recommended that if the Intake structure does not adequately provide a temperature of the receiving stream, then the facility should use the receiving stream's ambient temperature.

Note 4: $\Delta T = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e)] - Ts$

Where:
$Q_s/4$: is the daily receiving stream's mixing zone flow in cfs minus the Intake flow in cfs.
Q_e: is the effluent's flow in cfs.
T_s: is the stream's temperature (ambient/intake temperature).
T_e: is the effluent's temperature.
ΔT: is the amount in T°F that the facility is causing the receiving stream's temperature to rise at the end of the regulatory mixing zone.

Note 5: Temperature Cap is the temperature of the receiving stream at the end of the regulatory mixing zone (if applicable). It is designated with $[T_{cap}]$ in the equation below.

$$T_{cap} = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e))]$$

Where:
$Q_s/4$ = Daily receiving stream's flow divided by 4 (Mixing Consideration) in cfs minus the Intake flow in cfs.
T_s = Daily receiving stream's temperature. This can be the actual ambient temperature of the receiving stream or the intake water temperature (both in °F).
Q_e = Daily effluent flow or intake flow.
T_e = Daily effluent temperature in °F.

(a) If the T_{cap} calculated temperature value is less than the specific month's Daily Maximum or Monthly Average T_{cap}, the permittee is to report the calculated temperature value as T_{cap} and report a "No Discharge" for $T_{max.}$
(b) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit, but is below the T_{max} and there is time available in Percent Deviation Allowance (**see Note 7**); then the permittee is to report in accordance with **Note 6** below.
(c) If the Tcap calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit but is below the T_{max}, but there is no time available in Percent Deviation Allowance (**see Note 7**); then the permittee is to report the calculated temperature value as T_{cap} and report a "No Discharge" for T_{max}.
(d) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} and T_{max}; then the permittee is to report in accordance with **Note 6**.

Note 6: Temperature Maximum is the maximum that a facility can increase the temperature of the receiving stream by at the end of the regulatory mixing zone (if applicable. It is designated with the [T_{max}] in the equation below and is the T_{cap} monthly limit plus three (+3°F).

$T_{max} = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e))]$
Where:
$Q_s/4$ = Daily receiving stream's flow divided by 4 (Mixing Consideration) in cfs minus the Intake flow in cfs.
T_s = Daily receiving stream's temperature. This can be the actual ambient temperature of the receiving stream or the intake water temperature (both in °F).
Q_e = Daily effluent flow or intake flow.
T_e = Daily effluent temperature in °F.

(a) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit, but is below the T_{max} and there is time available in Percent Deviation Allowance (**see Note 6**); then the permittee is to report the calculated temperature value as T_{max} and report a "No Discharge" for $T_{cap.}$
(b) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} and T_{max}; then the permittee is to report the calculated temperature value as T_{max} and report a "No Discharge" for $T_{cap.}$

Note 7 – Missouri's Water Quality Standards allows permittees to exceed their applicable criteria for 1% of the year in Zone A in the Mississippi River. Percent Deviation Allowance shall be tracked in hours per year (please see **Special Condition 17 – Percent Deviation Allowance**).

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I and III standard conditions dated August 1, 2014 and March 1, 2014, 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.

C. SPECIAL CONDITIONS (continued)

3. 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.

(c) That the effluent limit established in part A of the permit will be exceeded.

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

5. Organic Priority Pollutants
Instead of monitoring, compliance with the limitations for any of the priority pollutants may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge of Outfall #002 by the analytical methods in 40 CFR Part 136.

6. Flow measurements during flood events
When the Mississippi River exceeds flood stage and flow measurement at the primary measuring device for outfall 001 is precluded due to flooding, the permittee shall make an acceptable estimate based on flow measurements taken at outfalls 002 and 008 (Dyno Nobel outfall) and analysis of a quantifiable parameter. The Permittee shall maintain record of estimates and the calculation work sheet

7. 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.

8. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 30 days and implemented within 90 days of permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The SWPPP must be reviewed and updated, if needed, every five (5) years or as site conditions change. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

C. SPECIAL CONDITIONS (continued)

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

(a) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water.
(b) The SWPPP must include a schedule for monthly site inspections and brief written reports. The inspections must include observation and evaluation of BMP effectiveness. Deficiencies must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report, including photographs. Any corrective measure that necessitates major construction may also need a construction permit. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to DNR personnel upon request.
(c) A provision for designating an individual to be responsible for environmental matters.
(d) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.
(e) For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. Failure to implement and maintain the chosen BMP is a permit violation. For further guidance, consult the antidegradation implementation procedure at http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf .

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

(a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
(b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
(c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
(d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
(e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.

10. The purpose of the SWPPP and the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.

11. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

12. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. When the presence of hydrocarbons is indicated, this water must be tested for Total Petroleum Hydrocarbons (TPH). The suggested analytical method for testing TPH is non-Halogenated Organic by Gas Chromatography method 8015 (also known as OA1 and OA2). However, if the permittee so desires to use other approved testing methods (i.e. EPA 1664), they may do so. If the concentration for TPH exceeds 10 mg/L, the water shall be treated on site before discharging, or taken to a wastewater treatment facility for treatment.

13. Substances, regulated by federal law under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), that are transported, stored, or used for maintenance, cleaning or repair, shall be managed according to RCRA and CERCLA.

14. The discharge of any pollutant not documented in the application for this permit is prohibited. This includes any chemical, biological material, radiological material, or any other material that may effect the ability of the receiving stream to fully support its beneficial and designated uses.

15. Percent Deviation Allowance
Site-specific temperature criteria for the thermal discharges to the Mississippi River allow the permittee to exceed their applicable temperature criteria for 1% of the year for Zone A. This facility discharges to Zone A of the Mississippi River. Therefore, the permittee is authorized to exceed their Temperature Cap effluent limitation for 88 hours in one (1) calendar year. However, the permittee is not authorized to exceed their Temperature Max limitation at any time.

(1) The permittee shall document the time in hours to the nearest minute that their calculated temperature values exceeded a specific month's Daily Maximum T_{cap} effluent limit. This time is to be subtracted from 88 hours to the nearest minute.
(2) The permittee shall submit an annual report on January 28th of each year that includes the number of hours that the facility exceeded their Temperature Cap effluent limits for each month during the previous calendar year.
(3) If the permittee exceeds their maximum allowed Percent Deviation Allowance of 88 hours prior to the end of the calendar year, then the permittee shall submit a Maximum Percent Deviation Exceeded Report to the Northeast Regional Office within 15 days of notice.
(4) Percent Deviation Allowance is not applicable to the permit parameter of Temperature Maximum

16. All spills must be cleaned up within 24 hours or as soon as possible, and a written report of the incident supplied with the facility's Storm Water Sampling Report. The following spills must be reported to the Department at the earliest practicable moment, but no greater than 24 hours after the spill occurs:
(a) Any spill, of any material, that leaves the property of the facility;
(b) Any spill, of any material outside of secondary containment and exposed to precipitation, greater than 25 gallons or equivalent volume of solid material.

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

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

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001a	100%	once/permit cycle in the 1st year	grab	Any

Dilution Series Outfall 001a						
100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	Dates
001b	10 %	Semi-Annual	24 hr. composite****	May 15th and December 15th

Dilution Series Outfall 001b							
AEC%= 10%	40% effluent	20% effluent	10% effluent	5% effluent	2.5% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.

(iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(5) Follow-up tests do not negate an initial failed test.

(6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the Department on a case by case basis.

(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

(4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.

(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

(9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF A MODIFIED PERMIT
MO-0137243
CALUMET MISSOURI, LLC

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

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

This Factsheet is for an Industrial Facility.

Part I FACILITY INFORMATION

Facility Type: Manufacturer of Synthetic Lubricants
Facility SIC Code(s): #2869

Facility Description:
This facility manufactures aviation and refrigeration synthetic lubricants.

Outfall #001a: Steam condensate and stormwater from majority of the site.

Outfall #001b: Commingled Outfall #002 discharge and Dyno Nobel discharge.

Outfall #002: Internal monitoring point for onsite wastewater treatment facility treating process wastewater and contaminated secondary containment water.

Outfall #003: New stormwater outfall for southern portions of the site.

Part II MODIFICATION RATIONALE

This operating permit is hereby modified to reflect several changes that have occurred at the facility, which results in modified waste streams to Outfall #001a and Outfall #002, and the addition of a new stormwater outfall discharging to the south of the property, labeled Outfall #003 in this permit. The discussion below provides a more detailed description of the changes for each outfall.

Outfall #001a – The permittee noted that a stormwater ditch will be constructed through the center on the property, running west to east. This new stormwater ditch will capture stormwater runoff from the surrounding property and will prevent pooling of that stormwater in the center of the property. Stormwater runoff will be conveyed to Outfall #001a, which may result in increased flow through that outfall during precipitation events. The following sources of potential stormwater contamination will be considered in determining appropriate effluent limitations and monitoring requirements to include in the permit for this outfall: materials handling and storage, including metal, dumpsters, wooden pallets, etc.; secondary containment water from product tank and fatty acid tank area; and a product and fatty acid loading and unloading area. Warehousing and other indoor activity occurs throughout the property. The cooling tower bleed from the onsite cooling towers has been piped to the facilities onsite wastewater treatment facility discharging through internal monitoring Outfall #002, eventually through Outfall #001b and no longer discharges through Outfall #001a. All specific conditions related to the cooling tower bleed have been removed from the permit as the source of the contaminant is no longer present at the outfall.

WET testing remains in the permit for this outfall so that this can be properly assessed during the permit renewal. This modification has no bearing on the WET test frequencies and types. Additionally, the WET test already occurred for this permit cycle. The permit renewal process will evaluate continued WET testing requirements and backsliding.

Outfall #001b – The permittee noted that cooling tower bleed is now piped to the wastewater treatment facility for treatment prior to discharge. For this reason, Total Residual Chlorine limits will be added to this outfall. Magnesium Chloride is a component of the cooling tower biocide that the facility uses. This component breaks down into magnesium and chlorine.

Outfall #002 – The permittee requested a revision to the average flow for process wastewater being discharged from this outfall. The permit now reflects increase in flows from 15,000gpd to 20,000gpd. Since this is average actual flow and not design flow, an Anti-degradation Review is not required.

Outfall #003 – The permittee noted that piping and rerouting of stormwater on different parts of the property from those draining to Outfall #001a will now be used to convey stormwater to a discharge point on the south part of the property. The following sources of potential stormwater contamination will be considered in determining appropriate effluent limitations and monitoring requirements to include in the permit for this outfall: materials handling and storage, including metal, cables, concrete forms, railroad ties, etc.; secondary containment water from powder and fatty acids storage tank area; and, secondary containment water from product tank and fatty acid tank area. The product and fatty acid loading and unloading area is under roof. Warehousing and other indoor activity occurs throughout the property.

Stormwater Pollution Prevention Plan (SWPPP) language has been updated to the current permitting requirements. This will provide sufficient and adequate protection of water quality and will meet the requirements of the Department's Antidegradation Policy for new stormwater discharges.

No other changes were made at this time.

The following sections contain specific discussion of effluent limitations and monitoring requirements associated with the revised waste stream at Outfalls #001a and #001b and the new waste stream at Outfall #003. The originally issued permit factsheet is attached for justification of effluent limitations and conditions not altered or revised by the permit modification.

Part III RATIONALE AND DERIVATION OF EFFLUENT LIMITATIONS & PERMIT CONDITIONS

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

- ✓ Limitations in this operating permit for the reissuance conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
- ✓ Material and substantial alterations or additions to the permitted facility occurred after permit issuance justify the application of a less stringent effluent limitation.
    - Effluent limitations for Total Residual Chlorine at Outfall #001a have been removed from the permit. Cooling tower bleed is now connected to the onsite wastewater treatment facility discharging through Outfall #002, eventually through Outfall #001b and is no longer discharged through Outfall #001a. The previous permit contained effluent limitations for Total Residual Chlorine because chlorine is commonly used as a biocide in cooling towers. Since the permittee altered the operations of the facility, and the source of the pollutant no longer discharges through Outfall #001a, it is no longer necessary to maintain effluent limitations or monitoring requirements for that pollutant. The material and substantial alterations to the plumbing and piping associated with the cooling tower bleed justifies removal of Total Residual Chlorine limits from Outfall #001a. The permit writer added effluent limitations for Total Residual Chlorine at Outfall #001b, to account for the modified waste stream being treated and discharged through that outfall.

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

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

For stormwater discharges with new, altered, or expanding discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

- ✓ Applicable; the facility must review and maintain stormwater BMPs as appropriate. The new stormwater discharge will be accounted for in the facilities SWPPP. The Department's Antidegradation Implementation Policy (AIP) sets forth procedures for evaluating stormwater discharges that are different and separate from the continuously flowing process wastewater discharge. The AIP requires stormwater dischargers to evaluate and establish best management practices that will mitigate pollutant runoff and ultimately protect water quality. Since precipitation events are highly variable, the permittee must maintain an adaptive management approach to ensure best management practices function properly. For this reason, permit language has been revised to include a requirement to evaluate reasonable and effective best management practices and to document that review within the SWPPP.

Part IV EFFLUENT LIMITS DETERMINATION

The following discussion was included to maintain formatting consistency with the previous permit and other permits issued in the state of Missouri. The discussion only includes those effluent limitations or monitoring requirements that are being revised, removed or added as a result of this modification. For derivations of all other effluent limitations and monitoring requirements, please see the originally issued permit factsheet attached to this modified permit.

OUTFALL #001a – STEAM CONDENSATE AND STORMWATER

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

EFFLUENT LIMITATIONS TABLE:

PARAMETERS OUTFALL #001a	UNIT	BASIS FOR LIMITS	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
CONVENTIONAL								
CHLORINE, TOTAL RESIDUAL	µg/L	6	REMOVED		17/8	ONCE/MONTH	ONCE/MONTH	GRAB

* - Monitoring requirement only
ǂ The facility will report the minimum and maximum pH values; pH is not to be averaged.
NEW - Parameter not previously established in previous state operating permit.
REMOVED - Parameter no longer required to be monitored in the discharge.

