ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES, INC.
12 GILL STREET, SUITE 4700
WOBURN, MASSACHUSETTS 01801 TEL 781-569-4000 FAX 781-569-4001

July 7, 2017

U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, Massachusetts 02109-3912

Re: Notice of Intent for 2016 Remediation General Permit
BASF Corporation
36 Taunton Street, Plainville, Massachusetts
Remediation General Permit No. MAG910016

To Whom It May Concern:

On behalf of BASF Corporation (BASF), Roux Associates Inc. (Roux Associates) respectfully submits this National Pollution Discharge Elimination System (NPDES) Remediation General Permit (RGP) Notice of Intent (NOI) for continued coverage of discharges associated with remedial activities being conducted at the BASF Corporation facility (formerly known as Engelhard Corporation and BASF Catalysts, LLC) located at 36 Taunton Street in Plainville, Massachusetts (the Site).[1] Remedial activities being conducted at the Site are being performed in accordance with applicable United States Environmental Protection Agency (EPA) requirements. BASF is required by an Administrative Consent Order with USEPA to perform these activities as a Groundwater Stabilization Measure. The system has been in operation under several General Permits and in compliance from 1998 to present. Currently, remedial activities include the operation of a groundwater pump and treat system, which involves the extraction of impacted groundwater from six on-Site extraction wells to remove volatile organic compounds (VOCs) and certain metals. Groundwater treatment consists of metals and sludge removal systems, an air stripper, bag filters, and activated liquid-phase carbon. Air stripper off-gas is treated with activated vapor-phase carbon. Treated groundwater is discharged to Turnpike Lake (see Figures 1 and 2 attached). This discharge was previously covered under RGP number MAG910016, which expired on September 9, 2015. The system discharge has continued after expiration of the 2010 RGP in accordance with EPA's administrative continuance of coverage under the 2010 RGP.

Roux Associates is submitting this NOI for coverage under the 2016 RGP in order to continue the existing system discharge. The following information is attached in support of this NOI:

1. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit;

[1] The Site has historically also used the addresses 30 and 32 Taunton Street.

2. Figure 1 - Site Plan (with discharge location) and Figure 2 - System Schematic of the Groundwater Treatment Plant;
3. Additional information in support of the NOI, including:
    a. Receiving Water Information: Part B, Sections 1, 2, 4, and 7
    b. Discharge Information: Part D, Section 4
    c. Chemical and Additive Information: Part F, Section 2
    d. Endangered Species Act Eligibility Determination: Part G, Section 1
    e. National Historic Preservation Act Eligibility Determination, Part H, Section 1
4. StreamStats Output for 7Q10 Determination;
5. Table 1 – Influent Water Summary Table and Table 2 – Receiving Water Summary Table;
6. Copy of Entered Data for Influent and Receiving Waters;
7. Copy of Fresh Water Results from Entered Data;
8. Laboratory Sampling Data;
9. MSDSs; and
10. Endangered Species Act Eligibility Determination Letter

If you have any questions or comments regarding the attached NOI, please do not hesitate to contact the undersigned at (781) 569-4000.

Sincerely,

ROUX ASSOCIATES, INC.

Melissa Wilson
Staff Engineer

Chase Gerbig
Senior Engineer

JR Taormina
Principal Engineer

cc: Mr. Ed Vanyo, BASF
Mr. James Marshall, Superintendent, Plainville Water and Sewer Department
Ms. Catherine Vakalopoulos, Massachusetts Department of Environmental Protection

ATTACHMENTS

ATTACHMENT 1

Remediation Permit Notice of Intent

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
BASF Plainville</td><td colspan="3">Site address: 36 Taunton Street
Street:</td></tr>
<tr><td>City: Plainville</td><td>State: MA</td><td>Zip: 02762</td></tr>
<tr><td rowspan="4">2. Site owner
BASF Corporation

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Ed Vanyo</td></tr>
<tr><td colspan="2">Telephone: 215-740-0886</td><td>Email: ed.vanyo@basf.com</td></tr>
<tr><td colspan="3">Mailing address: 100 Park Avenue
Street:</td></tr>
<tr><td>City: Florham Park</td><td>State: NJ</td><td>Zip: 07932</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Groundwater & Environmental Services, Inc. (GES)</td><td colspan="3">Contact Person: Meghan Proia</td></tr>
<tr><td colspan="2">Telephone: 800-220-6119, ext 3589</td><td>Email: MProia@gesonline.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 364 Littleton Road, Suite 4</td></tr>
<tr><td>City: Westford</td><td>State: MA</td><td>Zip: 01886</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
MAG910016

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
☐ MA Chapter 21e; list RTN(s):

☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:

☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Turnpike Lake	MAG62198	A

Receiving water is (check any that apply): ■ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ■ Yes ☐ No

If yes, specify: Turnpike Lake is identified as a Public Water Supply

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Not Listed

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.063 cfs
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1.0

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No

If yes, indicate date confirmation received: Receiving water is a lake. Dilution factor was not granted.

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants: Chlorinated volatile organic compounds and certain metals	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ■ Existing discharge ☐ New discharge ☐ New source	
Outfall(s): Groundwater treatment plant effluent discharge	Outfall location(s): (Latitude, Longitude) 42° 01' 0.92" N 71°18' 39.50" W
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Not Applicable Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year): Start: Existing; to begin under this permit 07/2017. End: 07/2022 under this permit. Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
■ II – Non-Petroleum-Related Site Remediation
☐ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

■ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
■ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
■ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>☐ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia	✓		1	4500NH3	75	< 75	< 75	Report mg/L	---
Chloride		✓	1	300	500	92100	92100	Report µg/l	---
Total Residual Chlorine	✓		1	4500CL-D	20	< 20	< 20	0.2 mg/L	11 µg/L
Total Suspended Solids		✓	1	2540D	5000	<5000	<5000	30 mg/L	---
Antimony	✓		1	200.8	4	< 4	< 4	206 µg/L	640 µg/L
Arsenic	✓		1	200.8	1	< 1	< 1	104 µg/L	10 µg/L
Cadmium		✓	1	200.8	0.2	0.67	0.67	10.2 µg/L	0.2040 µg/L
Chromium III	✓		1	N/A	10	< 10	< 10	323 µg/L	63.1 µg/L
Chromium VI	✓		1	7196A	10	< 10	< 10	323 µg/L	11.4 µg/L
Copper		✓	1	200.8	1	2.51	2.51	242 µg/L	6.7 µg/L
Iron		✓	1	200.7	50	131	131	5,000 µg/L	1000 µg/L
Lead	✓		1	200.8	0.5	< 0.5	< 0.5	160 µg/L	1.96 µg/L
Mercury	✓		1	245.1	0.2	< 0.2	< 0.2	0.739 µg/L	0.91 µg/L
Nickel		✓	1	200.8	2	40.29	40.29	1,450 µg/L	37.8 µg/L
Selenium	✓		1	200.8	5	< 5	< 5	235.8 µg/L	5.0 µg/L
Silver	✓		1	200.8	0.4	< 0.4	< 0.4	35.1 µg/L	2.0 µg/L
Zinc	✓		1	200.8	10	< 10	< 10	420 µg/L	86.7 µg/L
Cyanide	✓		1	4500CN	5	< 5	< 5	178 mg/L	5.2 µg/L
B. Non-Halogenated VOCs									
Total BTEX	✓		0					100 µg/L	---
Benzene	✓		0					5.0 µg/L	---
1,4 Dioxane	✓		0					200 µg/L	---
Acetone	✓		0					7.97 mg/L	---
Phenol	✓		0					1,080 µg/L	300 µg/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride		✓	1	8260C	10	< 10	< 10	4.4 µg/L	1.6 µg/L
1,2 Dichlorobenzene	✓		1	8260C	50	< 50	< 50	600 µg/L	---
1,3 Dichlorobenzene	✓		1	8260C	50	< 50	< 50	320 µg/L	---
1,4 Dichlorobenzene	✓		1	8260C	50	< 50	< 50	5.0 µg/L	---
Total dichlorobenzene	✓		1	8260C	50	< 50	< 50	763 µg/L in NH	---
1,1 Dichloroethane		✓	1	8260C	15	15	15	70 µg/L	---
1,2 Dichloroethane		✓	1	8260C	10	< 10	< 10	5.0 µg/L	---
1,1 Dichloroethylene		✓	1	8260C	10	12	12	3.2 µg/L	---
Ethylene Dibromide	✓		1	504.1	0.0105	< 0.0105	< 0.0105	0.05 µg/L	---
Methylene Chloride		✓	1	8260C	60	< 60	< 60	4.6 µg/L	---
1,1,1 Trichloroethane		✓	1	8260C	10	370	370	200 µg/L	---
1,1,2 Trichloroethane		✓	1	8260C	15	< 15	< 15	5.0 µg/L	---
Trichloroethylene		✓	1	8260C	10	70	70	5.0 µg/L	---
Tetrachloroethylene		✓	1	8260C	10	1300	1300	5.0 µg/L	3.3 µg/L
cis-1,2 Dichloroethylene		✓	1	8260C	10	72	72	70 µg/L	---
Vinyl Chloride		✓	1	8260C	20	< 20	< 20	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓		0					190 µg/L	---
Diethylhexyl phthalate	✓		0					101 µg/L	2.2 µg/L
Total Group I PAHs	✓		0					1.0 µg/L	---
Benzo(a)anthracene	✓		0					As Total PAHs	0.0038 µg/L
Benzo(a)pyrene	✓		0						0.0038 µg/L
Benzo(b)fluoranthene	✓		0						0.0038 µg/L
Benzo(k)fluoranthene	✓		0						0.0038 µg/L
Chrysene	✓		0						0.0038 µg/L
Dibenzo(a,h)anthracene	✓		0						0.0038 µg/L
Indeno(1,2,3-cd)pyrene	✓		0						0.0038 µg/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs	✓		0					100 µg/L	---
Naphthalene	✓		0					20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✓		1	608	0.269	<0.269	<0.269	0.000064 µg/L	---
Pentachlorophenol	✓		0					1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✓		0					5.0 mg/L	---
Ethanol	✓		0					Report mg/L	---
Methyl-tert-Butyl Ether	✓		0					70 µg/L	20 µg/L
tert-Butyl Alcohol	✓		0					120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✓		0					90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH		✓	1	4500H+-B	--	6.1	6.1		
Temperature		✓	1	--	--	59 °C	59°C		
Hardness		✓	1	SM 2340B	660	68,300	68,300		

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ■ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption

■ Ion Exchange ■ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ☐ Other; if so, specify:

Note that precipitation/coagulation/flocculation only used as needed.

