



December 2, 2010

U.S. Environmental Protection Agency  
5 Post Office Square, Square 100  
Mail Code OEP06-4  
Boston, Massachusetts 02109-3912  
ATTN: Remediation General Permit NOI Processing

Re: Re-Application for Coverage Under the 2010 Remediation General Permit  
BASF Corporation  
32 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 facility (formerly known as Engelhard Corporation and BASF Catalysts, LLC) located at 32 Taunton Street in Plainville, Massachusetts (the Site). Remedial activities being conducted at the Site are being performed in accordance with applicable United States Environmental Protection Agency (EPA) requirements. 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, 2010.

Roux Associates is submitting this NOI to maintain coverage under the 2010 RGP. The following information is attached in support of this NOI:

1. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit;
2. Figure 1 - Site Plan (with discharge location);

3. Figure 2 - System Schematic;
4. Additional information in support of the NOI;
5. MSDS sheets; and
6. Laboratory reports.

If you have any questions or comments regarding the attached NOI, please do not hesitate to contact the undersigned at (781) 270-6600.

Sincerely,

ROUX ASSOCIATES, INC.



JR Taormina, PE  
Senior Engineer

cc: Mr. Karl Vetter, BASF  
Mr. James Marshall, Superintendent, Plainville Water and Sewer Department  
MassDEP, Division of Watershed Management

**ATTACHMENT 1**

Remediation General Permit Notice of Intent

## Remediation General Permit Appendix V

### Notice of Intent (NOI) Suggested Forms & Instructions

#### I. Notice of Intent (NOI) Suggested Form and Instructions

In order to be covered by the remediation general permit (RGP), applicants must submit a completed Notice of Intent (NOI) to EPA Region I and the appropriate state agency. The owner or operator, as defined by 40 CFR § 122.2, means the owner or operator of any “facility or activity” subject to regulation under the NPDES program.

The following are three general “**operator**” scenarios (variations on any of these three are possible, especially as the number of owners and contractors increases):

- ▶ “*Owner*” as “*Operator*” - *sole permittee*. The property owner designs the structures and control systems for the site, develops and implements the BMPP, and serves as general contractor (or has an on-site representative with full authority to direct day-to-day operations). Under the definition of operator, in this case, the “Owner” would be considered the “operator” and therefore the only party that needs permit coverage. Everyone else working on the site may be considered subcontractors and do not need to apply for permit coverage.
- ▶ “*Contractor*” as “*Operator*” - *sole permittee*. The property owner hires a company (e.g., a contractor) to design the project and oversee all aspects, including preparation and implementation of the BMPP and compliance with the permit (e.g., a “turnkey” project). Here, the contractor would likely be the only party needing a permit. Similarly, EPA expects that property owners hiring a contractor or consultant to perform groundwater remediation work (e.g., due to a leaking fuel oil tank) would come under this type of scenario. EPA believes that the contractor, being a professional in the industry, should be the responsible entity rather than the individual. The contractor is better equipped to meet the requirements of both applying for permit coverage and developing and properly implementing the plans needed to comply with the permit. However, property owners would also meet the definition of “operator” and require permit coverage in instances where they perform any of the required tasks on their personal properties.
- ▶ “*Owner*” and “*Contractor*” as “*Operators*” - *co-permittees*. The owner retains control over any changes to site plans, BMPPs, or wastewater conveyance or control designs, but the contractor is responsible for conducting and overseeing the actual activities (e.g., excavation, installation and operation of treatment train, etc.) and daily implementation of BMPP and other permit conditions. In this case, both parties need to apply for coverage.

Generally, a person would not be considered an “operator,” and subsequently would not need permit coverage, if: 1) that person is a subcontractor hired by, and under the supervision of, the owner or a general contractor (e.g., if the contractor directs the

subcontractor's activities on-site, it is probably not an operator); or 2) the person's activities would otherwise result in the need for coverage under the RGP but another operator has legally assumed responsibility for the impacts of project activities.

**A. Instructions for the Suggested Notice of Intent (NOI)** - At a minimum, the Notice of Intent must include the following for each individual facility or site. Additional information may be attached as needed.