Basis for Limitations Codes:

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

CONVENTIONAL:

Chlorine, Total Residual

Parameter removed from permit. The permittee indicated that the cooling tower bleed is now connected directly to the onsite wastewater treatment facility, which treats wastewater prior to being discharged through Outfall #002. The originally issued permit included this parameter because chlorine is commonly used as a biocide in cooling towers. Since the wastewater is no longer discharged, and the source of the pollutant no longer exists for this outfall, the permit writer used best professional judgment to remove this parameter from the permit.

OUTFALL #001b – PROCESS WASTEWATER

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

EFFLUENT LIMITATIONS TABLE:

PARAMETERS OUTFALL #001a	UNIT	BASIS FOR LIMITS	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
CONVENTIONAL								
CHLORINE, TOTAL RESIDUAL	µg/L	6	17	8	NEW	ONCE/MONTH	ONCE/MONTH	GRAB

* - Monitoring requirement only
ǂ The facility will report the minimum and maximum pH values; pH is not to be averaged.
NEW - Parameter not previously established in previous state operating permit.
REMOVED - Parameter no longer required to be monitored in the discharge.

Basis for Limitations Codes:

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

CONVENTIONAL:

Chlorine, Total Residual (TRC)

Daily maximum limit of 17 µg/L and monthly average limit of 8 µg/L. The permittee indicated that the cooling tower bleed is now connected directly to the onsite wastewater treatment facility, which treats wastewater prior to being discharged through Outfall #002, and eventually through Outfall #001b prior to leaving the property. The originally issued permit included this parameter because chlorine is commonly used as a biocide in cooling towers. It is the permit writer's best professional judgement to include effluent limitations for this parameter in the same manner it was applied to Outfall #001a in the originally issued permit. The originally issued permit did not grant mixing allowances for discharges to the Mississippi River. All water quality-based limits must be met at the end-of-pipe.

Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background = 0 µg/L.

Acute WLA:	$C_e = ((0.87 + 0.0)19 – (0.0 * 0.0))/0.87$	$C_e = 19$ µg/L
Chronic WLA:	$C_e = ((0.87 + 0.0)10 – (0.0 * 0.0))/0.87$	$C_e = 10$ µg/L
LTA_a =	19 (0.321) = 6.1 µg/L	[CV = 0.6, 99th Percentile]
LTA_c =	10 (0.527) = **5.3** µg/L	[CV = 0.6, 99th Percentile]
Use most protective number of LTA_a or LTA_c.		
MDL =	5.3 (3.11) = 16.5 µg/L	[CV = 0.6, 99th Percentile]
AML =	5.3 (1.55) = 8.2 µg/L	[CV = 0.6, 95th Percentile, n = 4]

Total residual chlorine effluent limits of 17 µg/L daily maximum and 8 µg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), is described in the permit.

OUTFALL #003 – STORMWATER

Effluent limitations derived and established in the below effluent limitations table are based on current operations of the facility. Effluent means both process water and stormwater. Any flow through the outfall is considered a discharge and must be sampled and reported as provided below. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETERS OUTFALL #003	UNIT	BASIS FOR LIMITS	DAILY MAX	BENCH-MARK	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*	-	NEW	ONCE/QUARTER	ONCE/QUARTER	24 HR. TOT
PRECIPITATION	INCHES	6	*	-	NEW	ONCE/QUARTER	ONCE/QUARTER	MEASURED
CONVENTIONAL								
CHEMICAL OXYGEN DEMAND	µg/L	6	*	-	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB
OIL & GREASE	MG/L	6	*	-	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB
pH ǂ	SU	1, 3	6.5 TO 9.0	-	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB
SETTLEABLE SOLIDS	ML/L/HR	6	*	-	NEW	ONCE/QUARTER	ONCE/QUARTER	GRAB

* - Monitoring requirement only
ǂ The facility will report the minimum and maximum pH values; pH is not to be averaged.
NEW - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

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

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD).

Precipitation

Monitoring only requirement; measuring the amount of precipitation [(10 CSR 20-6.200(2)(C)1.E(VI)] during an event is necessary to ensure adequate stormwater management exists at the site. Knowing the amount of potential stormwater runoff can provide the permittee a better understanding of specific control measure that should be employed to ensure protection of water quality. The facility will provide the 24 hour accumulation value of precipitation from the day of sampling the other parameters. It is not necessary to report all days of precipitation during the quarter because of the readily available on-line data.

CONVENTIONAL:

Chemical Oxygen Demand (COD)

Monitoring is included using the permit writer's best professional judgment. There is no water quality standard for COD; however, increased oxygen demand may impact instream water quality. COD is also a valuable indicator parameter. The permittee conducts materials handling and storage activities in the drainage areas to this outfall. These materials include metal parts, cables, concrete forms and railroad ties. The drainage area also has secondary containment areas for product storage tanks. The permittee indicated that uncontaminated secondary containment water is discharged through this outfall. COD monitoring allows the permittee to identify increases in COD that may indicate materials/chemicals coming into contact with stormwater that cause an increase in oxygen demand. Increases in COD may indicate a need for maintenance or improvement of BMPs. This will also indicate the need to monitor for more specific pollutants of concern or add specific effluent limitations to protect water quality against certain pollutants. This will be evaluated during the following permit renewal.

Oil & Grease
Monitoring is included using the permit writer's best professional judgment. This is a conventional pollutant, in accordance with 10 CSR 20-7.031 Table A: *Criteria for Designated Uses*; 10 mg/L monthly average (chronic standard). This is also an indicator of compliance with narrative criteria, which prohibits the discharge of sheen. The drainage area also has secondary containment areas for product storage tanks. The permittee indicated that uncontaminated secondary containment water is discharged through this outfall. These storage tanks contain organic products and fatty acids that may contribute to sheen on the surface of stormwater or the receiving stream. Monitoring will allow the permittee to determine compliance with narrative criteria and adjust BMPs appropriately to prevent product from being discharged during precipitation events.

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

Settleable Solids (SS)
There is no water quality standard for SS; however, sediment discharges can negatively impact aquatic life habitat. Settleable solids are also a valuable indicator parameter. The permittee conducts materials handling and storage activities in the drainage areas to this outfall. These materials include metal parts, cables, concrete forms and railroad ties. Additionally, the roadways throughout the property are unconsolidated soil. Heavy traffic can contribute to significant disturbance of the soil, causing erosion or soil runoff during precipitation events. This can contribute to discharges of any materials or products spills on or within the soil during precipitation events. Solids monitoring allows the permittee to identify increases in sediment and solids that may indicate uncontrolled materials leaving the site. This will also indicate the need to monitor for more specific pollutants of concern or add specific effluent limitations to protect water quality against certain pollutants. This will be evaluated during the following permit renewal.

Part V SAMPLING AND REPORTING REQUIREMENTS:

Refer to each outfall's derivation and discussion of limits section to review individual sampling and reporting frequencies and sampling type.

ELECTRONIC DISCHARGE MONITORING REPORTING:
Due to upcoming federal regulations, all facilities will need to begin submitting their discharge monitoring reports electronically, called the eDMR system. To begin the process, please visit http://dnr.mo.gov/env/wpp/edmr.htm. This process is expected to save time, lessen paperwork, and reduce operating costs for both the facilities and the water protection program. Additional information may also be found at http://dnr.mo.gov/pubs/pub2474.pdf.

SAMPLING FREQUENCY JUSTIFICATION:
Sampling and reporting frequencies for Outfall #001a were retained from the originally issued permit. These frequencies will be re-assessed during the permit renewal. Sampling and reporting frequencies for Outfall #003 were set at quarterly, which is consistent with other stormwater permits issued in the state of Missouri.

SAMPLING TYPE JUSTIFICATION:
Sampling types for Outfall #001a were retained from the originally issued permit. The sampling types are representative of the discharges, and are protective of water quality. Sampling types for Outfall #003 are set at grabs for all parameters but flow and precipitation. Grab samples are usually appropriate for stormwater. Flow and precipitation shall be estimates and measurements, respectively.

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.

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

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ - The Public Notice period for this operating permit began on August 19, 2016 and ended on September 19, 2016. No comments were received during the Public Notice period.

DATE OF STATEMENT OF BASIS: JULY 14, 2016

COMPLETED BY:

LOGAN COLE, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 751-5827
logan.cole@dnr.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF A MODIFIED PERMIT
OF
MO-0137243
CALUMET MISSOURI LLC

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

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

This Factsheet is for an Industrial Facility.

September 2014 Internal Modification (correction)

In April 2014, this permit was modified to reflect the fact that Hercules had ceased all production at this location. Reduced production resulted in reduced technology based effluent limits at the shared outfall to the Mississippi. This changed required Dyno Nobel to request a modification to ensure that the production based limits are based on current operations. During the modification of Dyno Nobel, LOMO (MO-0105783) the department found that TSS limits were calculated incorrectly for the Dyno Nobel contribution to the shared outfall. This internal modification is being issued to correct errors contained in MO-01005783, issued October 2011 that were incorporated into this permit. See MO-0105783 for calculations.

	Daily Maximum		Monthly Average	
Parameter	April 2014 Permit	Modified Permit	April 2014 Permit	Modified Permit
Total Suspended Solids (pounds per day)	250	925	223	283

Closure of Hercules' facilities is complete at the time of this modification; therefore, those flows were removed from the facility description at Outfall 001b.

April 2014 Permit and Fact Sheet Modification

This modification transfers Hercules, Inc. extended aeration plant (formerly Outfall 006) to Calumet as 002. Calumet's outfall 002 will receive a maximum flow of 15,000 gpd of synthetic lubricant process wastewater and stormwater runoff that is dependent upon precipitation. Wastewater flows to this outfall for other products has discontinued allowing the removal of ammonia and nitrogen limits that were previously required in accordance with 40 CFR 418 – Fertilizer Manufacturing. Monitoring is retained for ammonia, Delta BHC, sulfate, aluminum, barium and iron to determine whether these pollutants are still present in concentrations that have the potential to exceed water quality standards.

The facility description was revised to reflect that ongoing discharges from 006 will be comingled with the discharge to the Mississippi River. Hercules anticipates closing the Powerhouse ash lagoon, Pentaerythritol Lake and BOD lagoon in 2014. Hercules has established an additional internal monitoring location for Hercules' 006 to determine internal compliance with effluent limits found in MO-0000311.

Part I – Facility Information

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

☒ - Yes. Hercules ceased production flows to the shared outfall.

Application Date: October 23, 2012
Expiration Date: new permit

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001a	varies w/precipitation	BMPs	Stormwater/condensate/ cooling tower bleed	0.2
001b	5.58	Primary	Process Wastewater	0.0
002	0.87	Primary	Process Wastewater	0.0

Receiving Water Body's Water Quality & Facility Performance History:
There are no stream surveys for this facility. This outfall has drainage from a tank farm that stores oils, synthetic lubricants, fatty acids, gasoline, and diesel.

Comments:

This outfall formerly belonged to Ashland Chemical, Inc. under permit number MO-0000311. Calumet has bought this portion of the company and is permitting Ashland's old outfall 005 under Calumet's name. Since this is a new permit this outfall will be renamed outfall 001. The applicant also included locational data for a new outfall called 008. This outfall characterizes the water that used to flow into the ponds owned by Ashland chemical. This water is now being diverted so the ponds can dry up. The stormwater that drains to outfall 008 does not come into contact with any on site contaminants; either past or present so therefore monitoring will not be required for outfall 008. Furthermore, since this is a new permit and outfall 008 has never been used, it will not be included in the permit.

Part II – Receiving Stream Information

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:

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC
Buffalo Creek	P	14	AQL, LWW, WBC (B)	07110004-0702
Mississippi River	P	3699	LWW, AQL, DWS, IND, WBC(A)***	07110004

* - 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).

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Buffalo Creek (P)	0.1	0.1	1.0
Mississippi River (P)	18,900	22,449	26,009

MIXING CONSIDERATIONS:
Mixing Zone and zone of initial dilution were not used in calculating permit limits for this facility, production based and water quality based limits must be met at the end of the pipe.

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.

☒ - All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

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

☒ - No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance

Not Applicable ☒; The permittee/facility is not currently under Water Protection Program enforcement action.

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

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

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

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 an 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.

Applicable ☒; At this time, the permittee is required to develop and implement a SWPPP.

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

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.
Not Applicable ☒; Wasteload allocations were not calculated.
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:
Applicable ☒; Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc…); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

☒ Other – This is a new permit. A WET test is being required during the first year of the permit to evaluate the effectiveness of the facility's stormwater BMPs.

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

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

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

1) Overview of Permit Requirements

   When developing effluent limits for a NPDES permit, the department considers limits based on both the technology available to treat the pollutants (technology based effluent limits) and limits that are protective of the designated use of the receiving water (water quality based effluent limits). Technology based effluent limits for industrial facilities, such as Hercules Inc., are derived from effluent guidelines. The intent of effluent guidelines is to require a minimum level of treatment for industrial point sources based on currently available treatment technology. Water quality based effluent limits are developed by the State of Missouri to protect the beneficial uses of the receiving waters, such as Mississippi River.

2) Technology Based Effluent Limits

   Effluent guidelines are national regulations that control the discharge of pollutants to surface waters and to publicly owned treatment works (POTWs). Effluent guidelines are specific to an industry. Hercules Incorporated is covered by several effluent guidelines, 40 CFR part 414. Extended aeration is used to treat process wastewater.

3) Water Quality Based Effluent Limits

   Water quality monitoring and limitations are included in the permit to protect the receiving stream from the discharge of toxic substances in toxic amounts.

4) Production Process Flow Estimation

   The facility's modification application indicated a maximum of 15,000 gpd process wastewater flows to outfall 002 (formerly Hercules 006).