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

The existing treatment system consists a groundwater treatment system that treats groundwater extracted from six extraction wells as shown on Figure 1. Extracted groundwater is treated for chlorinated volatile organic compounds and certain metals via a clarifier, air stripper, bag filters, liquid phase activated carbon, and an ion exchange resin prior to discharge to Turnpike Lake. Sludge removed from the system is drummed and disposed off-site and air discharge off gas resulting from the air stripper is treated with vapor phase activated carbon before being discharged to the atmosphere. Chemical feed systems are available but infrequently utilized (1-2 times per year).

Identify each major treatment component (check any that apply):

☐ Fractionation tanks■ Equalization tank ☐ Oil/water separator ■ Mechanical filter ☐ Media filter

■ Chemical feed tank ■ Air stripping unit ■ Bag filter ■ Other; if so, specify: Carbon Filters

Indicate if either of the following will occur (check any that apply):

☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Ion Exchange Resin Vessel Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	75 GPM
Provide the proposed maximum effluent flow in gpm.	75 GPM
Provide the average effluent flow in gpm. Mean flow rate July 2010-May 2016	37.3 GPM
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ■ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

Sodium Hydroxide and Sulfuric Acid (for neutralization) are used only on a contingent basis. MSDS's are attached.

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ■ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

☐ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

■ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ■ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ■ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ☐ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Please find attached the Groundwater Treatment Plant Schematic, laboratory analytical reports and chain of custody, supporting influent and effluent calculations, MSDS's, Endangered Species Act eligibility determination, and documentation of NHPA eligibility.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: A BMPP meeting the requirements of this general permit has been developed and implemented.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ☐ No ☐ NA ■
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ☐ NA ■
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: Edward Vanyo	Date: 07/07/2017
Print Name and Title: Ed Vanyo, Remediation Specialist	

ATTACHMENT 2

Figures

MH5
MH4
MH3
MH2
MH1
BUILDING 11 (GWTP)
BUILDINGS 8 AND 10
FORMER BUILDING
EW–6
EW–5
EW–4
EW–3
EW–2
EW–1
HDPE BARRIER WALL
ACCESS VAULT
APPROXIMATE SYSTEM DISCHARGE
TURNPIKE LAKE
TAUNTON STREET (ROUTE 152)
N

LEGEND:

- MH1 ACCESS MANHOLE
- PUMPING/EXTRACTION WELL
- PROPERTY BOUNDARY OF FORMER BASF FACILITY
- LOT/PROPERTY LINES IN AREA

100' 0 100'

Title:

SITE PLAN
AREA OF GROUNDWATER STABILIZATION MEASURE

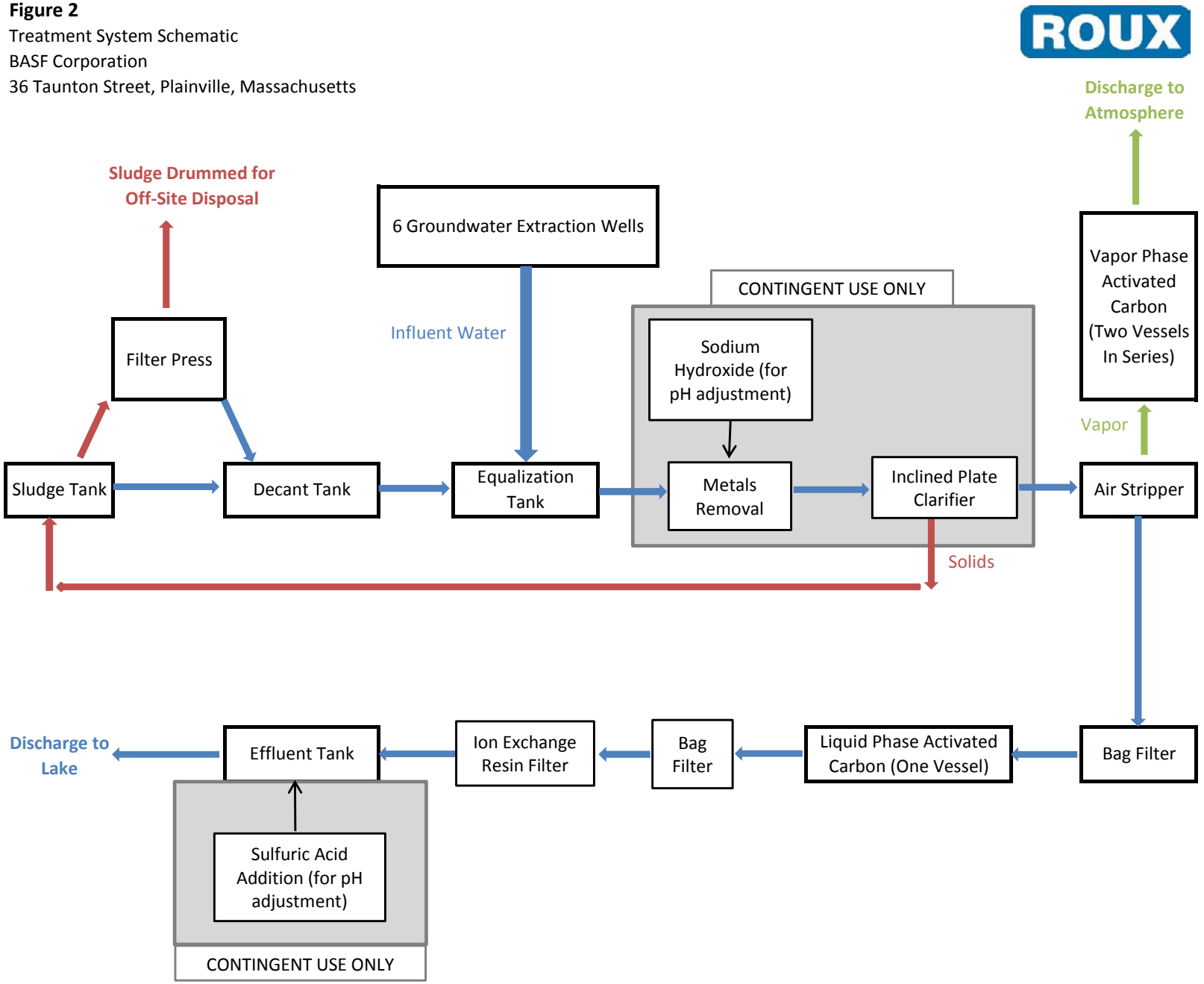
32 TAUNTON STREET
PLAINVILLE, MASSACHUSETTS

Prepared For:
BASF CHEMICAL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: JT	Date: JUNE 2017	FIGURE
Prepared by: WH/CC	Scale: AS SHOWN	1
Project Mgr: JT	Office: MA	
File No: BF0010002	Project: 0251.0020.M015	

Figure 2
Treatment System Schematic
BASF Corporation
36 Taunton Street, Plainville, Massachusetts



ATTACHMENT 3

Additional Information in Support of NOI

Additional Information in Support of NOI
BASF Corporation
36 Taunton Street, Plainville, Massachusetts

The following information has been provided in support of the NOI provided herein for the BASF Corporation (BASF) facility located at 36 Taunton Street in Plainville, Massachusetts:

B. Receiving Water Information
Section 1 and 2.
Turnpike Lake is classified as an Outstanding Resource Water (ORW) and identified as a Public Water Supply (PWS) because it is a tributary to the Wading River ORW/PWS. Roux Associates has confirmed this designation with multiple MassDEP sources. On behalf of BASF, Roux is currently corresponding with Ms. Catherine Vakalopoulos of the Massachusetts Department of Environmental Protection regarding this designation. Roux has provided Ms. Vakalopoulos with the 2010 RGP and NOI approval, MassDEP water quality determination of Turnpike Lake, orders of condition, and supplemental information pertaining to recent dredging work completed in Turnpike Lake to expedite MassDEP's review of the 2016 NOI.

Section 4.
A 7Q10 value of 0.063 cfs was calculated by StreamStats, which, based on the system discharge, would result in a dilution factor of 1.71. However, no dilution factor is used in the determination of effluent discharge limits. MassDEP did not grant a dilution factor because the receiving water body is a lake.

Section 7.
Attached Tables 1 and 2 provide a summary of the sampling results for the influent groundwater and receiving water body.

D. Discharge Information
Section 4.
Due to the high concentration of tetrachloroethylene (PCE), the halogenated VOCs analytes were diluted 20 times. Because of this dilution, it was not possible to reach the Minimum Levels (MLs) for all halogenated VOCs. The laboratory sampling results (Attachment 8) contain a narrative to support this reasoning. In regards to the sampling methods used by Alpha Analytical, the EPA granted Alpha Analytical permission to continue using methods 8260 and 8270 with the 2016 RGP. Documentation of the approval is also attached.

The Entered Data and Fresh Water Results calculated using the Fillable Electronic Format provided, are attached.