**1. General facility/site information.**

- a) Provide the facility/site name, mailing address, and telephone and fax numbers. Provide the facility Standard Industrial Classification (SIC ) code(s), which can be found online at [http://www.osha.gov/pls/imis/sic\\_manual.html](http://www.osha.gov/pls/imis/sic_manual.html). Provide the site location, including longitude and latitude.
- b) Provide the facility/site owner's name, address, email address, telephone and fax numbers, if different from the site information. Indicate whether the owner is a Federal, State/Tribal, private, or other entity.
- c) Provide the site operator's (e.g., contractor's) name, mailing address, telephone and fax numbers, and email address if different from the owner's information.
- d) For the site for which the application is being submitted, indicate whether:
  - 1) a prior NPDES permit exclusion has been granted for the discharge (if so, provide the tracking number of the exclusion letter);
  - 2) a prior NPDES application (Form 1 & 2C – for reference, please visit [http://www.epa.gov/region1/npdes/epa\\_attach.html](http://www.epa.gov/region1/npdes/epa_attach.html)) has ever been filed for the discharge (if so, provide the tracking number and date that the application was submitted to EPA);
  - 3) the discharge is a “new discharge” as defined by 40 CFR 122.2; and
  - 4) for sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000 and exempt from state permitting.
- e) Indicate whether there is any ongoing state permitting, licensing, or other action regarding the facility or site which is generating the discharge. If “yes,” provide any site identification number assigned by the state of NH or MA, any permit or license number assigned, and the state agency contact information (e.g. name, location, telephone no.).
- f) Indicate whether or not the facility is covered by other EPA permits including:
  - 1) the Multi-Sector General Permit (MSGP) <http://cfpub.epa.gov/npdes/stormwater/msgp.cfm>;
  - 2) the Final NPDES General Permit for Dewatering Activity Discharges in Massachusetts and New Hampshire <http://www.epa.gov/region1/npdes/dewatering.html>;
  - 3) the EPA Construction General Permit <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>;
  - 4) an individual NPDES permit; or
  - 5) any other water quality-related individual or general permit.If so, provide permit tracking number(s).
- g) Indicate if the site/facility discharge(s) to an Area of Critical Environmental Concern (ACEC), as shown on the tables and maps in Appendix I.

h) Based on the nature of the facility/site and any historical sampling data, the applicant must indicate which of the sub-categories within which the potential discharge falls.

**2. Discharge information.**

- a) Describe the discharge activities to be covered by the permit. Attach additional sheets as needed.
- b) Provide the following information about each discharge:
  - 1) the number of discharge points;
  - 2) the maximum and average flow rate of the discharge in cubic feet per second. For the average flow magnitude, include the units and appropriate notation if this value is a calculated design value or estimate if technical/design information is not available;
  - 3) the latitude and longitude of each discharge with an accuracy of 100 feet (see EPA's siting tool at: [http://www.epa.gov/tri/report/siting\\_tool](http://www.epa.gov/tri/report/siting_tool) );
  - 4) the total volume of potential discharge (gal), only if hydrostatic testing;
  - 5) whether the discharge(s) is intermittent or seasonal and if ongoing.
- c) Provide the expected start and end dates of discharge (month/day/year).
- d) Attach a line drawing or flow schematic showing water flow through the facility including:
  - 1) sources of intake water;
  - 2) contributing flow from the operation;
  - 3) treatment units; and
  - 4) discharge points and receiving waters(s).

**3. Contaminant information.**

In order to complete the NOI, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for the parameters applicable to the sub-category into which the discharge falls, as listed in Appendix III of the permit and selected in Part 1 of the NOI form, except as noted below.

Permittees shall provide additional sampling results with the NOI if such sampling already exists, or if the permittee has reason to believe the site contains additional contaminants not listed in Appendix III for that sub-category or contains additional contaminants not included in Appendix III.

The applicant may use historical data as a substitute for the new sample if the data was collected no more than 2 years prior to the "Submittal of the NOI" and if collected pursuant to:

- i. for sites in Massachusetts, 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E");
- ii. for sites in New Hampshire, New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act;

a) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is believed present or believed absent in the potential discharge.