5) Best Professional Judgment limit definition

   The stormwater is commingled with the industrial wastewater discharged by the facility. An allotment for storm water needed to be given for TSS. Based on information submitted by the facility, the average storm water flow used to determine the BPJ limit is 75 gpm or 0.108 MGD. The maximum flow used to determine the BPJ limit is 300 gpm or 0.432 MGD. The concentration used to derive the storm water allotment is 50 mg/L.

6) Outfall 00b1 Basis for Monitoring and Limitations

   Effluent from the Calumet outfalls is discharged to the Mississippi River and Buffalo Creek after being treated by a lagoon wastewater treatment system, or extended aeration. The treatment facility is operated and maintained to meet the water quality requirements of the Clean Water Act. The basis for the permit monitoring requirements and limitations are specified below.

OUTFALL #001A – 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.

- **Settleable Solids.** Effluent limit carried over from previous permit. DMR data for the previous 5 years shows the facility is capable of meeting these limits.

- **pH**. 7.015 (9) (G) 1.

- **Total Ammonia Nitrogen.** Monitoring was removed from this permit because a review of the last 5 years of DMR data showed non-detects for ammonia.

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

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L. Chlorine is a commonly used biocide in cooling towers.

  Chronic WLA: $C_e = ((0.0155 + 0.0)10 – (0.0 * 0.0))/0.0155$
  $C_e = 10$ µg/L

  Acute WLA: $C_e = ((0.0155 + 0.0)19 – (0.0 * 0.0))/0.0155$
  $C_e = 19$ µg/L

  $LTA_c = 10\ (0.527) = 5.3$ µg/L [CV = 0.6, 99th Percentile]
  $LTA_a = 19\ (0.321) = 6.1$ µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 5.3 (3.11) = **17** µg/L [CV = 0.6, 99th Percentile]
  AML = 5.3 (1.55) = **8** µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Copper, Total Recoverable.** Copper monitoring is being required because the facility discharges steam condensate. Condensate has a high capacity to dissolve metals into solution, in particular copper from the pipes used to carry the condensate.

OUTFALL #001B- Combined outfall consisting of Calumet Outfall #002, Dyno Nobel Outfall #001 and Ashland #006
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	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	9	*		*	NO	*
BOD_5	MG/L	1	*		*	YES	****
BOD_5	LBS/DAY	1	*		*	NO	*
TSS	MG/L	1	*		*	YES	****
TSS	LBS/DAY	1	925		283	NO	1,096/345
PH	SU	1	6.5-9.0		6.5-9.0	YES	6.0-9.0
AMMONIA	MG/L	9	*		*	YES	****
AMMONIA	LBS/DAY	9	399		122	YES	447/148
OIL & GREASE (MG/L)	MG/L	1	15		10	YES	20/15
T_{cap} (*Zone A)*							
January	ºF	1	45		45	YES	100
February			45		45		
March			57		57		
April			68		68		
May			78		78		
June			86		86		
July			88		88		
August			88		88		
September			86		86		
October			75		75		
November			65		65		
December			52		52		
T_{max} (*Zone A*)							
January	ºF	1	48		48	YES	100
February			48		48		
March			60		60		
April			71		71		
May			81		81		
June			89		89		
July			91		91		
August			91		91		
September			86		86		
October			78		78		
November			68		68		
December			55		55		
NITRATE (N)	lbs/day	1	893		341	YES	901/343
Delta BHC	µg/L	1	*		*	YES	****
SULFATE	mg/L	1	*		*	YES	****
ALUMINUM, TOTAL RECOVERABLE	µg/L	1	*		*	YES	****
BARIUM, TOTAL RECOVERABLE	µg/L	1	*		*	YES	****
IRON, TOTAL RECOVERABLE	µg/L	1	*		*	YES	****
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.			NO	PASS/FAIL

* - Monitoring requirement only.
*** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.
**** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

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

OUTFALL #001B – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5).** BOD monitoring has been retained from the previous permit. Since Outfall 002 discharges via Outfall 001, BOD limitation established in this permit for Outfall 002 are sufficient to justify a monitoring only requirement for BOD at Outfall 001.

- **Total Suspended Solids (TSS).** The Total Suspended Solids (TSS) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 414, subpart H and best professional judgment (BPJ). For the production of Synlubes the Daily Maximum limit is 183 milligrams per liter times the process flow. For the production of Synlubes the Monthly Average limit is 57 milligrams per liter times the process flow. The limits for TSS are calculated as follows:

  Technology Based

  Permit Limit = (Guideline limit)*(Process Flow MGD) *8.34

  Synlubes-

  30 day average = (57 mg/L)*(0.015 MGD) *8.34= 7.13 lbs

  Daily Maximum = (183 mg/L)*(0.015 MGD)*8.34= 22.9 lbs

  BPJ

  Stormwater

  30 day average = (30 mg/L)*(0.009 MGD)*(8.34) = 2.25 lbs
  Daily Maximum = (45 mg/L)*(0.036 MGD)*(8.34) = 13.5 lbs

  Dyno Nobel Contribution

  30 day average = 902.18 lbs

  Daily Maximum = 276.11 lbs

  Total

  30 day average = 283 lbs

  Daily Maximum = 925 lbs

  This permit modification removes TSS allowances for pentaerythritol, sodium formate and formaldehyde production as well as discharges from the power house ash lagoon and coal pile runoff. This was done because the Hercules facility has ceased production and power generation.

- **pH**. The hydrogen ion concentration of the effluent discharge is expressed as pH. A pH range of 6.5 to 9.0 S.U. has been included in the permit to ensure water quality protection for aquatic life in the receiving waters, according to the regulations set forth in MDNR Title 10. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes.
- **Ammonia.** A reasonable potential analysis was performed for ammonia at outfall 001b (see appendix 4) which stated that the potential to exceed Missouri's water quality standard does not exist therefore, the ammonia monitoring and limitations are continued in the permit based on best professional judgment (BPJ) using the effluent guidelines set forth in 40 CFR part 418, subpart C as rational. The limits for ammonia are calculated as follows:

  Permit Limit = (Guideline limit)*(production) *(2000 lbs/ton)*(0.847)

  This permit modification removes ammonia allowances that were associated with Hercules' use of nitroform in the production of ureaform fertilizers. This activity no longer occurs on-site.

Dyno Nobel Contribution

57 % Nitric Acid -

30 day average = (0.008 lbs)/(1000 lbs)*(1000 tons) *(2000 lbs/ton)= 16 lbs
Daily Maximum = (0.08 lbs)/(1000 lbs)*(1000 tons) *(2000 lbs/ton)= 160 lbs

67% & 83% Nitric Acid

30 day average = (0.008 lbs)/(1000 lbs)*(81 tons) *(2000 lbs/ton)= 1.3 lbs
Daily Maximum = (0.08 lbs)/(1000 lbs)*(81 tons) *(2000 lbs/ton)= 13.0 lbs

98% Nitric Acid

30 day average = (0.008 lbs)/(1000 lbs)*(90 tons) *(2000 lbs/ton)= 1.44 lbs
Daily Maximum = (0.08 lbs)/(1000 lbs)*(90 tons) *(2000 lbs/ton)= 14.4 lbs

Ammonia Nitrate-Prill

30 day average = (0.04 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 76.8 lbs
Daily Maximum = (0.08 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 153.6 lbs

BPJ
Intake Credit

30 day average = (0.27 mg/L)*(l.4 MGD)*(8.34)= 3.2 lbs
Daily Maximum = = (0.4 mg/L)*(l.4 MGD)*(8.34)= 4.7 lbs

Cooling Tower Blowdown (continued from previous permit)

30 day average = 17.9 Ibs
Daily Maximum = 43.5 lbs

Shipping Losses (continued from the previous permit)

30 day average =5.5 lbs
Daily Maximum = 8.25 lbs

Stormwater

Daily Maximum =(3.75 mg/L)*(0.03 MGD)*(8.34)= 1 lbs

Total

30 day average = 122 lbs

Daily Maximum = 399 lbs

Monitoring requirements and limitations for ammonia are listed in Table A in the Permit.

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

- **Temperature.** Limitation established to insure compliance with 10 CSR 20-7.031(4)(D).

- **Nitrate.** Outfall 001 is shared with Dyno Nobel. The products produced by Dyno Nobel are covered under effluent guideline 418, Subpart D and E. Permit limits for Nitrate are in Hercules Incorporated's NPDES because of this shared outfall situation. See the fact sheet and NPDES permit for Dyno Nobel, MO0105783. The nitrate monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 418, subpart D and E and BPJ. The limits for nitrate are calculated as follows:

  Technology Based
  Permit Limit = (Guideline limit)*(Production) *(2000 lbs/ton)

  57 % Nitric Acid -

  30 day average = (0.023 lbs)/(1000 lbs)*(1000 tons) *(2000 lbs/ton)= 46.0 lbs
  Daily Maximum = (0.17 lbs)/(1000 lbs)*(1000 tons) *(2000 lbs/ton)= 340 lbs

  67% & 83% Nitric Acid

  30 day average = (0.023 lbs)/(1000 lbs)*(81 tons) *(2000 lbs/ton)= 3.7 lbs
  Daily Maximum = (0.17 lbs)/(1000 lbs)*(81 tons) *(2000 lbs/ton)= 27.5 lbs

  98% Nitric Acid

  30 day average = (0.023 lbs)/(1000 lbs)*(90 tons) *(2000 lbs/ton)= 4.1 lbs
  Daily Maximum = (0.17 lbs)/(1000 lbs)*(90 tons) *(2000 lbs/ton)= 30.6 lbs

Ammonia Nitrate-Prill
30 day average = (0.07 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 134.4 lbs
Daily Maximum = (0.12 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 230.4 lbs
BPJ
Cool/Boiler blow down (limits continued from pervious permit)
30 day average = (1025 mg/L)*(0.0124 MGD)*8.34= 106 lbs
Daily Maximum = (1625 mg/L)*(0.0124 MGD)*8.34= 168 lbs
Intake Credit
30 day average = (2 mg/L)*(1.4 MGD)*(8.34) = 23.4 lbs
Daily Maximum = (3 mg/L)*(1.4 MGD)*(8.34) = 35.2 lbs
Shipping Losses (continued from the previous permit)
30 day average =5.5 lbs
Daily Maximum = 8.25 lbs
BOD Clarifier (limits continued from previous permit)
30 day average = 8.0 lbs
Daily Maximum = 13.0 lbs
Stormwater
30 day average = (160 mg/L)*(0.0075 MGD)*(8.34) = 10 lbs
Daily Maximum = (160 mg/L)*(0.03 MGD)*(8.34) = 40 lbs
Total at 001
30 day average = 341 lbs
Daily Maximum = 893 lbs

Monitoring requirements and limitations for Nitrate are listed in Table A in the Permit.

- **WET Test**. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.

☒ Acute

☒ No less than **TWICE/YEAR:**
- ☒ Facility is subject to production processes alterations throughout the year.
- ☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☐ Facility has been granted seasonal relief of numeric limitations.

Classified P with Mixing Considerations, the AEC% is determined as follows:.

5.6 / (561 + 5.6) =0.01 = 1.0 %, so 10% default AEC applies.

- **Delta BHC** Expanded effluent testing required during the renewal application process of this permit indicates the presences of Delta BHC. The testing indicated a concentration of 0.3 µg/L. The Missouri Water Quality standard for Delta BHC discharged in waters classified for Human Health Protection – Fish Consumption is 0.0074 µg/L. The Mississippi River for which Outfall 001 discharges has the Drinking Water Supply stream classification. Given that this criterion is Chronic and taking into consideration the mixing zone flow of the Mississippi, a monitoring only requirement is applicable to evaluate this pollutant over the next five years.

- **Sulfate.** Expanded effluent testing required during the renewal application process of this permit indicates the presence of sulfate. The testing indicated a concentration of 160 mg/L. The Missouri Water Quality standard for sulfate discharged waters classified for Drinking Water Supply is 250 mg/L. The Mississippi River for which Outfall 001 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Sulfate.

- **Aluminum, Total Recoverable.** Expanded effluent testing required during the renewal application process of this permit indicates the presence of aluminum. The testing indicated a concentration of 180 µg/L. The Missouri Water Quality standard for aluminum discharged in waters classified for aquatic life protection is 750 µg/L. The Mississippi River for which Outfall 001 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Aluminum.

- **Barium, Total Recoverable.** Expanded effluent testing required during the renewal application process of this permit indicates the presence of barium. The testing indicated a concentration of 82 µg/L. The Missouri Water Quality standard for barium discharged in waters classified for Drinking Water Supply is 2,000 µg/L. The Mississippi River for which Outfall 001 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for barium.
- **Iron, Total Recoverable** Expanded effluent testing required during the renewal application process of this permit indicates the presence of iron. The testing indicated a concentration of 170 µg/L. The Missouri Water Quality standard for aluminum discharged in waters classified for aquatic life protection is 1,000 µg/L. The Mississippi River for which Outfall 001 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for iron.

Outfall #002 **- Industrial Process Wastewater**
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	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	9	*		*	YES	**
BOD_5	MG/L	1	*		*	YES	**
BOD_5	LBS/DAY	1	36.4		9.4	YES	**
TSS	MG/L	1	*		*	YES	**
TSS	LBS/DAY	1	23		7.1	YES	**
PH	SU	1	6.5-9.0		6.5-9.0	YES	**
AMMONIA	MG/L	9	*		*	YES	**
ORAGNIC PRIORITY POLLUTANTS (SEE APPENDIX 3)						YES	**
DELTA BHC	µg/L	1	*		*	YES	**
SULFATE	mg/L	1	*		*	YES	**
ALUMINUM, TOTAL RECOVERABLE	µg/L	1	*		*	YES	**
BARIUM, TOTAL RECOVERABLE	µg/L	1	*		*	YES	**
IRON, TOTAL RECOVERABLE	µg/L	1	*		*	YES	**

* - Monitoring requirement only.
** - Parameter not previously established for this outfall in the previous state operating permit.