F. Chemical and additive information
Section 2.
Sodium hydroxide is kept on site to aid in metals removal via the metals removal system. However, with the introduction of the ion exchange resin to remove metals, the metals removal system is used very infrequently (less than one to two times per year). Sulfuric acid is used only as needed to adjust pH in the effluent before discharge. However, with the infrequent use of

sodium hydroxide, sulfuric acid is infrequently required to balance pH. The MSDSs for sodium hydroxide and sulfuric acid are attached. The materials are stored with compatible materials in accordance with the storage requirements specified in the respective reagents' MSDSs.

G. Endangered Species Act Eligibility Determination

Section 1.

FWS Criterion B has been selected. The IPaC system identified the Northern long-eared bat as an endangered species, but there are no federally listed endangered or threatened species for Norfolk County as found in Appendix II Summary of Endangered Species Act Listings and Essential Fish Habitat Designations. A "No Species Present" letter obtained from the FWS under section 7 of the ESA has been attached.

H. National Historic Preservation Act Eligibility Determination

Section 1.

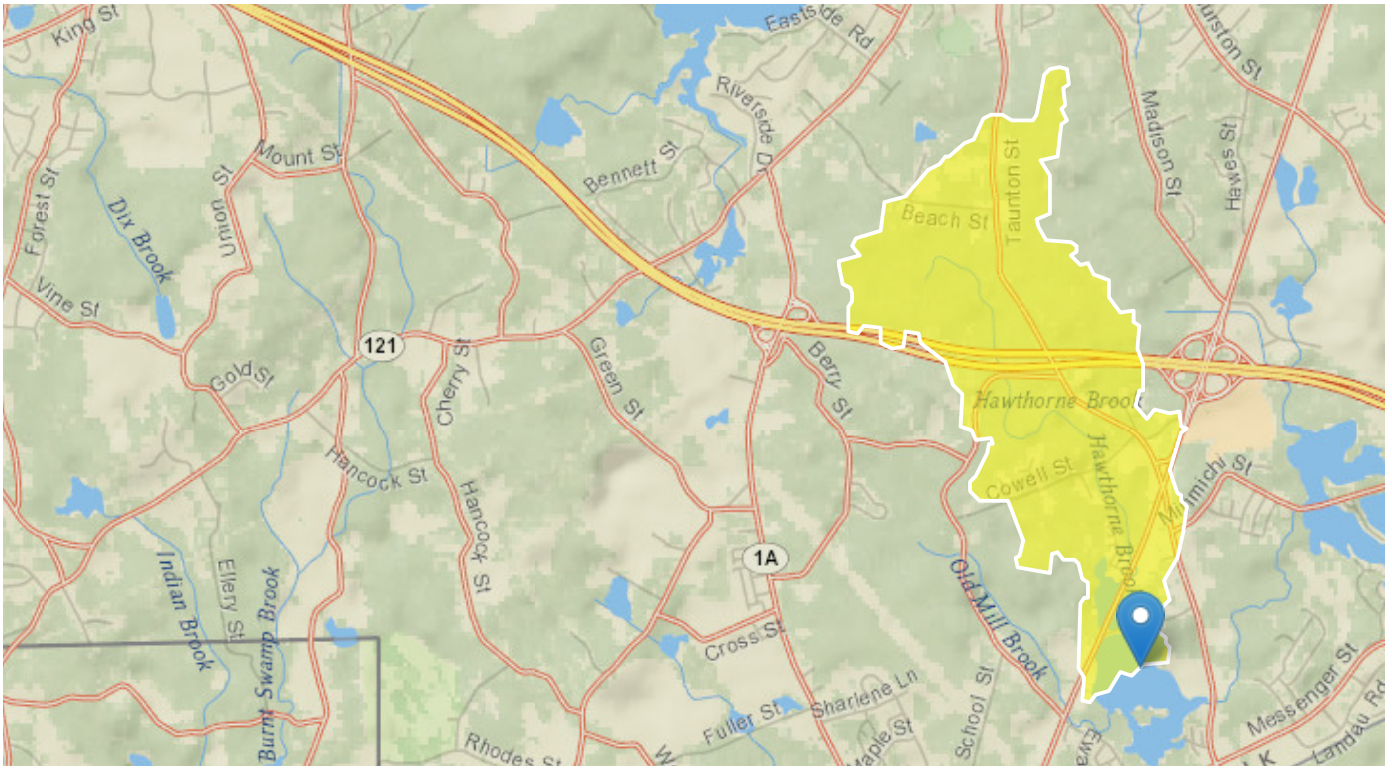
Plainville, Massachusetts is not listed as having any Historic Places on the National Register.

ATTACHMENT 4

StreamStats Output

StreamStats Report - BASF Plainville

Region ID:
MA
Workspace ID:
MA20170612103910441000
Clicked Point (Latitude, Longitude):
42.01699, -71.31256
Time:
2017-06-12 10:39:50 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.02	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.174	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.19	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters [100 Percent (2.02 square miles) Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit

DRNAREA	Drainage Area	2.02	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.174	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.19	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report [100 Percent (2.02 square miles) Statewide Low Flow WRIR00 4135]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	SEp
7 Day 2 Year Low Flow	0.164	ft^3/s	0.0534	0.482	49.5	49.5
7 Day 10 Year Low Flow	0.063	ft^3/s	0.0164	0.226	70.8	70.8

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

ATTACHMENT 5

Laboratory Summary Tables

Table 1 - Influent Sampling Summary
Groundwater Analytical Results
BASF Corporation
36 Taunton Street, Plainville, Massachusetts
NPDES Permit MAG910016

Analyte	Sample ID	INFLUENT	
	Sample Date	5/23/2017	6/14/2017
	Lab Sample ID	L1716822-01	L1719873-01
Inorganics	**Units**		
Ammonia	ug/l	< 75	--
Chloride	ug/l	**92100**	--
Total Residual Chlorine	ug/l	< 20	--
Total Suspended Solids	ug/l	< 5000	--
Antimony	ug/l	< 4	--
Arsenic	ug/l	< 1	--
Cadmium	ug/l	**0.67**	--
Chromium III	ug/l	< 10	--
Chromium VI	ug/l	< 10	--
Copper	ug/l	**2.51**	--
Iron	ug/l	**131**	--
Lead	ug/l	< 0.5	--
Mercury	ug/l	< 0.2	--
Nickel	ug/l	**40.29**	--
Selenium	ug/l	< 5	--
Silver	ug/l	< 0.4	--
Zinc	ug/l	< 10	--
Cyanide	ug/l	< 5	--
Halogenated VOCs			
Carbon tetrachloride	ug/l	< 10	--
1,2-Dichlorobenzene	ug/l	< 50	--
1,3-Dichlorobenzene	ug/l	< 50	--
1,4-Dichlorobenzene	ug/l	< 50	--
1,1-Dichloroethane	ug/l	**15**	--
1,2-Dichloroethane	ug/l	< 10	--
1,1-Dichloroethene	ug/l	**12**	--
Ethylene Dibromide	ug/l	< 0.0105	--
Methylene chloride	ug/l	< 60	--
1,1,1-Trichloroethane	ug/l	**370**	--
1,1,2-Trichloroethane	ug/l	< 15	--
Trichloroethene	ug/l	**70**	--
Tetrachloroethene	ug/l	**1300**	--
cis-1,2-Dichloroethene	ug/l	**72**	--
Vinyl chloride	ug/l	< 20	--
Halogenated SVOCs			
Aroclor 1016	ug/l	< 0.269	--
Aroclor 1221	ug/l	< 0.269	--
Aroclor 1232	ug/l	< 0.269	--
Aroclor 1242	ug/l	< 0.269	--
Aroclor 1248	ug/l	< 0.269	--
Aroclor 1254	ug/l	< 0.269	--
Aroclor 1260	ug/l	< 0.215	--
Other			
Total Hardness	ug/l	--	**68,300**
pH	SU	--	6.1
Temperature	°F	--	59 *

Notes:

ug/L indicates microgram per liter

< indicates compound is below laboratory reporting limit

* indicates parameter was field determined

Bold indicates compound was detected in sample

Table 2 - Receiving Water Sampling Summary
Turnpike Lake Water Results
BASF Corporation
36 Taunton Street, Plainville, Massachusetts
NPDES Permit MAG910016

Analyte	**Sample ID** **Sample Date** **Lab Sample ID**	RECEIVING WATER 5/23/2017 L1716822-02
Inorganics	**Units**	
Ammonia	ug/L	< 75
Antimony	ug/L	< 4
Arsenic	ug/L	< 1
Cadmium	ug/L	**0.2**
Chromium III	ug/L	< 10
Chromium VI	ug/L	< 10
Copper	ug/L	< 1
Iron	ug/L	**1190**
Lead	ug/L	**0.51**
Mercury	ug/L	< 0.2
Nickel	ug/L	< 2
Selenium	ug/L	< 5
Silver	ug/L	< 0.4
Zinc	ug/L	**41.19**
Other		
Total Hardness	ug/L	**31600**
pH	SU	6.3
Temperature	°F	72.1 *

Notes:
ug/L indicates microgram per liter
< indicates compound is below laboratory reporting limit
* indicates parameter was field determined
Bold indicates compound was detected in sample

ATTACHMENT 6

Influent and Receiving Water Entered Data

Enter number values in green boxes below

Enter values in the units specified

↓

0	Q_R = Enter upstream flow in **MGD**
0.0576	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

0

Enter values in the units specified

↓

68.3	C_d = Enter influent hardness in **mg/L** $CaCO_3$
31.6	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

6.3	pH in **Standard Units**
22.3	Temperature in **°C**
0	Ammonia in **mg/L**
31.6	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0.2	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
1190	Iron in **µg/L**
0.51	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
41.19	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
0	Ammonia in **mg/L**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0.67	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.51	Copper in **µg/L**
131	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
40.29	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
1300	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved

Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry

Discharge flow is equal to the design flow or 1 MGD, whichever is less

Only if approved by State as the entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State

Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

Metals required for all discharges if present and if dilution factor is > 1

Enter 0 if non-detect or testing not required

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

ATTACHMENT 7

Fresh Water Results from Entered Data

Dilution Factor	1.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**11**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	10	µg/L		
Cadmium	10.2	µg/L	**0.2040**	µg/L		
Chromium III	**323**	µg/L	63.1	µg/L		
Chromium VI	**323**	µg/L	11.4	µg/L		
Copper	**242**	µg/L	6.7	µg/L		
Iron	**5000**	µg/L	1000	µg/L		
Lead	**160**	µg/L	1.96	µg/L		
Mercury	**0.739**	µg/L	0.91	µg/L		
Nickel	1450	µg/L	**37.8**	µg/L		
Selenium	**235.8**	µg/L	5.0	µg/L		
Silver	**35.1**	µg/L	2.0	µg/L		
Zinc	**420**	µg/L	86.7	µg/L		
Cyanide	**178**	mg/L	5.2	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	5.0	µg/L	**3.3**	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

ATTACHMENT 8

Laboratory Sampling Data

ANALYTICAL REPORT

Lab Number:	L1716822
Client:	Roux Associates 12 Gill Street Suite 4700 Woburn, MA 01801
ATTN:	Chase Gerbig
Phone:	(781) 270-4027
Project Name:	BASF PLAINVILLE
Project Number:	0251.0020M015
Report Date:	06/28/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1716822-01	INFLUENT	WATER	PLAINVILLE, MA	05/23/17 12:45	05/23/17
L1716822-02	RECEIVING WATER	WATER	PLAINVILLE, MA	05/23/17 13:15	05/23/17
L1716822-03	TRIP BLANK	WATER	PLAINVILLE, MA	05/23/17 00:00	05/23/17

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1716822
Project Number:	0251.0020M015	**Report Date:**	06/28/17

Case Narrative (continued)

Report Submission

This report replaces the report issued May 31, 2017. A narrative has been added for the Volatile Organics analysis.

Sample Receipt

A Trip Blank was received in the laboratory, but not listed on the Chain of Custody, and was not analyzed.

Volatile Organics

L1716822-01: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample (tetrachloroethene).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Cripps Melissa Cripps

Title: Technical Director/Representative Date: 06/28/17

ORGANICS

VOLATILES

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA

Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 05/30/17 12:52
Analyst: NS

Date Collected: 05/23/17 12:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 504.1
Extraction Date: 05/30/17 10:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	--	1	A

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-01 D
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA

Date Collected: 05/23/17 12:45
Date Received: 05/23/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/30/17 13:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	60	--	20
1,1-Dichloroethane	15		ug/l	15	--	20
Carbon tetrachloride	ND		ug/l	10	--	20
1,1,2-Trichloroethane	ND		ug/l	15	--	20
Tetrachloroethene	1300		ug/l	10	--	20
1,2-Dichloroethane	ND		ug/l	10	--	20
1,1,1-Trichloroethane	370		ug/l	10	--	20
Vinyl chloride	ND		ug/l	20	--	20
1,1-Dichloroethene	12		ug/l	10	--	20
Trichloroethene	70		ug/l	10	--	20
1,2-Dichlorobenzene	ND		ug/l	50	--	20
1,3-Dichlorobenzene	ND		ug/l	50	--	20
1,4-Dichlorobenzene	ND		ug/l	50	--	20
cis-1,2-Dichloroethene	72		ug/l	10	--	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 05/30/17 11:25
Analyst: NS

Extraction Method: EPA 504.1
Extraction Date: 05/30/17 10:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1008016-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/30/17 11:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1008380-5					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.75	--
Tetrachloroethene	ND		ug/l	0.50	--
1,2-Dichloroethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1008016-2						
1,2-Dibromoethane	93		-		70-130	-			A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1008380-3 WG1008380-4								
Methylene chloride	94		95		70-130	1		20
1,1-Dichloroethane	97		99		70-130	2		20
Carbon tetrachloride	75		75		63-132	0		20
1,1,2-Trichloroethane	95		97		70-130	2		20
Tetrachloroethene	93		96		70-130	3		20
1,2-Dichloroethane	96		97		70-130	1		20
1,1,1-Trichloroethane	75		79		67-130	5		20
Vinyl chloride	99		100		55-140	1		20
1,1-Dichloroethene	96		100		61-145	4		25
Trichloroethene	92		94		70-130	2		25
1,2-Dichlorobenzene	93		96		70-130	3		20
1,3-Dichlorobenzene	93		97		70-130	4		20
1,4-Dichlorobenzene	91		95		70-130	4		20
cis-1,2-Dichloroethene	92		95		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		101		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		105		70-130
Dibromofluoromethane	101		100		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1008016-3 QC Sample: L1716907-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.257	0.241	94		-	-		65-135	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.257	0.234	91		-	-		65-135	-		20	A

PCBS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA

Matrix: Water
Analytical Method: 5,608
Analytical Date: 05/30/17 06:17
Analyst: HT

Date Collected: 05/23/17 12:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 608
Extraction Date: 05/26/17 06:54
Cleanup Method: EPA 3665A
Cleanup Date: 05/27/17
Cleanup Method: EPA 3660B
Cleanup Date: 05/27/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.269	--	1	B
Aroclor 1221	ND		ug/l	0.269	--	1	B
Aroclor 1232	ND		ug/l	0.269	--	1	B
Aroclor 1242	ND		ug/l	0.269	--	1	B
Aroclor 1248	ND		ug/l	0.269	--	1	B
Aroclor 1254	ND		ug/l	0.269	--	1	B
Aroclor 1260	ND		ug/l	0.215	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	67		30-150	B

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,608
Analytical Date: 05/30/17 05:21
Analyst: HT

Extraction Method: EPA 608
Extraction Date: 05/26/17 06:54
Cleanup Method: EPA 3665A
Cleanup Date: 05/27/17
Cleanup Method: EPA 3660B
Cleanup Date: 05/27/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1007295-1						
Aroclor 1016	ND		ug/l	0.250	--	B
Aroclor 1221	ND		ug/l	0.250	--	B
Aroclor 1232	ND		ug/l	0.250	--	B
Aroclor 1242	ND		ug/l	0.250	--	B
Aroclor 1248	ND		ug/l	0.250	--	B
Aroclor 1254	ND		ug/l	0.250	--	B
Aroclor 1260	ND		ug/l	0.200	--	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	68		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1007295-2									
Aroclor 1016	91		-		30-150	-		30	B
Aroclor 1260	85		-		30-150	-		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80				30-150	B
Decachlorobiphenyl	66				30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1007295-3 QC Sample: L1716907-01 Client ID: MS Sample													
Aroclor 1016	ND	3.81	3.63	95		-	-		40-126	-		30	B
Aroclor 1260	ND	3.81	3.27	86		-	-		40-127	-		30	B

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84				30-150	B
Decachlorobiphenyl	47				30-150	B

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1007295-4 QC Sample: L1716822-01 Client ID: INFLUENT							
Aroclor 1016	ND	ND	ug/l	NC		30	B
Aroclor 1221	ND	ND	ug/l	NC		30	B
Aroclor 1232	ND	ND	ug/l	NC		30	B
Aroclor 1242	ND	ND	ug/l	NC		30	B
Aroclor 1248	ND	ND	ug/l	NC		30	B
Aroclor 1254	ND	ND	ug/l	NC		30	B
Aroclor 1260	ND	ND	ug/l	NC		30	B

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		88		30-150	B
Decachlorobiphenyl	67		73		30-150	B

METALS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA
Matrix: Water
Date Collected: 05/23/17 12:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Arsenic, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Cadmium, Total	0.00067		mg/l	0.00020	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Chromium, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Copper, Total	0.00251		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Iron, Total	0.131		mg/l	0.050	--	1	05/24/17 11:00	05/25/17 19:12	EPA 3005A	19,200.7	PS
Lead, Total	ND		mg/l	0.00050	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Mercury, Total	ND		mg/l	0.00020	--	1	05/25/17 14:45	05/26/17 19:22	EPA 245.1	3,245.1	EA
Nickel, Total	0.04029		mg/l	0.00200	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Selenium, Total	ND		mg/l	0.00500	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Silver, Total	ND		mg/l	0.00040	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
Zinc, Total	ND		mg/l	0.01000	--	1	05/24/17 11:00	05/25/17 10:32	EPA 3005A	3,200.8	BV
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		05/25/17 10:32	NA	107,-	

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-02
Client ID: RECEIVING WATER
Sample Location: PLAINVILLE, MA
Matrix: Water
Date Collected: 05/23/17 13:15
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Arsenic, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Cadmium, Total	0.00020		mg/l	0.00020	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Chromium, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Copper, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Iron, Total	1.19		mg/l	0.050	--	1	05/24/17 11:00	05/25/17 22:29	EPA 3005A	19,200.7	PS
Lead, Total	0.00051		mg/l	0.00050	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Mercury, Total	ND		mg/l	0.00020	--	1	05/25/17 14:45	05/26/17 19:24	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Selenium, Total	ND		mg/l	0.00500	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Silver, Total	ND		mg/l	0.00040	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Zinc, Total	0.04119		mg/l	0.01000	--	1	05/24/17 11:00	05/25/17 10:46	EPA 3005A	3,200.8	BV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	31.6		mg/l	0.660	NA	1	05/24/17 11:00	05/25/17 22:29	EPA 3005A	19,200.7	PS
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		05/25/17 10:46	NA	107,-	