Based on the required sampling and analysis, the applicant must fill in the table, or provide a narrative description, with the following additional information for each chemical that is believed present (chemical that violate EPA's criteria limitations):

- 1) the number of samples taken (minimum of one sample for applicable parameters per Appendix III);
- 2) the type of sample (e.g. grab, composite, etc.);
- 3) the analytical method used, including the method number;
- 4) the minimum level (ML) of the method used (based on Appendix VI);
- 5) the maximum daily amount (concentration (ug/l) and mass (kg)) of each pollutant, based on the sampling data  
lb/day (pounds per day) equals flow (in million gallons per day, MGD) times concentration in milligrams per liter (mg/l) times 8.34.  
Example: 2.5 MGD x 30 mg/l TSS x 8.34 = 625.5 lb TSS/day  
MGD = gallons per minute (gpm) x 0.00144  
1 kg = 2.2 lbs

And;

- 6) the average daily amount (concentration and mass) of each pollutant, based on the sampling data.

If the results of any sampling indicate that pollutants exist in addition to those listed in Appendix III of the RGP of the permit, the applicant must also describe those contaminants on the NOI in boxes in section I.3.c.) on the line marked "Other," or use additional sheets as needed. Subsequently, EPA may require monitoring for such parameters or will decide if an individual permit is necessary.

c) Determination of Reasonable Potential and Allowable Dilution for Discharges of Metals:

If any *metals* are believed present in the potential discharge to freshwater<sup>1</sup>, the applicant must follow the procedures below to determine the dilution factor for each metal.

***Step 1: Initial Evaluation***

- 1) The applicant must evaluate all metals believed present in the discharge subject to this permit, including "naturally occurring" metals such as dissolved and/or total Iron. Applicants must enter the highest detected concentration of the metal at zero dilution in the "Maximum value" column of the NOI.
- 2) Based on the maximum concentration of each metal, the applicant must perform an initial evaluation assuming zero dilution in the receiving water. The applicant must compare the metals concentrations in the untreated (intake) waters to the effluent limits contained in Appendix III.

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<sup>1</sup>Dilution factors may be available for discharges to saline waters but only with approval of the flow modeling information from the State prior to the submission of the NOI.

- i. If potential discharges (untreated influent) with metals contain concentrations above the concentration limits listed in Appendix III, applicant must proceed to step 2.
- ii. If potential discharges (untreated influent) with metals contain concentrations below the concentrations listed in Appendix III, the applicant may skip step 2 and those metals will **not** be subject to permit limitations or monitoring requirements.

***Step 2: Calculation of Dilution Factor***

1) **For applicants in NH:** If a metal concentration in a potential discharge (untreated influent) to **freshwater** exceeds the limits in Appendix III with zero dilution, the applicant shall evaluate the potential concentration considering a dilution factor (DF) using the formula below. **For sites in New Hampshire, the applicant must contact NH DES to determine the 7Q10 and dilution factor.**

$$DF = [(Qd + Qs)/Qd] \times 0.9$$

**Where:**

<b>DF</b>	<b>= Dilution Factor</b>
<b>Qd</b>	<b>= Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 cfs)</b>
<b>Qs</b>	<b>= Receiving water 7Q10 flow, in cfs, where 7Q10 is the annual minimum flow for 7 consecutive days with a recurrence interval of 10 years</b>
<b>0.9</b>	<b>= Allowance for reserving 10% of the assets in the receiving stream as per Chapter ENV-Wq 1700, Surface Water Quality Regulations</b>

i. Using the DF calculated from the formula above, the applicant must refer to the corresponding dilution range column in Appendix IV. The applicant then compares the maximum concentration of the metal entered on the NOI to the corresponding total recoverable metals limits listed in Appendix IV. Please note that for this reissuance the applicant will be permitted to determine a limit using any fraction within the 1-5 dilution factor range times the metal limit (for all regulated metals). For example: if the DF is 1.5, the Iron limit is 1,500 ug/L; if the DF is 1.5, the antimony limit is 8.4, etc. All limits above a dilution factor of 5 are maintained.