Basis for Limitations Codes:
1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Antidegradation Review
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5).** The Biological Oxygen Demand (BOD) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 414, subpart H. For the production of Synlubes the Daily Maximum limit is 120 milligrams per liter times the process flow. For the production of Synlubes the Monthly Average limit is 45 milligrams per liter times the process flow. The limits for BOD are calculated as follows:

  Permit Limit = (Guideline limit)*(Process Flow MGD) *8.34

Synlubes-

30 day average = (45 mg/L)*(0.015 MGD) *8.34= 5.6 lbs

Daily Maximum = (120 mg/L)*(0.015 MGD)*8.34= 15 lbs.

- **Total Suspended Solids (TSS).** The Total Suspended Solids (TSS) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 414, subpart H. For the production of Synlubes the Daily Maximum limit is 183 milligrams per liter times the process flow. For the production of Synlubes the Monthly Average limit is 57 milligrams per liter times the process flow. Contaminated stormwater pumped from secondary containment has undergone primary settling, it is the permit writer's best professional judgment that 45 mg/L daily maximum and 30 mg/L monthly average concentrations of TSS is technologically feasible and protective of water quality. The limits for TSS are calculated as follows:

  Permit Limit = (Guideline limit)*(Process Flow MGD) *8.34

  Technology Based

  Synlubes-

  30 day average = (57 mg/L)*(0.015 MGD) *8.34= 7.1 lbs

  Daily Maximum = (183 mg/L)*(0.015 MGD)*8.34= 23 lbs

  Best Professional Judgment

  Stormwater

  30 day average = (30 mg/L)*(0.009 MGD)*(8.34) = 2.25 lbs
  Daily Maximum = (45 mg/L)*(0.036 MGD)*(8.34) = 13.5 lbs

  Total

  30 day average = 9.4 lbs
  Daily Maximum = 36.4 lbs

- **pH**. The hydrogen ion concentration of the effluent discharge is expressed as pH. A pH range of 6.5 to 9.0 S.U. has been included in the permit to ensure water quality protection for aquatic life in the receiving waters, according to the regulations set forth in MDNR Title 10.

- **Total Ammonia Nitrogen.** A reasonable potential analysis was performed for ammonia at this outfall during the previous renewal (Hercules 006) (see appendix 4) which stated that the potential to exceed Missouri's water quality standard does not exist therefore, the ammonia monitoring and limitations are continued in the permit based on best professional judgment.

- **Organic Priority Pollutants.** Annual monitoring of priority organic pollutants and several heavy metals, per 40 CFR 414.91, is required to insure protection of aquatic life. See special condition 6 for more information.

- **Delta BHC** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of Delta BHC. The testing indicated a concentration of 0.71 µg/L. The Missouri Water Quality standard for Delta BHC discharged in waters classified for Human Health Protection – Fish Consumption is 0.0074 µg/L. The Mississippi River for which Outfall 002 discharges has the Drinking Water Supply stream classification. Given that this criterion is Chronic and taking into consideration the mixing zone flow of the Mississippi, a monitoring only requirement is applicable to evaluate this pollutant.

- **Sulfate.** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of sulfate. The testing indicated a concentration of 210 mg/L. The Missouri Water Quality standard for sulfate discharged waters classified for Drinking Water Supply is 250 mg/L. The Mississippi River for which Outfall 002 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Sulfate.

- **Aluminum, Total Recoverable.** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of aluminum. The testing indicated a concentration of 89 µg/L. The Missouri Water Quality standard for aluminum discharged in waters classified for aquatic life protection is 750 µg/L. The Mississippi River for which Outfall 002 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Aluminum.

- **Barium, Total Recoverable.** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of barium. The testing indicated a concentration of 44 µg/L. The Missouri Water Quality standard for barium discharged in waters classified for Drinking Water Supply is 2,000 µg/L. The Mississippi River for which Outfall 002 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for barium.

- **Iron, Total Recoverable** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of iron. The testing indicated a concentration of 494 µg/L. The Missouri Water Quality standard for iron discharged in waters classified for aquatic life protection is 1,000 µg/L. The Mississippi River for which Outfall 002 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for iron.

Part V – 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.

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 09/20/2014 to 10/20/2014. No responses received.

DATE OF FACT SHEET: JANUARY 16, 2013

COMPLETED BY:

ALAN MOREAU, ENVIRONMENTAL SPECIALIST III
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL WASTEWATER UNIT
(573) 522-2553
alan.moreau@dnr.mo.gov

2014 MODIFICATION

DATE OF FACT SHEET: SEPTEMBER 2, 2014

COMPLETED BY:

AMANDA SAPPINGTON
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL WASTEWATER UNIT
(573) 751-8728
amanda.sappington@dnr.mo.gov

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

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

Part I – General Conditions
Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

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

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Non-compliance Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

3. **Anticipated Noncompliance**. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.

4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.

5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

6. **Other Information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

7. **Discharge Monitoring Reports.**
   a. Monitoring results shall be reported at the intervals specified in the permit.
   b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
   c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
   a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
   b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
   c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. **Bypass Requirements.**
   a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
   b. Notice.
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
   c. Prohibition of bypass.
      i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
         1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
         2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
         3. The permittee submitted notices as required under paragraph 2. b. of this section.
      ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.

3. **Upset Requirements.**
   a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
   b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated; and
      iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
   c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section 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.

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.
    c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

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

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
March 1, 2015

PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. 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 the 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), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
    a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The 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. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
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
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 due 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 STANDARD CONDITIONS, the Department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.
   Where deemed appropriate, the Department may require an individual site specific permit in order to authorize alternate limitations:
    a. A site specific permit must be obtained for each operating location, including application sites.
    b. To request a site specific permit, an individual permit application, permit fee, 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 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 owner of the 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.

SECTION B – DEFINITIONS

1. Best Management Practices include agronomic loading rates, soil conservation practices and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. 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.
4. 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.
5. 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.
6. 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 (POTW) or a privately owned facility.
7. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. 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.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
12. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A 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.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged 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. Haulers who land apply septage must obtain a state permit.
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, unless it is required by the accepting facility.

SECTION E – 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 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 used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain sludge storage lagoons as storage facilities, accumulated sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of sludge removed will be dependent on sludge generation and accumulation in the facility. Enough sludge must be removed to maintain adequate storage capacity in the facility.
    a. 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
    b. Permittee shall close the lagoon in accordance with Section H.

SECTION G – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles 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 otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the Department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
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 domestic sludge except for when sludge meets the definition of biosolids.
    b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge to be land applied onto grass land, crop land, timber 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 after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.
    a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
    b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.
6. Agricultural and Silvicultural Sites:

    Septage – Based on Water Quality guide 422 (WQ422) published by the University of Missouri
    a. Haulers that land apply septage must obtain a state permit
    b. Do not apply more than 30,000 gallons of septage per acre per year.
    c. Septage tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to other mechanical type treatment facilities.
    d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.
    e. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

a. Biosolids shall be monitored to determine the quality for regulated pollutants

b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to reach the maximum concentration of pollutants allowed.

c. Table 1 gives the maximum concentration allowable to protect water quality standards

TABLE 1

Biosolids ceiling concentration [1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

[1] Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

TABLE 2

Biosolids Low Metal Concentration [1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2,800

[1] You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

TABLE 3

Pollutant	CEC 15+		CEC 5 to 15		CEC 0 to 5	
	Annual	Total [1]	Annual	Total [1]	Annual	Total [1]
Arsenic	1.8	36.0	1.8	36.0	1.8	36.0
Cadmium	1.7	35.0	0.9	9.0	0.4	4.5
Copper	66.0	1,335.0	25.0	250.0	12.0	125.0
Lead	13.0	267.0	13.0	267.0	13.0	133.0
Mercury	0.7	15.0	0.7	15.0	0.7	15.0
Nickel	19.0	347.0	19.0	250.0	12.0	125.0
Selenium	4.5	89.0	4.5	44.0	1.6	16.0
Zinc	124.0	2,492.0	50.0	500.0	25.0	250.0

[1] Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

TABLE 4 - Guidelines for land application of other trace substances [1]

Cumulative Loading	
Pollutant	Pounds per acre
Aluminum	4,000[2]
Beryllium	100
Cobalt	50
Fluoride	800
Manganese	500
Silver	200
Tin	1,000
Dioxin	(10 ppt in soil)[3]
Other	[4]

[1] Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)

[2] This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

[3] Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

[4] Case by case review. Concentrations in sludge should not exceed the 95th percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426 (WQ426) published by the University of Missouri

a. Use best management practices when applying biosolids.
b. Biosolids cannot discharge from the land application site
c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
e. Do not apply more than the agronomic rate of nitrogen needed.
f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.
    i. PAN can be determined as follows and is in accordance with WQ426
    (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
    [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
g. Buffer zones are as follows:
    i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
    ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
    iii. 150 feet if dwellings;
    iv. 100 feet of wetlands or permanent flowing streams;
    v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
h. Slope limitation for application sites are as follows;
    i. A slope 0 to 6 percent has no rate limitation
    ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels
    iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the Department.
k. Biosolids / sludge applicators must keep detailed records up to five years.

SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility 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. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the Department. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan 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 or ash pond 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 without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
    c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre.
        i. PAN can be determined as follows:

        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.
4. When closing a domestic 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 Section B of these standard conditions. 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 a 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 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoons and/or earthen structure and/or ash pond closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200
7. When closing a mechanical wastewater and/or industrial process wastewater plant; all sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
    b. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
    c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for 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 I – 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. Please see the table below.

TABLE 5

Design Sludge Production (dry tons per year)	Monitoring Frequency (See Notes 1, 2, and 3)			
	Metals, Pathogens and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants and TCLP [3]
0 to 100	1 per year	1 per year	1 per month	1 per year
101 to 200	biannual	biannual	1 per month	1 per year
201 to 1,000	quarterly	quarterly	1 per month	1 per year
1,001 to 10,000	1 per month	1 per month	1 per week	--[4]
10,001 +	1 per week	1 per week	1 per day	--[4]

[1] Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less.

[2] Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

[3] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.

[4] One sample for each 1,000 dry tons of sludge.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.
Note 2: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.
Note 3: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. Composite sample must represent various areas at one-foot depth.
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. At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

SECTION J – 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. Reports 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)
ATTN: Sludge Coordinator

EPA Region VII
Water Compliance Branch (WACM)
Sludge Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

5. Annual report contents. The annual report shall include the following:
    a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the 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 the end of the 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.
        i. This must include the name, address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. 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 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 or biosolids use permit.
    g. Land Application Sites:
        i. 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 a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
        ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

CALUMET
SPECIALTY PRODUCTS PARTNERS, L.P

Calumet Missouri, LLC
11089 Highway D
Louisiana, MO 63353
(573) 754-6211
(573) 754-5628 - Fax

May 5, 2016

Mr. Chris Wieberg
Chief
Operating Permits Section
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176

NPDES PERMIT MO-0137243
PIKE COUNTY

Dear Mr. Wieberg:

The purpose of this letter is to request a modification to our NPDES permit.

The reason for this request is that when we experience a rainfall event of at least 1", flooding of our plant occurs. We have extremely poor drainage and when a "heavy rain" event occurs, it backs up at Outfall001a. This not only interferes with the daily functions of running the plant, but most importantly, creates a major safety concern for all of us.

Even though, in our permit (page 2 of the Fact Sheet - paragraph 2), it could be interpretated that this addresses our concern, we felt it best to make this modification request.

We hired an Engineering firm to develop a drainage plan (enclosed). The red arrows indicate the proposed "flow" of the rainfall. The plan calls for "adding a pipe" to the existing manhole located near Outfall008. This would also relieve the amount of water going to Outfall001a when the "heavy" rainfall occurs. The rainfall in these areas do not come into contact with any on site contaminants.

Included with this letter are: Forms A & C, a current WET test, the proposed drainage plan, and our current permit. We did not include a fee because we did not know what it would be.

If you have any questions, please contact Michael Duffey, HSE Manager at extension 287.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Sincerely,

Stan Beisert

Stan Beisert
Plant Manager

RECEIVED

MAY 10 2016

WATER PROTECTION PROGRAM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
FORM A – APPLICATION FOR NONDOMESTIC PERMIT UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED 5/10/16	FEE SUBMITTED 0 SB

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

1. This application is for:
   - ☐ An operating permit for a new or unpermitted facility:
     Please indicate the original Construction Permit # _____
   - ☐ An operating permit renewal:
     Please indicate the permit # MO- _____ Expiration Date _____
   - ☑ An operating permit modification:
     Please indicate the permit # MO- 0137243 Modification Reason: Rainwater Drainage Improvement

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

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Calumet Missouri, LLC		(573) 754-6211 FAX (573) 754-3182	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
11089 Hwy D	Louisiana	MO	63353

3. OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
Calumet Specialty Partners, L.P.		(317) 328-5656 FAX (317) 328-5668	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
2780 Waterfront Pkwy. East Dr. Suite 200	Indianapolis	IN	46214

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

4. CONTINUING AUTHORITY

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

5. OPERATOR

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

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Michael Duffey	HSE Manager	(573) 754-6211
	E-MAIL ADDRESS mike.duffey@clmt.com	FAX (573) 754-6211

7. ADDITIONAL FACILITY INFORMATION

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

001 SE ¼ NE ¼ Sec 29 T 54N R 1W Pike County
UTM Coordinates Easting (X): 669931 Northing (Y): 4365584
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

002 E ¼ SW ¼ Sec 21 T 54N R 1W Pike County
UTM Coordinates Easting (X): 670531 Northing (Y): 4366585

003 SE ¼ NE ¼ Sec 29 T 54N R 1W Pike County
UTM Coordinates Easting (X): 669758 Northing (Y): 4365797

004 ____ ¼ ____ ¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

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

001 – SIC 2869 and NAICS 325199 002 – SIC 2869 and NAICS 325199
003 – SIC 2869 and NAICS 325199 004 – SIC _____ and NAICS _____

8.	ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION (Complete all forms that are applicable.)		
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C or 2F. (2F is the U.S. EPA's Application for Storm Water Discharges Associate with Industrial Activity.)	YES ☐	NO ☑
B.	Is application for storm water discharges only? If yes, complete Form C or 2F.	YES ☑	NO ☐
C.	Is your facility considered a "Primary Industry" under EPA guidelines: If yes, complete Forms C or 2F and D.	YES ☐	NO ☑
D.	Is wastewater land applied? If yes, complete Form I.	YES ☐	NO ☑
E.	Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? If yes, complete Form R.	YES ☐	NO ☑
F.	If you are a Class IA CAFO, please disregard part D and E of this section. However, please attach any revision to your Nutrient Management Plan.		
F.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		

9.	DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions. (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE).			
NAME				
ADDRESS		CITY	STATE	ZIP CODE

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)	TELEPHONE NUMBER WITH AREA CODE
Stan Beisert - Plant Manager	(573) 754-6211
SIGNATURE: Stan Beisert	DATE SIGNED: 5/4/16

MO 780-1479 (07-14)

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 or 2F, if applicable?
- ☐ Form D, if applicable?
- ☐ Form I (Irrigation), if applicable?
- ☐ Form R (Sludge), if applicable?
- ☐ Revised Nutrient Management Plan, 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 AND STORMWATER

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

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

1.00 NAME OF FACILITY

Calumet Missouri, LLC

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

MO-0137243

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

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

A. FIRST 2869 B. SECOND _____

C. THIRD _____ D. FOURTH _____

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.