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1006543-1										
Iron, Total	ND		mg/l	0.050	--	1	05/24/17 11:00	05/25/17 18:35	19,200.7	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-02 Batch: WG1006543-1										
Hardness	ND		mg/l	0.660	NA	1	05/24/17 11:00	05/25/17 18:35	19,200.7	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1006546-1										
Antimony, Total	ND		mg/l	0.00400	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Arsenic, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Cadmium, Total	ND		mg/l	0.00020	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Chromium, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Copper, Total	ND		mg/l	0.00100	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Lead, Total	ND		mg/l	0.00050	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Nickel, Total	ND		mg/l	0.00200	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Selenium, Total	ND		mg/l	0.00500	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Silver, Total	ND		mg/l	0.00040	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV
Zinc, Total	ND		mg/l	0.01000	--	1	05/24/17 11:00	05/25/17 10:22	3,200.8	BV

Prep Information

Digestion Method: EPA 3005A

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1007045-1										
Mercury, Total	ND		mg/l	0.00020	--	1	05/25/17 14:45	05/26/17 18:59	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1006543-2								
Iron, Total	105		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG1006543-2								
Hardness	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1006546-2								
Antimony, Total	94		-		85-115	-		
Arsenic, Total	100		-		85-115	-		
Cadmium, Total	109		-		85-115	-		
Chromium, Total	97		-		85-115	-		
Copper, Total	101		-		85-115	-		
Lead, Total	98		-		85-115	-		
Nickel, Total	99		-		85-115	-		
Selenium, Total	104		-		85-115	-		
Silver, Total	99		-		85-115	-		
Zinc, Total	104		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1007045-2								
Mercury, Total	104		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-3 QC Sample: L1716645-01 Client ID: MS Sample												
Iron, Total	0.076	1	1.12	104		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-3 QC Sample: L1716645-01 Client ID: MS Sample												
Hardness	302	66.2	350	**72**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-7 QC Sample: L1716822-01 Client ID: INFLUENT												
Iron, Total	0.131	1	1.16	103		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-7 QC Sample: L1716822-01 Client ID: INFLUENT												
Hardness	74.9	66.2	134	89		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006546-3 QC Sample: L1716822-01 Client ID: INFLUENT												
Antimony, Total	ND	0.5	0.5068	101		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1262	105		-	-		70-130	-		20
Cadmium, Total	0.00067	0.051	0.05508	107		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.2079	104		-	-		70-130	-		20
Copper, Total	0.00251	0.25	0.2627	104		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5089	100		-	-		70-130	-		20
Nickel, Total	0.04029	0.5	0.5432	100		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1273	106		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04983	100		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5385	108		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1007045-3 QC Sample: L1716838-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00298	**60**	Q	-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1007045-5 QC Sample: L1716965-01 Client ID: MS Sample									
Mercury, Total	0.00878	0.005	0.01419	108	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-4 QC Sample: L1716645-01 Client ID: DUP Sample						
Iron, Total	0.076	0.081	mg/l	6		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-4 QC Sample: L1716645-01 Client ID: DUP Sample						
Hardness	302	308	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006543-8 QC Sample: L1716822-01 Client ID: INFLUENT						
Iron, Total	0.131	0.129	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1006546-4 QC Sample: L1716822-01 Client ID: INFLUENT						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	0.00067	0.00064	mg/l	5		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	0.00251	0.00259	mg/l	3		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	0.04029	0.03991	mg/l	1		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1007045-4 QC Sample: L1716838-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1007045-6 QC Sample: L1716965-01 Client ID: DUP Sample					
Mercury, Total	0.00878	0.00866	mg/l	1	20

INORGANICS
&
MISCELLANEOUS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA
Matrix: Water

Date Collected: 05/23/17 12:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	05/25/17 04:40	121,2540D	VB
Cyanide, Total	ND		mg/l	0.005	--	1	05/24/17 16:30	05/24/17 21:52	121,4500CN-CE	ML
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/23/17 19:05	121,4500CL-D	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	05/24/17 23:45	05/30/17 23:41	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/23/17 20:30	05/23/17 20:53	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	92.1		mg/l	5.00	--	10	-	05/28/17 04:47	44,300.0	JC

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

SAMPLE RESULTS

Lab ID: L1716822-02
Client ID: RECEIVING WATER
Sample Location: PLAINVILLE, MA
Matrix: Water

Date Collected: 05/23/17 13:15
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.3		SU	-	NA	1	-	05/23/17 23:01	121,4500H+-B	AS
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	05/24/17 23:45	05/30/17 23:41	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/23/17 20:30	05/23/17 20:54	1,7196A	AS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1716822
Report Date: 06/28/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1006336-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/23/17 19:05	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1006354-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/23/17 20:30	05/23/17 20:52	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1006594-1										
Cyanide, Total	ND		mg/l	0.005	--	1	05/24/17 16:30	05/24/17 21:41	121,4500CN-CE	ML
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1006756-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	05/24/17 23:45	05/30/17 23:30	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1006773-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	05/25/17 04:40	121,2540D	VB
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1008197-1										
Chloride	ND		mg/l	0.500	--	1	-	05/28/17 00:47	44,300.0	JC

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1716822

Report Date: 06/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1006336-2								
Chlorine, Total Residual	109		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1006354-2								
Chromium, Hexavalent	96		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 02 Batch: WG1006388-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1006594-2								
Cyanide, Total	99		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1006756-2								
Nitrogen, Ammonia	96		-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1008197-2								
Chloride	101		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1006336-4 QC Sample: L1716822-01 Client ID: INFLUENT												
Chlorine, Total Residual	ND	0.248	0.24	97		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1006354-4 QC Sample: L1716822-01 Client ID: INFLUENT												
Chromium, Hexavalent	ND	0.1	0.103	103		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1006594-4 QC Sample: L1716874-01 Client ID: MS Sample												
Cyanide, Total	0.011	0.2	0.196	92		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1006756-4 QC Sample: L1716938-02 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.77	94		-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1008197-3 QC Sample: L1716977-06 Client ID: MS Sample												
Chloride	28.3	4	31.2	**73**	Q	-	-		90-110	-		18

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1006336-3 QC Sample: L1716822-01 Client ID: INFLUENT						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1006354-3 QC Sample: L1716822-01 Client ID: INFLUENT						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1006388-2 QC Sample: L1716822-02 Client ID: RECEIVING WATER						
pH (H)	6.3	6.2	SU	2		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1006594-3 QC Sample: L1716874-01 Client ID: DUP Sample						
Cyanide, Total	0.011	0.011	mg/l	1		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1006756-3 QC Sample: L1716938-02 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	0.114	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1006773-2 QC Sample: L1716853-01 Client ID: DUP Sample						
Solids, Total Suspended	110	120	mg/l	9		29
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1008197-4 QC Sample: L1716977-06 Client ID: DUP Sample						
Chloride	28.3	28.3	mg/l	0		18

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1716822-01A	Vial HCl preserved	A	N/A	N/A	5.6	Y	Absent		8260(14)
L1716822-01B	Vial HCl preserved	A	N/A	N/A	5.6	Y	Absent		8260(14)
L1716822-01C	Vial HCl preserved	A	N/A	N/A	5.6	Y	Absent		8260(14)
L1716822-01D	Vial Na2S2O3 preserved	A	N/A	N/A	5.6	Y	Absent		504(14)
L1716822-01E	Vial Na2S2O3 preserved	A	N/A	N/A	5.6	Y	Absent		504(14)
L1716822-01F	Plastic 500ml HNO3 preserved	A	<2	<2	5.6	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1716822-01G	Plastic 950ml unpreserved	A	7	7	5.6	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1716822-01H	Plastic 500ml H2SO4 preserved	A	<2	<2	5.6	Y	Absent		NH3-4500(28)
L1716822-01I	Plastic 950ml unpreserved	A	7	7	5.6	Y	Absent		TSS-2540(7)
L1716822-01J	Plastic 250ml NaOH preserved	A	>12	>12	5.6	Y	Absent		TCN-4500(14)
L1716822-01K	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		PCB-608(7)
L1716822-01L	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		PCB-608(7)
L1716822-02A	Plastic 250ml unpreserved	A	7	7	5.6	Y	Absent		HEXCR-7196(1),PH-4500(.01)
L1716822-02B	Plastic 500ml H2SO4 preserved	A	<2	<2	5.6	Y	Absent		NH3-4500(28)
L1716822-02C	Plastic 500ml HNO3 preserved	A	<2	<2	5.6	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1716822-03A	Vial HCl preserved	A	N/A	N/A	5.6	Y	Absent		HOLD-8260(14)
L1716822-03B	Vial HCl preserved	A	N/A	N/A	5.6	Y	Absent		HOLD-8260(14)
L1716822-03D	Vial Na2S2O3 preserved	A	N/A	N/A	5.6	Y	Absent		HOLD-504/8011(14)
L1716822-03E	Vial Na2S2O3 preserved	A	N/A	N/A	5.6	Y	Absent		HOLD-504/8011(14)

*Values in parentheses indicate holding time in days

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1716822
Report Date: 06/28/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)

*Values in parentheses indicate holding time in days

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1716822
Project Number:	0251.0020M015	**Report Date:**	06/28/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1716822
Project Number:	0251.0020M015	**Report Date:**	06/28/17

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1716822
Project Number:	0251.0020M015	**Report Date:**	06/28/17

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE OF

Date Rec'd in Lab: 5/23/17

ALPHA Job #: L1716822

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: ROUX ASSOCIATES

Address: 12 GILL STREET

SUITE 4700

Phone: 781-569-4000

Fax:

Email: MEWILSON@ROUXINC.COM

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: BASF PLAINVILLE

Project Location: PLAINVILLE, MA

Project #: 0251.0020M015

Project Manager: MELISSA WILSON
CHASE GERBIG

ALPHA Quote #: 3083

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
(If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed. (Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

1. Comply with Detection and Reporting Limits in Appendix VII of 2016 NPDES RGP
2. Analyze and Report Only the Analytes listed in the Work Authorization
3. *EPA 8260C only to be used if Alpha has Approval for the 2016 RGP

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	EDB & DBCP - EPA 504	Volatile Organics - EPA 8260C *	Total Iron - EPA 200.7	Total Metals - EPA 200.8	Chloride by IC - EPA 300.0	Hexavalent Chromium - EPA 7196	Total Mercury - EPA 245.1	SM 4500	PCB - EPA 608	Total Suspended Solids - SM 2540	Total Hardness - 2340B		Sample Specific Comments	TOTAL # BOTTLES
16822.01	~~INF_05232017~~ Influent (ag)	5/23/17	1245	GW	ag	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐		12
.02	~~REC_05232017~~ Receiving water (ag)	5/23/17	1315	GW	ag	☐	☐	☒	☒	☐	☒	☒	☒	☐	☐	☒	☐		3
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	V	V	P	P	P	P	P	P	A	P	P	-		
					Preservative	H	B	C	C	A	A	C	E	H	A	C	-		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5-23-17 1458	[signature] AAL	5/23/17 14:58

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)
(rev. 20-JAN-2010)

ANALYTICAL REPORT

Lab Number:	L1719873
Client:	Roux Associates 12 Gill Street Suite 4700 Woburn, MA 01801
ATTN:	Melissa Wilson
Phone:	(781) 270-6600
Project Name:	BASF PLAINVILLE
Project Number:	0251.0020M015
Report Date:	06/16/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1719873-01	INFLUENT	WATER	PLAINVILLE, MA	06/14/17 13:35	06/14/17

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Melissa Cripps

Title: Technical Director/Representative Date: 06/16/17

METALS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1719873
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1719873-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA
Matrix: Water
Date Collected: 06/14/17 13:35
Date Received: 06/14/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	68.3		mg/l	0.660	NA	1	06/15/17 10:50	06/16/17 10:55	EPA 3005A	19,200.7	PS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015
Lab Number: L1719873
Report Date: 06/16/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1013394-1										
Hardness	ND		mg/l	0.660	NA	1	06/15/17 10:50	06/16/17 11:22	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1719873

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1013394-2								
Hardness	99		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1013394-3 QC Sample: L1719616-01 Client ID: MS Sample												
Hardness	220	66.2	275	83		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1013394-7 QC Sample: L1719935-01 Client ID: MS Sample												
Hardness	345	66.2	411	100		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1013394-8 QC Sample: L1719935-01 Client ID: DUP Sample						
Hardness	345	338	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1719873-01
Client ID: INFLUENT
Sample Location: PLAINVILLE, MA
Matrix: Water

Date Collected: 06/14/17 13:35
Date Received: 06/14/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.1		SU	-	NA	1	-	06/15/17 03:34	121,4500H+-B	VB

Lab Control Sample Analysis

Batch Quality Control

Project Name: BASF PLAINVILLE

Project Number: 0251.0020M015

Lab Number: L1719873

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1013282-1								
pH	100		-		99-101	-		5

Lab Duplicate Analysis
Batch Quality Control

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1013282-2 QC Sample: L1719977-01 Client ID: DUP Sample						
pH	6.4	6.4	SU	0		5

Project Name: BASF PLAINVILLE
Project Number: 0251.0020M015

Lab Number: L1719873
Report Date: 06/16/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1719873-01A	Plastic 60ml unpreserved	A	7	7	3.9	Y	Absent		PH-4500(.01)
L1719873-01B	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		HARDU(180)

*Values in parentheses indicate holding time in days

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1719873
Project Number:	0251.0020M015	**Report Date:**	06/16/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1719873
Project Number:	0251.0020M015	**Report Date:**	06/16/17

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	BASF PLAINVILLE	**Lab Number:**	L1719873
Project Number:	0251.0020M015	**Report Date:**	06/16/17

REFERENCES

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/14/17 | ALPHA Job #: L1719873

Project Information

Project Name: BASF PLAINVILLE

Project Location: PLAINVILLE, MA

Project #: 0251.0020M015

Project Manager: MELISSA WILSON CHASE GERBIG

ALPHA Quote #: 3282

Client Information

Client: ROUX ASSOCIATES

Address: 12 GILL STREET SUITE 4700

Phone: 781-569-4000

Fax:

Email: MEWILSON@ROUXINC.COM

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☐ Standard ☒ Rush (ONLY IF PRE-APPROVED)

Due Date: 06/19/2017 Time: 08:00 AM

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Comply with detection and reporting limits in Appendix VII of the 2016 NPDES RGP

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Hardness - 2340B	pH - SM 4500H+-B	Sample Specific Comments	TOTAL # BOTTLES
19873.01	Influent	6/14/17	1335	GW	[illegible]	☒	☒		

Container Type	-
Preservative	-

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I) (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6.14.17/1406	[signature] AAL	6/14/17 1406
[signature]	6/14/17	[signature]	6/14/17 2020
[signature]	6/14/17 21:20	[signature]	6/14/17 2120

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Melissa Wilson

From: Karyn Raymond <kraymond@alphalab.com>
Sent: Tuesday, May 23, 2017 7:54 AM
To: Melissa Wilson
Subject: Test Methods for the New RGP Permit / Requirements -
Attachments: EPA RGP response.pdf

Hi Melissa,

No worries, ask away! Since this went into effect there have been plenty of questions. As its been over a month now since the switch we are well versed in all the answers!

Attached is our letter of approval from back in 2005 that is noted in email below. As noted in email we are approved (and are the only lab that is currently) to continue use the 8260 and 8270. Please let me know if you need anything else.

Sincerely,
Karyn

On Thu, Apr 20, 2017 at 12:31 PM, Mary Davis <mdavis@alphalab.com> wrote:

Hi All

Here is the Update we received from the EPA Regarding NPDES RGP Sampling :

Jim,

Since nothing has significantly changed since the 2005 memo was written, and the fact that EPA Region 1 has no idea as to when the MUR will be promulgated, I believe that the attached memo provides documentation that Alpha Labs can use 8260 and 8270 for the RGP for MA and NH (see specifically, EPA answers to comments 1,2,4, and 5).

Note: Once the MUR has been promulgated, Alpha Labs will be required to use EPA Methods 624.1 and 625.1 (within the EPA and state designated implementation period).

Please let me know if you have any questions regarding this email.

Steve DiMattei

Laboratory Certification Program Manager

USEPA

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U.S. ENVIRONMENTAL PROTECTION AGENCY

EPA NEW ENGLAND
OFFICE OF ENVIRONMENTAL MEASUREMENT & EVALUATION
11 TECHNOLOGY DRIVE, NORTH CHELMSFORD, MA 01863-2431

MEMORANDUM

DATE: November 3, 2005

SUBJ: Response to Questions/Concerns regarding the Remediation General Permit (RGP), E mail from Ellen M. Collins, Corporate QA Officer, Alpha Woods Hole Lab, October 18, 2005

FROM: Dick Siscanaw, Chemist

TO: Doug Corb, EPA Environmental Scientist

THRU: Gerry Sotolongo, EPA Quality Assurance Manager

RFA: 06026

FILE: alphalab1.doc

1. All samples should utilize an EPA approved method to achieve the effluent limits in Appendix III. The method should be approved as per 40CFR Part 136. (Per Page 26 of RGP.)

EPA Response.

EPA/QAU concurs with this comment. Methods listed in 40 CFR 136 may be used as long as the effluent limits listed in Appendix III are achieved. If the method is not listed in Appendix VI, the laboratory must retain supporting data for 5 years to demonstrate the method's minimum level (ML) satisfies the effluent limits (Appendix III). The following data should be kept on file: laboratory standard operation procedure (SOP), initial calibration data with the lowest standard at or below the required effluent limit, effluent spike recoveries, initial demonstration of capability (IDC), and a method detection limit study (MDL).

2. If we are able to achieve the listed effluent limit by an EPA approved method, which will be accepted under the regulation, we do not need to utilize the methodology listed in Appendix VI.

EPA Response.

EPA/QAU concurs with the comment. See response #1.

3. If we are unable to achieve the effluent limits in Appendix III, we should refer to Appendix VI and achieve the lowest listed ML by an EPA approved method. (Either one of the methods listed or one found in 40CFR Part 136.) However, we only need to achieve the effluent limit by that method.

a. TRC: we will be analyzing via 330.1 (not 330.5 as listed in Appendix VI) to achieve 20 ug/L.

EPA Response.

In Appendix VI the ML for method 330.5 is 20 ug/L. Method 330.1 is approved for NPDES, but the EPA is concern with the method's ML. Alpha labs must retain supporting data to demonstrate the ML at 20 ug/L to use this method (see response #1).

b. Ethylene dibromide: we will be analyzing via EPA 504.1 to achieve 0.05 ug/L, per our discussion, however this is still unclear.

QUESTION: Can we analyze EDB by 8260? If so, what limit of detection will be accepted for analysis/reporting?

QUESTION: Why are method 618 and 524.2 listed if those MLs will not be accepted?

EPA Response.

Ethylene dibromide (EDB) should be analyzed by method 504.1 to meet the ML of 0.05 ug/L, Appendix III, unless there are higher levels are present in the effluent. The Method 618, <u>Determination of Volatile Pesticides in Municipal and Industrial Wastewaters by Gas Chromatography</u> is an old hexane extraction that is an older version of 504.1 and is not recommended by EPA/QAU. The purge and trap methods (8260, 624, and 524.2) may be used when EDB is present at higher levels and the laboratory has the supporting data. QAU agrees with Alpha that Appendix VI is misleading because the MLs are above the effluent limits. This is clarified in Section 1.d of the RGP.