1. If a metal concentration in the potential discharge (untreated influent) is less than the corresponding limit in Appendix IV, the metal will **not** be subject to permit limitations or monitoring requirements.
2. If a metal concentration in the potential discharge (untreated influent) is equal to or exceeds the corresponding limit in Appendix IV, the applicant must reduce it in the effluent to a concentration below the applicable total recoverable metals limit in Appendix IV prior to discharge.

ii. In either case, the applicant must submit the results of this calculation as part of the NOI. EPA and NH DES will review the proposed effluent limitations for each metal and approve or disapprove the limits in the notification of coverage letter to the applicant.

2) **For applicants in MA:** If a metal concentration in a potential discharge (untreated influent) to **freshwater** exceeds the limits in Appendix III with zero dilution, the applicant must evaluate the potential concentration considering a dilution factor (DF) using the formula below.

$$DF = (Qd + Qs)/Qd$$

**Where:** **DF** = **Dilution Factor**  
**Qd** = **Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 cfs)**  
**Qs** = **Receiving water 7Q10 flow (cfs) where 7Q10 is the minimum flow (cfs) for 7 consecutive days with a recurrence interval of 10 years**

i. The applicant may estimate the 7Q10 for receiving water by using available information such as nearby USGS stream gauging stations directly or by application of certain “flow factors,” using historic streamflow publication information, calculations based on drainage area, information from state water quality offices, or other means. In many cases Massachusetts has calculated 7Q10 information using “flow factors” for a number of streams in the state. The source of the low flow value(s) used by the applicant must be included on NOI application form. Flow data can also be obtained from web applications such as the one located at: <http://ma.water.usgs.gov/streamstats/>.

ii. Using the DF calculated from the formula above, the applicant must refer to the corresponding dilution range column in Appendix IV. The applicant then shall compare the maximum concentration of each metal entered on the NOI to the corresponding total recoverable metals limit listed in Appendix IV. Please note that for this reissuance the applicant will be permitted to determine a limit using any fraction of the 0-5 of DF times the metal limit (for all regulated metals). For example: if the DF is 1.5, the Iron limit is 1,500 ug/L; if the DF is 1.5, the antimony limit is 8.4, etc. Not to exceed DF of 5.

1. If a metal concentration in the potential discharge (untreated influent) is less than the corresponding limit in Appendix IV, the metal will **not** be subject to permit limitations or monitoring requirements.
2. If a metal concentration in a potential discharge (untreated influent) is equal to or exceeds the corresponding limit in Appendix IV, the applicant must reduce it in the effluent to a concentration below the applicable total recoverable metals limit in Appendix IV prior to discharge.

iii. The applicant must submit the results of this calculation as part of the NOI. EPA (and MassDEP where the discharge is not covered by 310 CMR 40.0000) will review the proposed effluent limitations for each metal and approve or disapprove the limits in the notification of coverage letter to the applicant.

**4. Treatment system information.**

- a) Provide a written description of the treatment train and how the system will be set up for each discharge and attach a schematic of the proposed or existing treatment system(s).
- b) Identify each major treatment unit (e.g. frac tanks, filters, air stripper, liquid phase/vapor phase activated carbon, oil/water separators, etc.) by checking all that apply and describing any additional equipment not listed. Attach additional sheets as needed.
- c) Provide the proposed average and maximum flow rates (in gallons per minute, gpm) for the discharge and the design flow rates (in gpm) of the treatment system. Clearly identify the component of the treatment with the most limited flow, i.e., the part of the treatment train that establishes the design flow.
- d) Describe any chemical additives being used, or planned to be used, and attach MSDS sheets for each. EPA may request further information regarding the chemical composition of the additive, potential toxic effects, or other information to insure that approval of the use of the additive will not cause or contribute to a violation of State water quality standards. Approval of coverage under the RGP will constitute approval of the use of the chemical additive(s). If coverage of the discharge under the RGP has already been granted and the use of a chemical additive becomes necessary, the permittee must submit a Notice of Change (NOC).