OUTFALL NUMBER (LIST) SE 1/4 NE 1/4 SEC 29 T 54N R 1W Pike COUNTY

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER

OUTFALL NUMBER (LIST)	RECEIVING WATER
Outfall 001a	Buffalo Creek
Outfall 001b (shared outfall)	Mississippi River
Outfall 002	Mississippi River

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS

Calumet Missouri, LLC - Manufactures Aviation & Refrigeration Synthetic Lubricants

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent and treatment units labeled to correspond to the more detailed descriptions in item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, public sewers and outfalls. If a water balance cannot by determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of 1. All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water and storm water runoff. 2. The average flow contributed by each operation. 3. The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
(LIST)	A. OPERATION (LIST)	B. AVERAGE FLOW (INCLUDE UNITS) (MAXIMUM FLOW)	A. DESCRIPTION	B. LIST CODES FROM TABLE A
001a	Cooling Tower Bleed	5,000 GPD		
	Steam Condensate	5,000 GPD		
	Stormwater	variable with precipitation		
001b	Combined effluent			
	(see attached document of			
	facility description)			
002	(see attached document of			
	facility description)			

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

2.50 MAXIMUM PRODUCTION

A. DOES AN EFFLUENT GUIDELINE LIMITATION PROMULGATED BY EPA UNDER SECTION 304 OF THE CLEAN WATER ACT APPLY TO YOUR FACILITY?

☐ **YES** *(COMPLETE B.)* ☑ **NO** *(GO TO SECTION 2.60)*

B. ARE THE LIMITATIONS IN THE APPLICABLE EFFLUENT GUIDELINES EXPRESSED IN TERMS OF PRODUCTION (OF OTHER MEASURE OF OPERATION)?

☐ **YES** *(COMPLETE c.)* ☑ **NO** *(GO TO SECTION 2.60)*

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

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

2.60 IMPROVEMENTS

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

☐ **YES** *(COMPLETE THE FOLLOWING TABLE)* ☑ **NO** *(GO TO 3.00)*

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

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

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

3.00 INTAKE AND EFFLUENT CHARACTERISTICS

A. & B. SEE INSTRUCTIONS BEFORE PROCEEDING – COMPLETE ONE TABLE FOR EACH OUTFALL – ANNOTATE THE OUTFALL NUMBER IN THE SPACE PROVIDED.
NOTE: TABLE 1 IS INCLUDED ON SEPARATE SHEETS NUMBERED FROM PAGE 6 TO PAGE 7.

C. USE THE SPACE BELOW TO LIST ANY OF THE POLLUTANTS LISTED IN PART B OF THE INSTRUCTIONS, WHICH YOU KNOW OR HAVE REASON TO BELIEVE IS DISCHARGED OR MAY BE DISCHARGED FROM ANY OUTFALL. FOR EVERY POLLUTANT YOU LIST, BRIEFLY DESCRIBE THE REASONS YOU BELIEVE IT TO BE PRESENT AND REPORT ANY ANALYTICAL DATA IN YOUR POSSESSION.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

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)

WET Test: A WET test is being required during the first year of the permit to evaluate the effectiveness of the facility's stormwater BMP's

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)*
Environmental Analysis South, Inc.	4000 East Jackson Blvd. Jackson, MO 63755	573-204-8817	Pimephales promelas Acute Toxicity Test Ceriodaphnia dubia Acute Toxicity Test

3.30 CERTIFICATION

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

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Stan Beisert - Plant Manager	(573) 754-6211
SIGNATURE (SEE INSTRUCTIONS)	**DATE SIGNED**
Stan Beisert	5/4/16

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

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS

OUTFALL NO. 001a

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)	<0.1		<0.1					ml/L				
E. Ammonia *(as N)*												
F. Flow	VALUE .003		VALUE .003		VALUE			MGD		VALUE		
G. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
I. pH	MINIMUM 7.66	MAXIMUM 7.66	MINIMUM	MAXIMUM				STANDARD UNITS				

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

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		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	
CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS														
A. Bromide (24959-67-9)		X												
B. Chlorine, Total Residual	X		<100							ug/L				
C. Color		X												
D. Fecal Coliform		X												
E. Fluoride (16984-48-8)		X												
F. Nitrate - Nitrate *(as N)*		X												

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

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(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	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)		X												
2M. Arsenic, Total (7440-38-2)		X												
3M. Beryllium, Total (7440-41-7)		X												
4M. Cadmium, Total (7440-43-9)		X												
5M. Chromium III (16065-83-1)		X												
6M. Chromium VI (18540-29-9)		X												
7M. Copper, Total (7440-50-8)	X		4.5		4.5					ug/L				
8M. Lead, Total (7439-92-1)		X												
9M. Mercury, Total (7439-97-6)		X												
10M. Nickel, Total (7440-02-0)		X												
11M. Selenium, Total (7782-49-2)		X												
12M. Silver, Total (7440-22-4)		X												
13M. Thallium, Total (7440-28-0)		X												
14M. Zinc, Total (7440-66-6)		X												
15M. Cyanide, Amenable to Chlorination		X												
16M. Phenols, Total		X												
RADIOACTIVITY														
(1) Alpha Total		X												
(2) Beta Total		X												
(3) Radium Total		X												
(4) Radium 226 Total		X												

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

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS

OUTFALL NO. 001b

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)	4		4				5		lbs/day			
B. Chemical Oxygen Demand (COD)												
C. Total organic Carbon (TOC)												
D. Total Suspended Solids (TSS)	1.47		1.47				5		lbs/day			
E. Ammonia *(as N)*	9.17		3.674				5		lbs/day			
F. Flow	VALUE .02		VALUE .0082		VALUE		5	MGD	once/week	VALUE		
G. Temperature *(winter)*	VALUE 11		VALUE 7.77		VALUE		31	°C		VALUE		
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
I. pH	MINIMUM 7.5	MAXIMUM 8.7	MINIMUM	MAXIMUM			5	STANDARD UNITS				

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

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		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	
CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS														
A. Bromide (24959-67-9)		X												
B. Chlorine, Total Residual		X												
C. Color		X												
D. Fecal Coliform		X												
E. Fluoride (16984-48-8)		X												
F. Nitrate - Nitrate *(as N)*	X			15.51		7.166					lbs/day			

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	
G. Nitrogen, Total Organic *(as N)*		X												
H. Oil and Grease	X		<5		<5					mg/L				
I. Phosphorus *(as P)*, Total (7723-14-0)		X												
J. Sulfate *(as SO^4)* (14808-79-8)	X		300		300					mg/L				
K. Sulfide *(as S)*		X												
L. Sulfite (as SO^3) (14265-45-3)		X												
M. Surfactants		X												
N. Aluminum, Total (7429-90-5)	X		140		140					ug/L				
O. Barium, Total (7440-39-3)	X		88		88					ug/L				
P. Boron, Total (7440-42-8)		X												
Q. Cobalt, Total (7440-48-4)		X												
R. Iron, Total (7439-89-6)	X		160		160					ug/L				
S. Magnesium, Total (7439-95-4)		X												
T. Molybdenum, Total (7439-98-7)		X												
U. Manganese, Total (7439-96-5)		X												
V. Tin, Total (7440-31-5)		X												
W. Titanium, Total (7440-32-6)		X												

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(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	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)		X												
2M. Arsenic, Total (7440-38-2)		X												
3M. Beryllium, Total (7440-41-7)		X												
4M. Cadmium, Total (7440-43-9)		X												
5M. Chromium III (16065-83-1)		X												
6M. Chromium VI (18540-29-9)		X												
7M. Copper, Total (7440-50-8)		X												
8M. Lead, Total (7439-92-1)		X												
9M. Mercury, Total (7439-97-6)		X												
10M. Nickel, Total (7440-02-0)		X												
11M. Selenium, Total (7782-49-2)		X												
12M. Silver, Total (7440-22-4)		X												
13M. Thallium, Total (7440-28-0)		X												
14M. Zinc, Total (7440-66-6)		X												
15M. Cyanide, Amenable to Chlorination		X												
16M. Phenols, Total		X												
RADIOACTIVITY														
(1) Alpha Total		X												
(2) Beta Total		X												
(3) Radium Total		X												
(4) Radium 226 Total		X												

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

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS

OUTFALL NO. 002

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)	2.67		1.046				5		lbs/day			
B. Chemical Oxygen Demand (COD)												
C. Total organic Carbon (TOC)												
D. Total Suspended Solids (TSS)	1.07		.518				5		lbs/day			
E. Ammonia *(as N)*	9.17		3.674				5		lbs/day			
F. Flow	VALUE .02		VALUE .0082		VALUE		5	MGD	once/week	VALUE		
G. Temperature *(winter)*	VALUE		VALUE		VALUE		31	°C		VALUE		
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
I. pH	MINIMUM 7.7	MAXIMUM 8.4	MINIMUM	MAXIMUM			5	STANDARD UNITS				

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

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		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	
CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS														
A. Bromide (24959-67-9)		X												
B. Chlorine, Total Residual		X												
C. Color		X												
D. Fecal Coliform		X												
E. Fluoride (16984-48-8)		X												
F. Nitrate - Nitrate *(as N)*		X												

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(if available)*		C. LONG TERM AVRG. VALUE *(if available)*		D. NO. OF ANALYSES	A. 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	
G. Nitrogen, Total Organic *(as N)*		X												
H. Oil and Grease		X												
I. Phosphorus *(as P)*, Total (7723-14-0)		X												
J. Sulfate *(as SO^4)* (14808-79-8)	X		52		52					mg/L				
K. Sulfide *(as S)*		X												
L. Sulfite (as SO^3) (14265-45-3)		X												
M. Surfactants		X												
N. Aluminum, Total (7429-90-5)	X		140							ug/L				
O. Barium, Total (7440-39-3)	X		88							ug/L				
P. Boron, Total (7440-42-8)		X												
Q. Cobalt, Total (7440-48-4)		X												
R. Iron, Total (7439-89-6)	X		160							ug/L				
S. Magnesium, Total (7439-95-4)		X												
T. Molybdenum, Total (7439-98-7)		X												
U. Manganese, Total (7439-96-5)		X												
V. Tin, Total (7440-31-5)		X												
W. Titanium, Total (7440-32-6)		X												

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(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	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)		X												
2M. Arsenic, Total (7440-38-2)		X												
3M. Beryllium, Total (7440-41-7)		X												
4M. Cadmium, Total (7440-43-9)		X												
5M. Chromium III (16065-83-1)		X												
6M. Chromium VI (18540-29-9)		X												
7M. Copper, Total (7440-50-8)	X		0.0051							mg/L				
8M. Lead, Total (7439-92-1)	X		<0.010							mg/L				
9M. Mercury, Total (7439-97-6)		X												
10M. Nickel, Total (7440-02-0)	X		<0.0020							mg/L				
11M. Selenium, Total (7782-49-2)		X												
12M. Silver, Total (7440-22-4)		X												
13M. Thallium, Total (7440-28-0)		X												
14M. Zinc, Total (7440-66-6)	X		<0.010							mg/L				
15M. Cyanide, Amenable to Chlorination		X												
16M. Phenols, Total		X												
RADIOACTIVITY														
(1) Alpha Total		X												
(2) Beta Total		X												
(3) Radium Total		X												
(4) Radium 226 Total		X												

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

April 28, 2016

Mike Duffey
Calumet Missouri, LLC
11089 Highway D
Louisiana, MO 63353

Dear Mike Duffey:

Please find enclosed the analytical results for the sample(s) the laboratory received on **4/20/16 11:15 am** and logged in under work order **6044180**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Barbara J Pandolfo

Barb Pandolfo
Project Manager
(314) 432-0550
bpandolfo@pdclab.com

PDC Laboratories, Inc.
3278 North Highway 67
Florissant, MO 63033
(800) 333-3278

ANALYTICAL RESULTS

Sample: 6044180-01
Name: Outfall 001b

Sampled: 04/19/2016 08:00
Received: 04/20/2016 11:15

Reg ID:

PO #:

Parameter	Result	Unit	Qualifier	Analyzed	Analyst	Method

WET test was subcontracted out. See attachment.

PDC Laboratories, Inc.
3278 North Highway 67
Florissant, MO 63033
(800) 333-3278

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Barbara J Pandolfo

Certified by: Barb Pandolfo, Project Manager

Environmental Analysis South, Inc.