4. Section D of the RGP states that EPA Methods 8260C and 8270D will be allowed in lieu of utilizing 624 and 625. Per our discussion, we will be utilizing EPA 8260B and 8270C at this time, as they are the most recently promulgated methods.

EPA Response.

EPA methods 8260B and 8270C are the final promulgated SOPs by RCRA. These methods may be used. The EPA/QAU position is to use the most recent RCRA methods that are posted on the RCRA site. There is a 2 – 5 year delay in the final promulgated version. These RCRA draft methods, 8260C and 8270D, have passed the RCRA workgroup, available on the RCRA webpage, and are in the process of promulgation.

5. Regarding 8270, the RGP also notes that the analysis 'must' be preceded by EPA 3520C or 3535. Why is 3510C not allowed? Separatory funnel liquid-liquid extraction is part of EPA Method 625 and its application should be allowed via EPA 3510C. Per our discussion, we will utilize EPA 3510C as the extraction method for the Semivolatile Organic compounds.

EPA Response.

EPA QAU concurs with this suggestion. The Separatory Funnel Liquid-Liquid Extraction, Method 3510C is allow for EPA method 8270 along with method 3520 (continuous extraction) and method 3535 (solid phase extraction).

6. Method 200.8 is not listed as an available alternative method for the analysis of metals with the exception of Chromium. Why? Will this method be allowed for the other metals in Appendix III?

EPA Response.

The Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry (ICP/MS), Method 200.8 has not been finalized in 40 CFR 136 and in the proposed stage, April 6, 2004. RCRA Inductively Coupled Plasma – Mass Spectrometry , Method 6020A, is in the draft stage. The EPA/QAU accepts the ICP/MS methods, 200.8 and 6020A, for the analyses of metals as long as the laboratory can satisfy the effluent limits, Appendix III, with the supporting data (see response 1).

7. Appendix VI: Item No. 39: Methods 624 and 8260 are listed as alternative procedures for the analysis of Total Phenols.

EPA Response.

Item 39, the Total Phenols should use EPA manual method 420.1 or the automated method 420.2. Methods 624 and 8260 can not measure phenols and methods 625 and 8270 measure a subset of the total phenols.

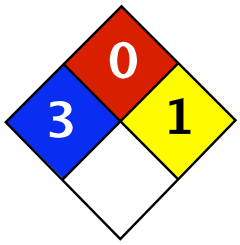
8. Appendix III: Item No. 34 and 35: Bis (2-ethylhexyl) phthalate has an effluent limit of 6.0 ug/L, however Total Phthalates have a limit of 3.0 ug/L.

EPA Response.

The monthly average for the total phthalates is 3.0 ug/L and the daily maximum effluent limt for Bis (2-ethylhexyl) phthalate is 6.0 ug/L. Alpha Laboratory is correct one can not evaluate the monthly average for the total phthalates is 3.0 ug/L when the method's ML is 5 ug/L. In many risk assessments one uses half the ML so method 625 and 8270 should be adequate. The concern is the background phthalate contamination for the required methods, 625 and 8270, are at the effluent limits. The laboratory must be very careful to clean the glassware to achieve the 5 ug/L ML.

ATTACHMENT 9

MSDS's



Health	3
Fire	0
Reactivity	2
Personal Protection	J

Material Safety Data Sheet
Sodium hydroxide MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium hydroxide

Catalog Codes: SLS3298, SLS1081, SLS2503, SLS3925, SLS1705

CAS#: 1310-73-2

RTECS: WB4900000

TSCA: TSCA 8(b) inventory: Sodium hydroxide

CI#: Not available.

Synonym: Caustic Soda

Chemical Name: Sodium Hydroxide

Chemical Formula: NaOH

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium hydroxide	1310-73-2	100

Toxicological Data on Ingredients: Sodium hydroxide LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to mucous membranes, upper respiratory tract, skin, eyes.
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: metals

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive in presence of heat.

Fire Fighting Media and Instructions: Not available

Special Remarks on Fire Hazards:
sodium hydroxide + zinc metal dust causes ignition of the latter.

Under proper conditions of temperature, pressure and state of division, it can ignite or react violently with acetaldehyde, ally alcohol, allyl chloride, benzene-1,4-diol, chlorine trifluoride, 1,2 dichlorethylene, nitroethane, nitromethane, nitroparaffins, nitropropane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane.
Sodium hydroxide in contact with water may generate enough heat to ignite adjacent combustible materials.
Phosphorous boiled with NaOH yields mixed phosphines which may ignite spontanously in air.
sodium hydroxide and cinnamaldehyde + heat may cause ignition.
Reaction with certain metals releases flammable and explosive hydrogen gas.

Special Remarks on Explosion Hazards:
Sodium hydroxide reacts to form explosive products with ammonia + silver nitrate.
Benzene extract of allyl benzenesulfonate prepared from allyl alcohol, and benzene sulfonyl chloride in presence of aquesous sodium hydroxide, under vacuum distillation, residue darkened and exploded.
Sodium Hydroxde + impure tetrahydrofuran, which can contain peroxides, can cause serious explosions.
Dry mixtures of sodium hydroxide and sodium tetrahydroborate liberate hydrogen explosively at 230-270 deg. C.
Sodium Hydroxide reacts with sodium salt of trichlorophenol + methyl alcohol + trichlorobenzene + heat to cause an explosion.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:
Corrosive solid.
Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep container dry. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic. Deliquescent.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
STEL: 2 (mg/m3) from ACGIH (TLV) [United States]

TWA: 2 CEIL: 2 (mg/m3) from OSHA (PEL) [United States]
CEIL: 2 (mg/m3) from NIOSHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Deliquescent solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 40 g/mole

Color: White.

pH (1% soln/water): 13.5 [Basic.]

Boiling Point: 1388°C (2530.4°F)

Melting Point: 323°C (613.4°F)

Critical Temperature: Not available.

Specific Gravity: 2.13 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, moisture, moist air

Incompatibility with various substances:
Highly reactive with metals.
Reactive with oxidizing agents, reducing agents, acids, alkalis, moisture.

Corrosivity: Not available.

Special Remarks on Reactivity:
Hygroscopic. Much heat is evolved when solid material is dissolved in water. Therefore cold water and caution must be used for this process.
Sodium hydroxide solution and octanol + diborane during a work-up of a reaction mixture of oxime and diborane in tetrahyrofuran is very exothermic, a mild explosion being noted on one occassion.

Reactive with water, acids (mineral, non-oxidizing, e.g. hydrochloric, hydrofluoric acid, muriatic acid, phosphoric), acids (mineral, oxidizing e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, foraldehyde), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propyl formate), halogenated organics (dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (acetone, acetophenone, MEK, MIBK), acid chlorides, strong bases, strong oxidizing agents, strong reducing agents, flammable liquids, powdered metals and metals (i.e aluminum, tin, zinc, hafnium, raney nickel), metals (alkali and alkaline e.g. cesium, potassium, sodium), metal compounds (toxic e.g. berylium, lead acetate, nickel carbonyl, tetraethyl lead), mitrides (e.g. potassium nitride, sodium nitride), nitriles (e.g. acetonitrile, methyl cyanide), nitro compounds (organic e.g. nitrobenzene, nitromethane), acetic anhydride, chlorohydrin, chlorosulfonic acid, ethylene cyanohydrin, glyoxal, hydrosulfuric acid, oleum, propiolactone, acylonitrile, phorosous pentoxide, chloroethanol, chloroform-methanol, tetrahydroborate, cyanogen azide, 1,2,4,5 tetrachlorobenzene, cinnamaldehyde.
Reacts with formaldehyde hydroxide to yield formic acid, and hydrogen.

Special Remarks on Corrosivity: Very caustic to aluminum and other metals in presence of moisture.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available.
LC50: Not available.

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.
May cause damage to the following organs: mucous membranes, upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans:
Extremely hazardous in case of inhalation (lung corrosive).
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose:
LDL [Rabbit] - Route: Oral; Dose: 500 mg/kg

Special Remarks on Chronic Effects on Humans: May affect genetic material. Investigation as a mutagen (cytogenetic analysis)

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Sodium hydroxide, solid UNNA: 1823 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Sodium hydroxide
Illinois chemical safety act: Sodium hydroxide
New York release reporting list: Sodium hydroxide
Rhode Island RTK hazardous substances: Sodium hydroxide
Pennsylvania RTK: Sodium hydroxide
Minnesota: Sodium hydroxide
Massachusetts RTK: Sodium hydroxide
New Jersey: Sodium hydroxide
Louisiana spill reporting: Sodium hydroxide
California Director's List of Hazardous Substances: Sodium hydroxide
TSCA 8(b) inventory: Sodium hydroxide
CERCLA: Hazardous substances.: Sodium hydroxide: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS E: Corrosive solid.

DSCL (EEC):
R35- Causes severe burns.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39- Wear suitable gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 2

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves.
Synthetic apron.
Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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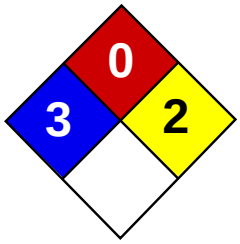
Last Updated: 10/09/2005 06:32 PM



Material Safety Data Sheet
Sulfuric acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sulfuric acid

Catalog Codes: SLS2539, SLS1741, SLS3166, SLS2371, SLS3793

CAS#: 7664-93-9

RTECS: WS5600000

TSCA: TSCA 8(b) inventory: Sulfuric acid

CI#: Not applicable.