**5. Receiving surface water(s) information.**

- a) Identify the discharge pathway by checking whether it is discharged: directly to the receiving water (river, stream, or brook), within the facility (e.g., through a sewer drain), to a storm drain, to a wetland, or other receiving body.
- b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters into which discharge will occur.
- c) Provide a detailed map(s) indicating the location of the site and outfall(s) to the receiving water(s):
  - 1) For multiple discharges, the discharges should be numbered sequentially.
  - 2) In the case of indirect dischargers (to municipal storm sewer, etc) the map(s) must be sufficient to indicate the location of the discharge to the indirect conveyance and the discharge to the state classified surface water. The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.
- d) Provide the state water quality classification of the receiving water and the basin (for Massachusetts, the Surface Water Quality Standards (314 CMR 4.00) are available at <http://www.mass.gov/dep/water/laws/regulati.htm#wqual>) (for New Hampshire, contact the NH DES at (603) 271-2984).
- e) Specify the reported seven day-ten year low flow (7Q10) of the receiving water (see Section I.A.3) c. above). In New Hampshire, the 7Q10 must be provided by to the applicant by the New Hampshire Department of Environmental Services.

f) Indicate whether the receiving water is a listed 303(d) water quality impaired or limited water and if so, for which pollutants (see Section IX of the Fact Sheet for additional information).

For MA, the most updated integrated list of waters (CWA 303(d) and 305(b)) is available at <http://www.mass.gov/dep/water/resources/tmdls.htm#info>.

For NH, the most updated integrated list of waters (CWA 303(d) and 305(b)) is available at <http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm>.

Also, indicate if there is a final TMDL for any of the listed pollutants. For MA, final TMDLs can be found at: <http://www.mass.gov/dep/water/resources/tmdls.htm> and for NH, final TMDLs can be found at

<http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm>. For more information, contact the states at: New Hampshire Department of Environmental Services, Watershed Management Bureau at 603-271-3503 or the Massachusetts Department of Environmental Protection at 508-767-2796 or 508-767-2873.

#### **6. ESA and NHPA Eligibility.**

As required in Parts I.A.4 and Appendix VII the operator of a site/facility must ensure that the potential discharge will not adversely affect endangered species, designated critical habitat, or national historic places that are in proximity to the potential discharge. If the potential discharge is to certain water bodies, the applicant must also submit a formal certification with the NOI that indicates the consultation, with the U.S. Fish and Wildlife Service and National Marine Fisheries Service (the Services), resulted in either a no jeopardy opinion or a written concurrence on a finding that the discharge is not likely to adversely affect any endangered species or critical habitat. Facilities should begin the consultation as early in the process as possible.

- a) Using the instructions in Appendix VII and information in Appendix II, indicate under which criterion listed you are eligible for coverage under this general permit.
- b) If you selected criterion D or F, indicate if consultation with the federal services has been completed or if it is underway.
- c) If consultation with the U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, indicate if a written concurrence finding that the discharge is “not likely to adversely affect” listed species or critical habitat was received.
- d) Attach documentation of ESA eligibility as described below and required in Appendix VII, Part I.C, Step 4.

*Criterion A - No federally-listed threatened or endangered species or federally-designated critical habitat are present:* A copy of the most current county species list pages for the county(ies) where your site or facility and discharges are located. You must also include a statement on how you determined that no listed species or critical habitat are in proximity to your site or facility or discharge locations.

*Criterion B – Section 7 consultation completed with the Service(s) on a prior project:* A copy of the USFWS and/or NOAA Fisheries, as appropriate, biological opinion or concurrence on a finding of “unlikely to adversely effect” regarding the ESA Section 7 consultation.

*Criterion C – Activities are covered by a Section 10 Permit:* A copy of the USFWS and/or the NOAA Fisheries, as appropriate, letter transmitting the ESA Section 10 authorization.

*Criterion D - Concurrence from the Service(s) that the discharge is “not likely to adversely affect” federally-listed species or federally-designated critical habitat (not including the four species of concern identified in Section I of Appendix I):* A copy of the USFWS and/or the NOAA Fisheries, as appropriate, letter or memorandum concluding that the discharge is consistent with the general permit’s “not likely to adversely affect” determination.

*Criterion E – Activities are covered by certification of eligibility:* A copy of the documents originally used by the other operator of your site or facility (or area including your site) to satisfy the documentation requirement of Criteria A, B, C or D.