4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Calumet Missouri, LLC
OUTFALL 001b (24 hour composite) AEC = 10%
MO-0137243
EAS LOG# 2000326
April 20, 2016 through April 22, 2016

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

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REPORT OF ACUTE TOXICITY TESTING
Calumet Missouri, LLC
OUTFALL 001b (24 hour composite) AEC = 10%
MO-0137243
EAS LOG# 2000326
April 20, 2016 through April 22, 2016

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
2.5% Effluent	100%	100%
5% Effluent	100%	100%
10% Effluent	95%	100%
20% Effluent	100%	100%
40% Effluent	100%	35%*
Estimated 48 Hour LC_{50} Value	>40% Effluent	34.09% Effluent
To Pass: All concentrations = or < AEC must not have significant difference to control in survival.	Yes	Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:
Pimephales promelas 48 hour WET results: LC 50 > 40% using Trimmed Spearman-Karber
NOAEC = 40% by Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results: LC50 = 34.09% using Trimmed Spearman-Karber
NOAEC = 10% by Steele's Many-One Rank Test

Based on these results the outfall **passed** the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Calumet Missouri, LLC
OUTFALL 001b (24 hour composite) AEC = 10%
MO-0137243
EAS LOG# 2000326
April 20, 2016 through April 22, 2016

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Calumet Missouri, LLC
OUTFALL 001b (24 hour composite) AEC = 10%
MO-0137243
EAS LOG# 2000326
April 20, 2016 through April 22, 2016

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on April 6, 2016 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.990 g/l 95%CI (0.782-1.462 g/l)
EAS %CV = 15.1%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.456 g/l 95%CI (0.343-0.699g/l)
EAS %CV = 17.1%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME:	Calumet Missouri , LLC, Outfall 001b, 24 hr composite
NPDES NUMBER:	MO-0137243
TYPE OF METHOD:	multiple dilution, 48 hrs, PP & CD, AEC=10%
DATE & TIME OF COLLECTION:	04/19/16 0800 hrs by Mike Duffey
DATE & TIME OF SUBMISSION:	04/20/16 1115 hrs Mike Duffey

Upstream: Mississippi River
Collected: 04/19/16 0800 hrs by Mike Duffey

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						2000326	2000326A	RC4155
pH - SU	04/20/16	1130 hrs	SCS	SB114 (8.8-9.2)	8.86	7.58	7.95	8.15
TEMPERATURE °C RECEIVED	04/20/16	1130 hrs	SCS	EAS 106		3	3	23
SPECIFIC CONDUCTANCE umhos	04/20/16	1130 hrs	SCS	ERA229-506 (490-549)	504	1687	489	249
HARDNESS - ppm	04/20/16	1130 hrs	SCS	DMRQA34 (184-250)	240	420	240	80
CHLORINE - ppm	04/20/16	1130 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	04/20/16	1130 hrs	SCS	cal@840		5.4	11.1	8.5
TOTAL ALKALINITY - ppm	04/20/16	1400 hrs	SCS	P243-506 (48.8-58.3)	57.3	78.5	176	65.4
INITIAL AMMONIA - ppm	04/25/16	1300 hrs	JPC	DMRQA35 (8.12-12.2)	11.4	43.9	<0.05	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	40%	20%	10%	5.0%	2.5%	X %AEC
pH - SU	04/20/16	1200 hrs	SCS	SB114 (8.8-9.2)	8.86	7.75	7.81	7.81	7.82	7.81	7.80	7.80	
TEMPERATURE °C	04/20/16	1200 hrs	SCS	EAS 106		24.0	23.7	23.6	24.3	23.8	24.1	24.0	
SPECIFIC CONDUCTANCE umhos	04/20/16	1200 hrs	SCS	ERA229-506 (490-549)	506	247	483	1058	764	627	536	514	
DISSOLVED OXYGEN - ppm	04/20/16	1200 hrs	SCS	cal@840		8.2	12.3	11.6	11.8	12.2	12.0	12.2	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	40%	20%	10%	5.0%	2.5%	X %AEC
pH - SU	04/21/16	1200 hrs	SCS	SB114 (8.8-9.2)	8.97	8.10	8.05	8.06	8.08	8.09	8.06	8.06	
TEMPERATURE °C	04/21/16	1200 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	04/21/16	1200 hrs	SCS	ERA229-506 (490-549)	500	267	512	1043	773	621	556	526	
DISSOLVED OXYGEN - ppm	04/21/16	1200 hrs	SCS	cal@840		8.0	7.8	7.7	7.7	7.7	7.7	7.8	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	40%	20%	10%	5.0%	2.5%	X %AEC
pH - SU	04/22/16	1200 hrs	SCS	SB114 (8.8-9.2)	8.97	8.10	8.16	8.08	8.11	8.12	8.12	8.13	
TEMPERATURE °C	04/22/16	1200 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	04/22/16	1200 hrs	SCS	ERA229-506 (490-549)	500	267	518	1097	790	622	543	524	
DISSOLVED OXYGEN - ppm	04/22/16	1200 hrs	SCS	cal@840		8.0	8.0	7.9	7.9	7.9	7.9	8.0	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	40%	20%	10%	5.0%	2.5%	X %AEC
pH - SU	04/21/16	1200 hrs	SCS	SB114 (8.8-9.2)	8.97	8.22	7.75	7.98	7.99	7.99	7.93	7.86	
TEMPERATURE °C	04/21/16	1200 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	04/21/16	1200 hrs	SCS	ERA229-506 (490-549)	505	247	474	1032	758	621	566	527	
DISSOLVED OXYGEN - ppm	04/21/16	1200 hrs	SCS	cal@840		8.2	8.4	8.4	8.4	8.5	8.5	8.6	
8 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	40%	20%	10%	5.0%	2.5%	X %AEC
pH - SU	04/22/16	1200 hrs	SCS	SB114 (8.8-9.2)	8.89	7.56	8.13	8.07	8.07	8.09	8.09	8.09	
TEMPERATURE °C	04/22/16	1200 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
CIFIC CONDUCTANCE umhos	04/22/16	1200 hrs	SCS	ERA229-506 (490-549)	500	275	498	1029	746	616	553	520	
DISSOLVED OXYGEN - ppm	04/22/16	1200 hrs	SCS	cal@840		8.2	8.2	8.1	8.1	8.2	8.2	8.2	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

Approved by: [signature]

Date: 04/25/16

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Calumet Missouri , LLC, Outfall 001b, 24 hr composite **EAS LOG# 2000326**

Date Test Began:	April 20, 2016	**Time Test Began:**	1200 hrs	**Analyst 1:**	DFW
				Analyst 2:	KJR
Date Test Finished:	April 22, 2016	**Time Test Finished:**	1200 hrs	**Analyst 3:**	SCS

P. promelas (PP) **AGE:** 4 **days** **HATCH NUMBER:** 9794 c-k

	RC	UC	40%	20%	10%	5.0%	2.5%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,9	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,9	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 3301 c-k

	RC	UC	40%	20%	10%	5.0%	2.5%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,1,0,1	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by: Date: 04/25/16

Calumet Missouri , LLC, Outfall 001b, 24 hr composite EAS#: 2000326

Notes & Comments

Prepared by: [signature]

Date: 04/25/16

001 b **PDC Laboratories, Inc. – St. Louis**
3278 N. Highway 67 (Lindbergh)
Florissant, MO 63033
www.pdclab.com

135758

CHAIN OF CUSTODY RECORD

Phone (314) 432-0550 or (314) 921-4488
Fax (314) 432-4977 001b

State where samples collected MO

(Instructions/Sample Acceptance Policy on Reverse)

Calumet Missouri, LLC MO-0137243 Outfall 001b

· ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1			
CLIENT: Calumet	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
ADDRESS: 11089 Hwy D	PHONE NUMBER	FAX NUMBER	EMAIL ADDRESS
CITY STATE ZIP: Louisiana MO 63353	SAMPLER: Mike Duffey		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, LCHT-LEACHATE, NAL-NONAQUEOUS, SOIL-SOILS
CONTACT PERSON: Mike Duffey	SAMPLER'S SIGNATURE: [signature]		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # ____
LOGGED BY: ____
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE	MATRIX TYPE	Bottle Count	ANALYSIS REQUESTED	REMARKS
WET Test as per					1	Effluent 2000326	temp rec'd = 3°C
permit #MO-0137243	4/19/16	0800			1	Upstream 2000326-A	3°C
					(2)		(SS)

5 TURNAROUND TIME (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
NORMAL (8-10 Bus. Days) RUSH (5 Bus. Days) Fastrak™ (3 Bus. Days) 1-2 Bus. Days Same Day
DATE DUE ____
RESULTS BY: E-MAIL FAX PHONE CALL PHONE/FAX# IF DIFFERENT FROM ABOVE

6 The sample temperature will be measured upon receipt at the lab. By initialing this area, you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area, you allow the lab to proceed with analytical testing regardless of the sample temperature. ____

7 RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY:	DATE	TIME
RELINQUISHED BY: (SIGNATURE) Mike [signature]	4/19/16	10:70	RECEIVED BY:	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: [signature] UPS	4/20/16	1115
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY:	DATE	TIME

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT ____°C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLES(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS) Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ____

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Calumet Missouri, LLC	DATE & TIME COLLECTED EFFLUENT 04/19/16 0800 UPSTREAM 04/19/16 0800
PERMIT NUMBER MO-0137243	PERMIT OUTFALL NUMBER Outfall # 001b
COLLECTOR'S NAME Mike Duffey	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Mississippi River	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 10%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 2000326 UPSTREAM 2000326A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_2000326	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING April 6, 2016	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 04/20/16 1115 hrs by Mike Duffey	TEST START DATE AND TIME 04/20/16 1200 hrs	TEST END DATE AND TIME 04/22/16 1200 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE Pimephales promelas 4 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 2000326A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>40%Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50=34.09%Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	3	SM18 2550B stored at 4 degree C until test setup	04/20/16 1130 hrs
pH Standard Units	7.58	SM18 4500-H B	04/20/16 1130 hrs
Conductance µMohs	1687	SM18 2510B	04/20/16 1130 hrs
Dissolved Oxygen mg/L	5.4	03/12/14 0945 hrsSM18 4500-O G	04/20/16 1130 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	04/20/16 1130 hrs
Unionized Ammonia mg/L	43.9x0.02=0.878	SM18 4500-NH3 F @ 25 degree C	04/25/16 1300 hrs
*Total Alkalinity mg/L	78.5	SM18 2320B	04/20/16 1400 hrs
*Total Hardness mg/L	420	SM18 2340 C	04/20/16 1130 hrs

*Recommended by USEPA guidance, not a required analysis

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[1]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	3	SM18 2550B stored at 4 degree C until test setup	04/20/16 1130 hrs
pH Standard Units	7.95	SM18 4500-H B	04/20/16 1130 hrs
Conductance µMohs	489	SM18 2510B	04/20/16 1130 hrs
Dissolved Oxygen mg/L	11.1	SM18 4500-O G	04/20/16 1130 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	04/20/16 1130 hrs
Unionized Ammonia mg/L	<0.05x0.05<0.010	SM18 4500-NH3 F @ 25 degree C	04/25/16 1300 hrs
*Total Alkalinity mg/L	176	SM18 2320B	04/20/16 1400 hrs
*Total Hardness mg/L	240	SM18 2340 C	04/20/16 1130 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

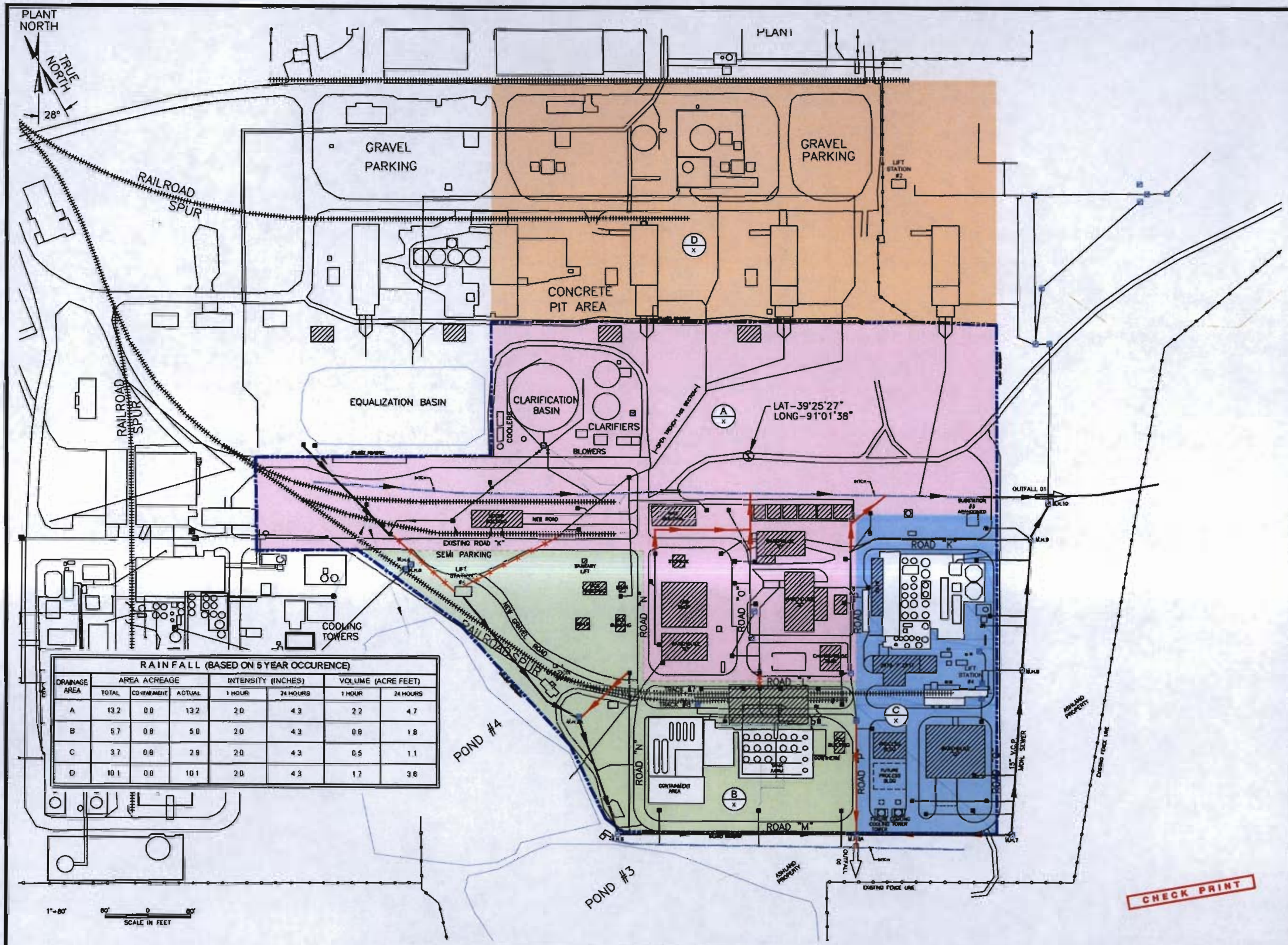
TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[1] Where no upstream control is available, enter results from laboratory or synthetic control.