Synonym: Oil of Vitriol; Sulfuric Acid

Chemical Name: Hydrogen sulfate

Chemical Formula: H2-SO4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sulfuric acid	7664-93-9	95 - 98

Toxicological Data on Ingredients: Sulfuric acid: ORAL (LD50): Acute: 2140 mg/kg [Rat.]. VAPOR (LC50): Acute: 510 mg/m 2 hours [Rat]. 320 mg/m 2 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, heart, cardiovascular system, upper respiratory tract, eyes, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged

contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion:
Products of combustion are not available since material is non-flammable. However, products of decompostion include fumes of oxides of sulfur. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas. Reacts with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively.

Fire Hazards in Presence of Various Substances: Combustible materials

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of oxidizing materials.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Metal acetylides (Monocesium and Monorubidium), and carbides ignite with concentrated sulfuric acid. White Phosphorous + boiling Sulfuric acid or its vapor ignites on contact. May ignite other combustible materials. May cause fire when sulfuric acid is mixed with Cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phorphorous (III) oxide, and oxidizing agents such as chlorates, halogens, permanganates.

Special Remarks on Explosion Hazards:
Mixturesofsulfuricacidandanyofthefollowingcanexplode:p-nitrotoluene,pentasilver trihydroxydiaminophosphate, perchlorates, alcohols with strong hydrogen peroxide, ammonium tetraperoxychromate, mercuric nitrite, potassium chlorate, potassium permanganate with potassium chloride, carbides, nitro compounds, nitrates, carbides, phosphorous, iodides, picratres, fulminats, dienes, alcohols (when heated) Nitramide decomposes explosively on contact with concentrated sulfuric acid. 1,3,5-Trinitrosohexahydro-1,3,5-triazine + sulfuric acid causes explosive decompositon.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage:
Hygroscopic. Reacts. violently with water. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 STEL: 3 (mg/m3) [Australia] Inhalation TWA: 1 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 1 STEL: 3 (mg/m3) from ACGIH (TLV) [United States] [1999] Inhalation TWA: 1 (mg/m3) from NIOSH [United States] Inhalation TWA: 1 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Thick oily liquid.)

Odor: Odorless, but has a choking odor when hot.

Taste: Marked acid taste. (Strong.)

Molecular Weight: 98.08 g/mole

Color: Colorless.

pH (1% soln/water): Acidic.

Boiling Point:
270°C (518°F) - 340 deg. C Decomposes at 340 deg. C

Melting Point: -35°C (-31°F) to 10.36 deg. C (93% to 100% purity)

Critical Temperature: Not available.

Specific Gravity: 1.84 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 3.4 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:
Easily soluble in cold water. Sulfuric is soluble in water with liberation of much heat. Soluble in ethyl alcohol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability:
Conditions to Avoid: Incompatible materials, excess heat, combustible material materials, organic materials, exposure to moist air or water, oxidizers, amines, bases. Always add the acid to water, never the reverse.

Incompatibility with various substances:
Reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper, of stainless steel(316). Highly corrosive in presence of stainless steel(304). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Hygroscopic. Strong oxidizer. Reacts violently with water and alcohol especially when water is added to the product. Incompatible (can react explosively or dangerously) with the following: ACETIC ACID, ACRYLIC ACID, AMMONIUM HYDROXIDE, CRESOL, CUMENE, DICHLOROETHYL ETHER, ETHYLENE CYANOHYDRIN, ETHYLENEIMINE, NITRIC ACID, 2-NITROPROPANE, PROPYLENE OXIDE, SULFOLANE, VINYLIDENE CHLORIDE, DIETHYLENE GLYCOL MONOMETHYL ETHER, ETHYL ACETATE, ETHYLENE CYANOHYDRIN, ETHYLENE GLYCOL MONOETHYL ETHER ACETATE, GLYOXAL, METHYL ETHYL KETONE, dehydrating agents, organic materials, moisture (water), Acetic anhydride, Acetone, cyanohydrin, Acetone+nitric acid, Acetone + potassium dichromate, Acetonitrile, Acrolein, Acrylonitrile, Acrylonitrile +water, Alcohols + hydrogen peroxide, ally compounds such as Allyl alcohol, and Allyl Chloride, 2-Aminoethanol, Ammonium hydroxide, Ammonium triperchromate, Aniline, Bromate + metals, Bromine pentafluoride, n-Butyraldehyde, Carbides, Cesium acetylene carbide, Chlorates, Cyclopentanone oxime, chlorinates, Chlorates + metals, Chlorine trifluoride, Chlorosulfonic acid, 2-cyano-4-nitrobenzenediazonium hydrogen sulfate, Cuprous nitride, p-chloronitrobenzene, 1,5-Dinitronaphthlene +

sulfur, Diisobutylene, p-dimethylaminobenzaldehyde, 1,3-Diazidobenzene, Dimethylbenzylcarbinol + hydrogen peroxide, Epichlorohydrin, Ethyl alcohol + hydrogen peroxide, Ethylene diamine, Ethylene glycol and other glycols, , Ethylenimine, Fulminates, hydrogen peroxide, Hydrochloric acid, Hydrofluoric acid, Iodine heptafluoride, Indane + nitric acid, Iron, Isoprene, Lithium silicide, Mercuric nitride, Mesityl oxide, Mercury nitride, Metals (powdered), Nitromethane, Nitric acid + glycerides, p-Nitrotoluene, Pentasilver trihydroxydiaminophosphate, Perchlorates, Perchloric acid, Permanganates + benzene, 1-Phenyl-2-methylpropyl alcohol + hydrogen peroxide, Phosphorus, Phosphorus isocyanate, Picrates, Potassium tert-butoxide, Potassium chlorate, Potassium Permanganate and other permanganates, halogens, amines, Potassium Permanganate + Potassium chloride, Potassium Permanganate + water, Propiolactone (beta)-, Pyridine, Rubidium aceteylene carbide, Silver permanganate, Sodium, Sodium carbonate, sodium hydroxide, Steel, styrene monomer, toluene + nitric acid, Vinyl acetate, Thalium (I) azidodithiocarbonate, Zinc chlorate, Zinc Iodide, azides, carbonates, cyanides, sulfides, sulfites, alkali hydrides, carboxylic acid anhydrides, nitriles, olefinic organics, aqueous acids, cyclopentadiene, cyano-alcohols, metal acetylides, Hydrogen gas is generated by the action of the acid on most metals (i.e. lead, copper, tin, zinc, aluminum, etc.). Concentrated sulfuric acid oxidizes, dehydrates, or sulfonates most organic compounds.

Special Remarks on Corrosivity:
Non-corrosive to lead and mild steel, but dillute acid attacks most metals. Attacks many metals releasing hydrogen. Minor corrosive effect on bronze. No corrosion data on brass or zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2140 mg/kg [Rat.]. Acute toxicity of the vapor (LC50): 320 mg/m3 2 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH. May cause damage to the following organs: kidneys, lungs, heart, cardiovascular system, upper respiratory tract, eyes, teeth.

Other Toxic Effects on Humans:
Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
Mutagenicity: Cytogenetic Analysis: Hamster, ovary = 4mmol/L Reproductive effects: May cause adverse reproductive effects based on animal data. Developmental abnormalities (musculoskeletal) in rabbits at a dose of 20 mg/m3 for 7 hrs.(RTECS) Teratogenecity: neither embryotoxic, fetoxic, nor teratogenetic in mice or rabbits at inhaled doses producing some maternal toxicity

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes severe skin irritation and burns. Continued contact can cause tissue necrosis. Eye: Causes severe eye irritation and burns. May cause irreversible eye injury. Ingestion: Harmful if swallowed. May cause permanent damage to the digestive tract. Causes gastrointestial tract burns. May cause perforation of the stomach, GI bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse(similar to acute inhalation). It may also cause systemic toxicity with acidosis. Inhalation: May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed lung edema. Causes chemical burns to the repiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Cause corrosive action on mucous membranes. May affect cardiovascular system (hypotension, depressed cardiac output, bradycardia). Circulatory collapse with clammy skin, weak and rapid pulse, shallow respiration, and scanty urine may follow. Circulatory shock is often the immediate cause of death. May also affect teeth(changes in teeth and supporting structures - erosion, discoloration). Chronic Potential Health Effects: Inhalation: Prolonged or repeated inhalation may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and cardiovascular system, heart (ischemic heart leisons), and respiratory system/lungs(pulmonary edema, lung damage), teeth (dental discoloration, erosion). Skin: Prolonged or repeated skin contact may cause dermatitis, an allergic skin reaction.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 49 mg/l 48 hours [bluegill/sunfish].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Sulfuric acid may be placed in sealed container or absorbed in vermiculite, dry sand, earth, or a similar material. It may also be diluted and neutralized. Be sure to consult with local or regional authorities (waste regulators) prior to any disposal. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Sulfuric acid UNNA: 1830 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Sulfuric acid New York release reporting list: Sulfuric acid Rhode Island RTK hazardous substances: Sulfuric acid Pennsylvania RTK: Sulfuric acid Minnesota: Sulfuric acid Massachusetts RTK: Sulfuric acid New Jersey: Sulfuric acid California Director's List of Hazardous Substances (8 CCR 339): Sulfuric acid Tennessee RTK: Sulfuric acid TSCA 8(b) inventory: Sulfuric acid SARA 302/304/311/312 extremely hazardous substances: Sulfuric acid SARA 313 toxic chemical notification and release reporting: Sulfuric acid CERCLA: Hazardous substances.: Sulfuric acid: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R35- Causes severe burns. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S30- Never add water to this product. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 2

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References:
-Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.

Other Special Considerations: Not available.

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ATTACHMENT 10

Endangered Species Act Eligibility Determination Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 20, 2017

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2017)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office