*Criterion F - Concurrence from the Service(s) that the discharge is “not likely to adversely affect” species of concern, as identified in Section I of Appendix I:* A copy of the USFWS and/or the NOAA Fisheries, as appropriate, concurrence with the applicant’s determination that the discharge is “not likely to adversely affect” listed species.

- e) Using the instructions in Appendix VII, identify which criterion listed in Part C makes you eligible for coverage under this general permit.
- f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

**7. Supplemental information.** Applicants should provide any supplemental information needed to meet the requirements of the permit, including any analytical data used to support the application, and any certification(s) required.

**8. Signature Requirements** - The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

*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 gather and evaluate 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

**B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit**

**1. General facility/site information.** Please provide the following information about the site:

a) Name of <b>facility/site</b> : BASF Plainville		<b>Facility/site</b> mailing address:	
Location of <b>facility/site</b> : longitude: 71° 18' 28.13" latitude: 42° 0' 58.07"	Facility SIC code(s): NA (closed)	Street: 32 Taunton Street	
b) Name of <b>facility/site owner</b> : BASF Corporation Contact: Karl Vetter		Town: Plainville	
Email address of <b>facility/site owner</b> : karl.vetter@partners.basf.com		State: MA	Zip: 02762
Telephone no. of <b>facility/site owner</b> : 609-631-7467		County: Norfolk	
Fax no. of <b>facility/site owner</b> : 609-586-4276		<b>Owner</b> is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/>	
Address of <b>owner</b> (if different from site):		3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
Street: 100 Campus Drive			
Town: Florham Park	State: NJ	Zip: 07932	County: Morris
c) Legal name of <b>operator</b> : Roux Associates, Inc.		<b>Operator</b> telephone no: 781-270-6600	
<b>Operator</b> fax no.: 781-270-9066		<b>Operator</b> email: jtaormina@rouxinc.com	
<b>Operator</b> contact name and title: Joseph Taormina, Senior Engineer			
Address of <b>operator</b> (if different from owner):		Street: 67 South Bedford Street Suite 101W	
Town: Burlington	State: MA	Zip: 01803	County: Middlesex

d) Check Y for “yes” or N for “no” for the following:

1. Has a prior NPDES permit exclusion been granted for the discharge? Y  N , if Y, number:

2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Y  N , if Y, date and tracking #:

3. Is the discharge a “new discharge” as defined by 40 CFR 122.2? Y  N

4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y  N

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y  N

If Y, please list:

1. site identification # assigned by the state of NH or MA:

2. permit or license # assigned:

3. state agency contact information: name, location, and telephone number:

f) Is the site/facility covered by any other EPA permit, including:

1. Multi-Sector General Permit? Y  N , if Y, number:

2. Final Dewatering General Permit? Y  N , if Y, number:

3. EPA Construction General Permit? Y  N , if Y, number:

4. Individual NPDES permit? Y  N , if Y, number:

5. any other water quality related individual or general permit? Y  N , if Y, number:

g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y  N

h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.

<u>Activity Category</u>	<u>Activity Sub-Category</u>
I - Petroleum Related Site Remediation	A. Gasoline Only Sites <input type="checkbox"/> B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) <input type="checkbox"/> C. Petroleum Sites with Additional Contamination <input type="checkbox"/>
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites <input type="checkbox"/> B. VOC Sites with Additional Contamination <input checked="" type="checkbox"/> C. Primarily Heavy Metal Sites <input type="checkbox"/>
III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input type="checkbox"/> B. Known Contaminated Sites <input type="checkbox"/>