RAINFALL (BASED ON 5 YEAR OCCURENCE)							
DRAINAGE AREA	AREA ACREAGE			INTENSITY (INCHES)		VOLUME (ACRE FEET)	
	TOTAL	CONTAINMENT	ACTUAL	1 HOUR	24 HOURS	1 HOUR	24 HOURS
A	13.2	0.0	13.2	2.0	4.3	2.2	4.7
B	5.7	0.8	5.0	2.0	4.3	0.8	1.8
C	3.7	0.8	2.9	2.0	4.3	0.5	1.1
D	10.1	0.0	10.1	2.0	4.3	1.7	3.6

NOTES:

LEGEND

- (A/x) - DRAINAGE AREA DESIGNATION
- PROPERTY LINE
- DITCH FLOWLINE
- NEW STORM SEWER
- STORM SEWER
- STORM SEWER MANHOLE
- CATCH BASIN
- FLOW DIRECTION
- PLUG EXISTING PIPE

THESE PLANS ARE RELEASED FOR THE PURPOSE OF PROVIDING INTERIM REVIEW AND PRE-CONSTRUCTION INFORMATION ONLY, UNDER THE AUTHORITY OF FRED E. FLESCH, PE# 2013011212 ON 03/18/16. THESE PLANS ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUED FOR APPROVAL

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION	DRN	CHK	APV
A	03-30-16	ISSUED FOR APPROVAL	JH	DAB	FEF

Client Name: CALUMET MISSOURI LLC
Plant Site: LOUISIANA, MO
Client Job No: 216-021-02

MCW ESTER PLANT PAVING DRAINAGE AREA MAP

PAVING ENGINEERING

Drafter: J.H. 03-07-16
Designer: —
Engineer: FEF 03-07-16
Checker: DAB
Manager: FEF
Project: 216-021-02
Scale: 1"=80'

FLESCH ENGINEERING, LLC

Drawing No: 21602102C2800 Rev: A

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

APR 29 2014

Donna Meyers, Plant Manager
Calumet Missouri, L.L.C.
11089 Highway D
Louisiana, MO 63353

Dear Permittee:

Missouri State Operating Permit #MO-0137243 issued on May 1, 2013, is hereby modified as per the enclosed. This modification is to include additional outfalls associated with the discharges from the extended aeration treatment plant that is treating flows from the synlube production process. The attached permit is for your official record.

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

This permit is both your federal discharge permit and your new state operating permit and replaces all previous state operating permits for this facility. In all future correspondence regarding this facility, please refer to your state operating permit number and facility name as shown on page one of the permit.

If you have any questions concerning this permit, please do not hesitate to contact Amanda Sappington at P.O. Box 176, Jefferson City, MO 65102-0176 or by phone at (573)751-8728.

Sincerely,

WATER PROTECTION PROGRAM

Chris Wieberg, Chief
Operating Permits Section

CW/sm

Enclosure

c: DNR Northeast Regional Office

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-0137243
Owner:	Calumet Specialty Partners, L.P.
Address:	2780 Waterfront Pkwy. East Dr. Suite 200, Indianapolis, IN 46214
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Calumet, Missouri, LLC
Facility Address:	11089 Highway D, Louisiana, MO 63353
Legal Description:	see page 2
UTM Coordinates:	see page 2
Receiving Stream:	see page 2
First Classified Stream and ID:	see page 2
USGS Basin & Sub-watershed No.:	see page 2

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

FACILITY DESCRIPTION

Outfall 001 - Manufacture of Synthetic Lubricants - SIC Code 2869

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

May 1, 2013
Effective Date

April 29, 2014
Modification Date

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

April 30, 2018
Expiration Date

John Madras
John Madras, Director, Water Protection Program

OUTFALL #001a	EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 16
		PERMIT NUMBER MO-0137243

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:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/month	24 hr. estimate
Settleable Solids	mL/L	1.0		1.0	once/month	grab
pH – Units	SU	**		**	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Total Residual Chlorine – Note 1	µg/L	17 (130 ML)		8 (130 ML)	once/month	grab
Copper, Total Recoverable	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions			once/permit cycle in the first year	grab
WET TEST REPORTS SHALL BE SUBMITTED ONCE / PERMIT CYCLE; THE FIRST REPORT IS DUE JANUARY 28, 2014.						

OUTFALL #001b	EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 5 of 16
		PERMIT NUMBER MO-0137243

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001b						
Flow (Effluent)	cfs	*			once/day	grab
Flow (Stream) (Note 2)	cfs	*			once/day	grab
Temperature (Stream) (Note 3 & 4)	°F	*			once/day	grab
Temperature (Effluent)	°F	*			once/day	grab
ΔT (Note 4)	°F	5°F		5°F	once/day	grab
T_{cap} (Note 5) (*Zone A*)	°F				once/day	grab
January		45		45		
February		45		45		
March		57		57		
April		68		68		
May		78		78		
June		86		86		
July		88		88		
August		88		88		
September		86		86		
October		75		75		
November		65		65		
December		52		52		
T_{max} (Note 5) (*Zone A*)	°F				once/day	grab
January		48		48		
February		48		48		
March		60		60		
April		71		71		
May		81		81		
June		89		89		
July		91		91		
August		91		91		
September		86		86		
October		78		78		
November		68		68		
December		55		55		

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002- sample prior to comingling with any other discharge						
Organic Priority Pollutants, Total	lbs/day	*		*	once annually	grab
1,1,1-Trichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1,2-Trichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1-Dichloroethane	lbs/day	0.007		0.003	once annually	grab
1,1-Dichloroethylene	lbs/day	0.003		0.002	once annually	grab
1,2,4-Trichlorobenzene	lbs/day	0.018		0.009	once annually	grab
1,2-Dichlorobenzene	lbs/day	0.02		0.01	once annually	grab
1,2-Dichloroethane	lbs/day	0.026		0.009	once annually	grab
1,2-Dichloropropane	lbs/day	0.029		0.019	once annually	grab
1,2-trans-Dichloroethylene	lbs/day	0.007		0.003	once annually	grab
1,3-Dichlorobenzene	lbs/day	0.006		0.004	once annually	grab
1,3-Dichloropropylene	lbs/day	0.006		0.004	once annually	grab
1,4-Dichlorobenzene	lbs/day	0.004		0.002	once annually	grab
2,4-Dichlorophenol	lbs/day	0.014		0.005	once annually	grab
2,4-Dimethylphenol	lbs/day	0.005		0.002	once annually	grab
2,4-Dinitrophenol	lbs/day	0.015		0.009	once annually	grab
2,4-Dinitrotoluene	lbs/day	0.036		0.014	once annually	grab
2,6-Dinitrotoluene	lbs/day	0.08		0.032	once annually	grab
2-Chlorophenol	lbs/day	0.012		0.004	once annually	grab
2-Nitrophenol	lbs/day	0.009		0.005	once annually	grab
3,4-Benzofluoranthene	lbs/day	0.008		0.003	once annually	grab
4,6-Dinitro-o-cresol	lbs/day	0.035		0.010	once annually	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002- sample prior to comingling with any other discharge						
Hexachlorobenzene	lbs/day	0.004		0.002	once annually	grab
Hexachlorobutadiene	lbs/day	0.006		0.003	once annually	grab
Hexachloroethane	lbs/day	0.007		0.003	once annually	grab
Methyl Chloride	lbs/day	0.024		0.011	once annually	grab
Methylene Chloride	lbs/day	0.011		0.005	once annually	grab
Naphthalene	lbs/day	0.007		0.003	once annually	grab
Nitrobenzene	lbs/day	0.009		0.003	once annually	grab
Phenanthrene	lbs/day	0.007		0.003	once annually	grab
Phenol	lbs/day	0.003		0.002	once annually	grab
Pyrene	lbs/day	0.008		0.003	once annually	grab
Tetrachloroethylene	lbs/day	0.007		0.003	once annually	grab
Toluene	lbs/day	0.01		0.003	once annually	grab
Total Chromium	lbs/day	0.347		0.139	once annually	grab
Total Copper	lbs/day	0.423		0.181	once annually	grab
Total Cyanide	lbs/day	0.15		0.053	once annually	grab
Total Lead	lbs/day	0.086		0.04	once annually	grab
Total Nickel	lbs/day	0.498		0.211	once annually	grab
Total Zinc	lbs/day	0.327		0.131	once annually	grab
Trichloroethylene	lbs/day	0.007		0.003	once annually	grab
Vinyl Chloride	lbs/day	0.034		0.013	once annually	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

(a) If the T_{cap} calculated temperature value is less than the specific month's Daily Maximum or Monthly Average T_{cap}, the permittee is to report the calculated temperature value as T_{cap} and report a "No Discharge" for T_{max}.
(b) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit, but is below the T_{max} and there is time available in Percent Deviation Allowance (see Note 7); then the permittee is to report in accordance with **Note 6** below.
(c) If the Tcap calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit but is below the T_{max}, but there is no time available in Percent Deviation Allowance (see Note 7); then the permittee is to report the calculated temperature value as T_{cap} and report a "No Discharge" for T_{max}.
(d) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} and T_{max}; then the permittee is to report in accordance with **Note 6**.

Note 6: Temperature Maximum is the maximum that a facility can increase the temperature of the receiving stream by at the end of the regulatory mixing zone (if applicable. It is designated with the [T_{max}] in the equation below and is the T_{cap} monthly limit plus three (+3°F).

$T_{max} = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e))]$
Where:
$Q_s/4$ = Daily receiving stream's flow divided by 4 (Mixing Consideration) in cfs minus the Intake flow in cfs.
T_s = Daily receiving stream's temperature. This can be the actual ambient temperature of the receiving stream or the intake water temperature (both in °F).
Q_e = Daily effluent flow or intake flow.
T_e = Daily effluent temperature in °F.

(a) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} limit, but is below the T_{max} and there is time available in Percent Deviation Allowance (see Note 6); then the permittee is to report the calculated temperature value as T_{max} and report a "No Discharge" for T_{cap}.
(b) If the T_{cap} calculated result is greater than the specific month's Daily Maximum and/or Monthly Average T_{cap} and T_{max}; then the permittee is to report the calculated temperature value as T_{max} and report a "No Discharge" for T_{cap}.

Note 7 – Missouri's Water Quality Standards allows permittees to exceed their applicable criteria for 1% of the year in Zone A in the Mississippi River. Percent Deviation Allowance shall be tracked in hours per year (please see **Special Condition 17 – Percent Deviation Allowance**).

B. STANDARD CONDITIONS

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

C. SPECIAL CONDITIONS

1. This permit 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.

C. SPECIAL CONDITIONS (continued)

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

(a) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water.
(b) The SWPPP must include a schedule for monthly site inspections and brief written reports. The inspections must include observation and evaluation of BMP effectiveness. Deficiencies must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report, including photographs. Any corrective measure that necessitates major construction may also need a construction permit. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to DNR personnel upon request.
(c) A provision for designating an individual to be responsible for environmental matters.
(d) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.

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

(a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
(b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
(c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
(d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
(e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.

10. The purpose of the SWPPP and the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.

11. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

12. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. When the presence of hydrocarbons is indicated, this water must be tested for Total Petroleum Hydrocarbons (TPH). The suggested analytical method for testing TPH is non-Halogenated Organic by Gas Chromatography method 8015 (also known as OA1 and OA2). However, if the permittee so desires to use other approved testing methods (i.e. EPA 1664), they may do so. If the concentration for TPH exceeds 10 mg/L, the water shall be treated on site before discharging, or taken to a wastewater treatment facility for treatment.

13. Substances, regulated by federal law under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), that are transported, stored, or used for maintenance, cleaning or repair, shall be managed according to RCRA and CERCLA.

14. The discharge of any pollutant not documented in the application for this permit is prohibited. This includes any chemical, biological material, radiological material, or any other material that may effect the ability of the receiving stream to fully support its beneficial and designated uses

15. Percent Deviation Allowance
Site-specific temperature criteria for the thermal discharges to the Mississippi River allow the permittee to exceed their applicable temperature criteria for 1% of the year for Zone A. This facility discharges to Zone A of the Mississippi River. Therefore, the permittee is authorized to exceed their Temperature Cap effluent limitation for 88 hours in one (1) calendar year. However, the permittee is not authorized to exceed their Temperature Max limitation at any time.

(i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.

(iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(5) Follow-up tests do not negate an initial failed test.

(6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the Department on a case by case basis.

(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

(4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF A MODIFIED PERMIT
OF
MO-0137243
CALUMET MISSOURI LLC

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

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

This Factsheet is for an Industrial Facility.