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites <input type="checkbox"/> B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites <input type="checkbox"/> C. Hydrostatic Testing of Pipelines and Tanks <input type="checkbox"/> D. Long-Term Remediation of Contaminated Sumps and Dikes <input type="checkbox"/> E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) <input type="checkbox"/>
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**2. Discharge information.** Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:	
Treatment of chlorinated volatile organic compounds and metals in groundwater via pump and treat system prior to discharging to Turnpike Lake.	
b) Provide the following information about each discharge:	
1) Number of discharge points: <input type="text" value="1"/>	2) What is the <b>maximum</b> and <b>average flow rate</b> of discharge (in cubic feet per second, ft <sup>3</sup> /s)? Max. flow <input type="text" value="0.245"/> Is maximum flow a <b>design value</b> ? Y <input checked="" type="radio"/> N <input type="radio"/> Average flow (include units) <input type="text" value="0.16 cfs"/> Is average flow a design value or estimate? <input type="text" value="Estimate"/>
3) Latitude and longitude of each discharge within 100 feet:	
pt.1: lat. <input n"="" type="text" value="41deg 1' 0.11"/> long. <input type="text" value="71deg 18' 37.00" w"=""/>	pt.2: lat. <input type="text"/> long. <input type="text"/> ;
pt.3: lat. <input type="text"/> long. <input type="text"/>	pt.4: lat. <input type="text"/> long. <input type="text"/> ;
pt.5: lat. <input type="text"/> long. <input type="text"/>	pt.6: lat. <input type="text"/> long. <input type="text"/> ;
pt.7: lat. <input type="text"/> long. <input type="text"/>	pt.8: lat. <input type="text"/> long. <input type="text"/> ; etc.
4) If hydrostatic testing, total volume of the discharge (gals): <input type="text" value="NA"/>	5) Is the discharge intermittent <input checked="" type="radio"/> or seasonal <input type="radio"/> ? Is discharge ongoing? Y <input checked="" type="radio"/> N <input type="radio"/>
c) Expected dates of discharge (mm/dd/yy): start <input type="text" value="Sep 10, 2010"/> end <input type="text" value="Sep 9, 2015"/>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water. 2. contributing flow from the operation. 3. treatment units. and 4. discharge points and receiving waters(s). <input type="text" value="See Figures 1 and 2 (attached)"/>	

**3. Contaminant information.**

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	SM 2540 D	2000	18000	10.8	6750	2.8
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	SM 4500-CLG <sup>+</sup>	20	ND	N/A	ND	N/A
3. Total Petroleum Hydrocarbons (TPH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8015B MC <sup>+</sup>	200	ND	N/A	ND	N/A
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 9012B	10	ND	N/A	ND	N/A
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
9. Total BTEX <sup>2</sup>	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	N/A	N/A	ND	N/A	ND	N/A
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) <sup>3</sup>	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8011	0.02	ND	N/A	ND	N/A
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	Not Sampled <sup>+</sup>	N/A	N/A	N/A	N/A	N/A	N/A

\* Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

<sup>2</sup> BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

<sup>3</sup> EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	Not Sampled	N/A	N/A	N/A	N/A	N/A	N/A
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C MOD	0.2	ND	N/A	ND	N/A
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	N/A	N/A	100	ND	N/A	ND	N/A
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
22. cis-1,2 Dichloroethene (DCE)	156592	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	EPA 624	100	290	0.18	200	0.08
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
24. Tetrachloroethene (PCE)	127184	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	EPA 624	100	5100	3.1	3485	1.4
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	EPA 624	100	2500	1.5	1657	0.7
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
27. Trichloroethene (TCE)	79016	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	EPA 624	100	220	0.13	175	0.07

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	100	ND	N/A	ND	N/A
29. Acetone	67641	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	Grab	EPA 624	400	ND	N/A	ND	N/A
30. 1,4 Dioxane	123911	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Sampled	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31. Total Phenols	108952	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C	5	ND	N/A	ND	N/A
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	1	ND	N/A	ND	N/A
33. Total Phthalates (Phthalate esters) <sup>4</sup>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C	5	ND	N/A	ND	N/A
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C	5	ND	N/A	ND	N/A
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	0.1	ND	N/A	ND	
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.1	ND	N/A	ND	N/A
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.1	ND	N/A	ND	N/A
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	0.1	ND	N/A	ND	N/A
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	0.1	ND	N/A	ND	N/A
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.1	ND	N/A	ND	N/A
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	0.1	ND	N/A	ND	N/A
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod <sup>+</sup>	0.1	ND	N/A	ND	N/A
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8279 Mod <sup>+</sup>	0.2	ND	N/A	ND	N/A