2014 Permit and Fact Sheet Modification

This modification transfers Hercules, Inc. extended aeration plant (formerly Outfall 006) to Calumet as 002. Calumet's outfall 002 will receive a maximum flow of 15,000 gpd of synthetic lubricant process wastewater and stormwater runoff that is dependent upon precipitation. Wastewater flows to this outfall for other products has discontinued allowing the removal of ammonia and nitrogen limits that were previously required in accordance with 40 CFR 418 – Fertilizer Manufacturing. Monitoring is retained for ammonia, Delta BHC, sulfate, aluminum, barium and iron to determine whether these pollutants are still present in concentrations that have the potential to exceed water quality standards.

The facility description was revised to reflect that ongoing discharges from 006 will be comingled with the discharge to the Mississippi River. Hercules anticipates closing the Powerhouse ash lagoon, Pentaerythritol Lake and BOD lagoon in 2014. Hercules has established an additional internal monitoring location for Hercules' 006 to determine internal compliance with effluent limits found in MO-0000311.

Part I – Facility Information

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

☒ - No.

Application Date: October 23, 2012
Expiration Date: new permit

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001a	varies w/precipitation	BMPs	Stormwater/condensate/ cooling tower bleed	0.2
001b	5.58	Primary	Process Wastewater	0.0
002	0.87	Primary	Process Wastewater	0.0

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

☒ - All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

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

☒ - No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance

Not Applicable ☒; The permittee/facility is not currently under Water Protection Program enforcement action.

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

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

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

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 an 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.

Applicable ☒; At this time, the permittee is required to develop and implement a SWPPP.

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

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

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

3) Water Quality Based Effluent Limits

Water quality monitoring and limitations are included in the permit to protect the receiving stream from the discharge of toxic substances in toxic amounts.

4) Production Process Flow Estimation

The facility's modification application indicated a maximum of 15,000 gpd process wastewater flows to outfall 002 (formerly Hercules 006).

5) Best Professional Judgment limit definition

The stormwater is commingled with the industrial wastewater discharged by the facility. An allotment for storm water needed to be given for TSS. Based on information submitted by the facility, the average storm water flow used to determine the BPJ limit is 75 gpm or 0.108 MGD. The maximum flow used to determine the BPJ limit is 300 gpm or 0.432 MGD. The concentration used to derive the storm water allotment is 50 mg/L.

6) Outfall 00b1 Basis for Monitoring and Limitations

Effluent from the Calumet outfalls is discharged to the Mississippi River and Buffalo Creek after being treated by a lagoon wastewater treatment system, or extended aeration. The treatment facility is operated and maintained to meet the water quality requirements of the Clean Water Act. The basis for the permit monitoring requirements and limitations are specified below.

OUTFALL #001A – 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.

- **Settleable Solids.** Effluent limit carried over from previous permit. DMR data for the previous 5 years shows the facility is capable of meeting these limits.

- **pH**. 7.015 (9) (G) 1.

- **Total Ammonia Nitrogen.** Monitoring was removed from this permit because a review of the last 5 years of DMR data showed non-detects for ammonia.

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

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L. Chlorine is a commonly used biocide in cooling towers.

  Chronic WLA: $C_e = ((0.0155 + 0.0)10 - (0.0 * 0.0))/0.0155$
  $C_e = 10$ µg/L

  Acute WLA: $C_e = ((0.0155 + 0.0)19 - (0.0 * 0.0))/0.0155$
  $C_e = 19$ µg/L

  $LTA_c = 10\ (0.527) = 5.3$ µg/L [CV = 0.6, 99th Percentile]
  $LTA_a = 19\ (0.321) = 6.1$ µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 5.3 (3.11) = **17** µg/L [CV = 0.6, 99th Percentile]
  AML = 5.3 (1.55) = **8** µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Copper, Total Recoverable.** Copper monitoring is being required because the facility discharges steam condensate. Condensate has a high capacity to dissolve metals into solution, in particular copper from the pipes used to carry the condensate.

OUTFALL #001B- Combined outfall consisting of Calumet Outfall #002, Dyno Nobel Outfall #001 and Ashland #006
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.

Basis for Limitations Codes:

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

OUTFALL #001B – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5)**. BOD monitoring has been retained from the previous permit. Since Outfall 002 discharges via Outfall 001, BOD limitation established in this permit for Outfall 002 are sufficient to justify a monitoring only requirement for BOD at Outfall 001.

- **Total Suspended Solids (TSS)**. The Total Suspended Solids (TSS) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 414, subpart H and best professional judgment (BPJ). For the production of Synlubes the Daily Maximum limit is 183 milligrams per liter times the process flow. For the production of Synlubes the Monthly Average limit is 57 milligrams per liter times the process flow. The limits for TSS are calculated as follows:

  Technology Based

  Permit Limit = (Guideline limit)*(Process Flow MGD) *8.34

  Synlubes-

  30 day average = (57 mg/L)*(0.015 MGD) *8.34= 7.13 lbs

  Daily Maximum = (183 mg/L)*(0.015 MGD)*8.34= 22.9 lbs

  BPJ

  Stormwater

  30 day average = (30 mg/L)*(0.009 MGD)*(8.34) = 2.25 lbs

  Daily Maximum = (45 mg/L)*(0.036 MGD)*(8.34) = 13.5 lbs

  Dyno Nobel Contribution

  30 day average = 213.1 lbs

  Daily Maximum = 213.1 lbs

  Total

  30 day average = 223 lbs

  Daily Maximum = 250 lbs

  This permit modification removes TSS allowances for pentaerythritol, sodium formate and formaldehyde production as well as discharges from the power house ash lagoon and coal pile runoff. This was done because the Hercules facility has ceased production and power generation.

- **pH**. The hydrogen ion concentration of the effluent discharge is expressed as pH. A pH range of 6.5 to 9.0 S.U. has been included in the permit to ensure water quality protection for aquatic life in the receiving waters, according to the regulations set forth in MDNR Title 10. Since continuous monitoring of pH is required, the total time during which pH values are outside of the required range shall not exceed 7 hours and 26 minutes in any calendar month; and no individual excursion shall exceed 60 minutes.

- **Ammonia.** A reasonable potential analysis was performed for ammonia at outfall 001b (see appendix 4) which stated that the potential to exceed Missouri's water quality standard does not exist therefore, the ammonia monitoring and limitations are continued in the permit based on best professional judgment (BPJ) using the effluent guidelines set forth in 40 CFR part 418, subpart C as rational. The limits for ammonia are calculated as follows:

  Permit Limit = (Guideline limit)*(production) *(2000 lbs/ton)*(0.847)

  This permit modification removes ammonia allowances that were associated with Hercules' use of nitroform in the production of ureaform fertilizers. This activity no longer occurs on-site.

Ammonia Nitrate-Prill
30 day average = (0.07 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 134.4 lbs
Daily Maximum = (0.12 lbs)/(1000 lbs)*(960 tons) *(2000 lbs/ton)= 230.4 lbs
BPJ
Cool/Boiler blow down (limits continued from pervious permit)
30 day average = (1025 mg/L)*(0.0124 MGD)*8.34= 106 lbs
Daily Maximum = (1625 mg/L)*(0.0124 MGD)*8.34= 168 lbs
Intake Credit
30 day average = (2 mg/L)*(1.4 MGD)*(8.34) = 23.4 lbs
Daily Maximum = (3 mg/L)*(1.4 MGD)*(8.34) = 35.2 lbs
Shipping Losses (continued from the previous permit)
30 day average =5.5 lbs
Daily Maximum = 8.25 lbs
BOD Clarifier (limits continued from previous permit)
30 day average = 8.0 lbs
Daily Maximum = 13.0 lbs
Stormwater
30 day average = (160 mg/L)*(0.0075 MGD)*(8.34) = 10 lbs
Daily Maximum = (160 mg/L)*(0.03 MGD)*(8.34) = 40 lbs
Total at 001
30 day average = 341 lbs
Daily Maximum = 893 lbs

Monitoring requirements and limitations for Nitrate are listed in Table A in the Permit.

- **WET Test**. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

☒ Acute

☒ No less than **TWICE/YEAR:**
- ☒ Facility is subject to production processes alterations throughout the year.
- ☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☐ Facility has been granted seasonal relief of numeric limitations.

Classified P with Mixing Considerations, the AEC% is determined as follows:.

5.6 / (561 + 5.6) =0.01 = 1.0 %, so 10% default AEC applies.

- **Delta BHC** Expanded effluent testing required during the renewal application process of this permit indicates the presences of Delta BHC. The testing indicated a concentration of 0.3 µg/L. The Missouri Water Quality standard for Delta BHC discharged in waters classified for Human Health Protection – Fish Consumption is 0.0074 µg/L. The Mississippi River for which Outfall 001 discharges has the Drinking Water Supply stream classification. Given that this criterion is Chronic and taking into consideration the mixing zone flow of the Mississippi, a monitoring only requirement is applicable to evaluate this pollutant over the next five years.

- **Sulfate.** Expanded effluent testing required during the renewal application process of this permit indicates the presence of sulfate. The testing indicated a concentration of 160 mg/L. The Missouri Water Quality standard for sulfate discharged waters classified for Drinking Water Supply is 250 mg/L. The Mississippi River for which Outfall 001 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Sulfate.

- **Aluminum, Total Recoverable.** Expanded effluent testing required during the renewal application process of this permit indicates the presence of aluminum. The testing indicated a concentration of 180 µg/L. The Missouri Water Quality standard for aluminum discharged in waters classified for aquatic life protection is 750 µg/L. The Mississippi River for which Outfall 001 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Aluminum.

Synlubes-

30 day average = (45 mg/L)*(0.015 MGD) *8.34= 5.6 lbs

Daily Maximum = (120 mg/L)*(0.015 MGD)*8.34= 15 lbs.

- **Total Suspended Solids (TSS).** The Total Suspended Solids (TSS) monitoring and limitations are continued in the permit based on the effluent guidelines set forth in 40 CFR part 414, subpart H. For the production of Synlubes the Daily Maximum limit is 183 milligrams per liter times the process flow. For the production of Synlubes the Monthly Average limit is 57 milligrams per liter times the process flow. Contaminated stormwater pumped from secondary containment has undergone primary settling, it is the permit writer's best professional judgment that 45 mg/L daily maximum and 30 mg/L monthly average concentrations of TSS is technologically feasible and protective of water quality. The limits for TSS are calculated as follows:

Permit Limit = (Guideline limit)*(Process Flow MGD) *8.34

Technology Based

Synlubes-

30 day average = (57 mg/L)*(0.015 MGD) *8.34= 7.1 lbs

Daily Maximum = (183 mg/L)*(0.015 MGD)*8.34= 23 lbs

Best Professional Judgment

Stormwater

30 day average = (30 mg/L)*(0.009 MGD)*(8.34) = 2.25 lbs
Daily Maximum = (45 mg/L)*(0.036 MGD)*(8.34) = 13.5 lbs

Total

30 day average = 9.4 lbs
Daily Maximum = 36.4 lbs

- **pH.** The hydrogen ion concentration of the effluent discharge is expressed as pH. A pH range of 6.5 to 9.0 S.U. has been included in the permit to ensure water quality protection for aquatic life in the receiving waters, according to the regulations set forth in MDNR Title 10.

- **Total Ammonia Nitrogen.** A reasonable potential analysis was performed for ammonia at this outfall during the previous renewal (Hercules 006) (see appendix 4) which stated that the potential to exceed Missouri's water quality standard does not exist therefore, the ammonia monitoring and limitations are continued in the permit based on best professional judgment.

- **Organic Priority Pollutants.** Annual monitoring of priority organic pollutants and several heavy metals, per 40 CFR 414.91, is required to insure protection of aquatic life. See special condition 6 for more information.

- **Delta BHC** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of Delta BHC. The testing indicated a concentration of 0.71 µg/L. The Missouri Water Quality standard for Delta BHC discharged in waters classified for Human Health Protection – Fish Consumption is 0.0074 µg/L. The Mississippi River for which Outfall 002 discharges has the Drinking Water Supply stream classification. Given that this criterion is Chronic and taking into consideration the mixing zone flow of the Mississippi, a monitoring only requirement is applicable to evaluate this pollutant.

- **Sulfate.** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of sulfate. The testing indicated a concentration of 210 mg/L. The Missouri Water Quality standard for sulfate discharged waters classified for Drinking Water Supply is 250 mg/L. The Mississippi River for which Outfall 002 discharges has the Drinking Water Supply stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Sulfate.

- **Aluminum, Total Recoverable.** Expanded effluent testing required during the previous renewal application of this permitted outfall (Hercules 006) indicates the presence of aluminum. The testing indicated a concentration of 89 µg/L. The Missouri Water Quality standard for aluminum discharged in waters classified for aquatic life protection is 750 µg/L. The Mississippi River for which Outfall 002 discharges has the aquatic life protection stream classification. A monitoring requirement has been established in this permit to determine upon next renewal if reasonable potential exists to exceed the Missouri Water Quality standards for Aluminum.

Comment:
Both Ashland, Inc. and Dyno Nobel expressed discomfort with the continued sharing of the outfall that discharges to the Mississippi River.

Response:
The department concurs that separating the discharges would be beneficial and is working with the permittees to reach a satisfactory conclusion. However, at the time of this modification, the department understands that Calumet is allowed to discharge through the shared outfall. When an additional outfall is established the permits will be modified to reflect that change.

DATE OF FACT SHEET: JANUARY 16, 2013

COMPLETED BY:

ALAN MOREAU, ENVIRONMENTAL SPECIALIST III
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL WASTEWATER UNIT
(573) 522-2553
alan.moreau@dnr.mo.gov

2014 MODIFICATION

DATE OF FACT SHEET: DECEMBER 31, 2013

COMPLETED BY:

AMANDA SAPPINGTON
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL WASTEWATER UNIT
(573) 751-8728
amanda.sappington@dnr.mo.gov