<sup>4</sup> The sum of individual phthalate compounds.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
h. Acenaphthene	83329	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.1	ND	N/A	ND	N/A
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
n. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270C Mod	0.2	ND	N/A	ND	N/A
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 8270	5	ND	N/A	ND	N/A
38. Chloride	16887006	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	EPA 9056	6000	48000	28.8	48000	19.9
39. Antimony	7440360	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Sampled	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40. Arsenic	7440382	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	10	ND	N/A	ND	N/A
41. Cadmium	7440439	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	4	ND	N/A	ND	N/A
42. Chromium III (trivalent)	16065831	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	10	ND	N/A	ND	N/A
43. Chromium VI (hexavalent)	18540299	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 7196A	10	ND	N/A	ND	N/A
44. Copper	7440508	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	25	ND	N/A	ND	N/A
45. Lead	7439921	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	5	ND	N/A	ND	N/A
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 7470A2	0.2	ND	N/A	ND	N/A
47. Nickel	7440020	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	40	ND	N/A	ND	N/A
48. Selenium	7782492	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	50	ND	N/A	ND	N/A
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	EPA 6010B1	7	ND	N/A	ND	N/A
50. Zinc	7440666	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	EPA 6010B1	50	240	0.14	240	0.1
51. Iron	7439896	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7	Grab	EPA 6010B1	100	1500	0.9	520	0.22
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>								

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
Manganese	7439965	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6	Grab	EPA 6010B	50	480	0.29	357	0.15
		<input type="checkbox"/>	<input type="checkbox"/>								

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

<p><i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y <input checked="" type="radio"/> N <input type="radio"/></p>	<p>If yes, which metals? Zinc and Nickel</p>												
<p><i>Step 2:</i> For any metals which exceed the <b>Appendix III</b> limits, calculate the <b>dilution factor (DF)</b> using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals?</p> <table border="1"> <tr> <td>Metal: zinc</td> <td>DF:</td> <td>11</td> </tr> <tr> <td>Metal: Nickel</td> <td>DF:</td> <td>11</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> <td></td> </tr> <tr> <td>Metal:</td> <td>DF:</td> <td></td> </tr> </table> <p>Etc.</p>	Metal: zinc	DF:	11	Metal: Nickel	DF:	11	Metal:	DF:		Metal:	DF:		<p>Look up the limit calculated at the corresponding dilution factor in <b>Appendix IV</b>. Do any of the metals in the <b>influent</b> have the potential to exceed the corresponding <b>effluent</b> limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="radio"/> N <input checked="" type="radio"/> If Y, list which metals:</p>
Metal: zinc	DF:	11											
Metal: Nickel	DF:	11											
Metal:	DF:												
Metal:	DF:												

**4. Treatment system information.** Please describe the treatment system using separate sheets as necessary, including:

<p>a) A description of the treatment system, including a schematic of the proposed or existing treatment system:</p> <p>The existing treatment system consists of 6 extraction wells and a groundwater treatment system as shown on Figures 1 and 2 (attached). Extracted groundwater is treated for chlorinated volatile organic compounds and certain metals via a metals recovery unit, clarifier, air stripper, bag filters and activated carbon prior to discharge to Turnpike Lake. Sludge removed from the system is drummed and disposed off-site and air discharge resulting from the air stripper is treated with activated carbon before being discharged to the atmosphere.</p>						
<p>b) Identify each applicable treatment unit (check all that apply):</p>	Frac. tank <input type="checkbox"/>	Air stripper <input checked="" type="checkbox"/>	Oil/water separator <input type="checkbox"/>	Equalization tanks <input checked="" type="checkbox"/>	Bag filter <input checked="" type="checkbox"/>	GAC filter <input checked="" type="checkbox"/>
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):	Filter Press; Metals Recovery System; Plate Clarifier		

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate(s)** (gallons per minute) of the treatment system:

Average flow rate of discharge  gpm Maximum flow rate of treatment system  gpm  
 Design flow rate of treatment system  gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

1. Flocculating Agent (Sodium Hydroxide) is used for Metals Recovery and pH adjustment.
  2. pH Adjustor (Sulfuric Acid) is added to effluent tank prior to discharge.
- MSDS's are attached.

**5. Receiving surface water(s).** Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct to receiving water <input checked="" type="checkbox"/>	Within facility (sewer) <input type="checkbox"/>	Storm drain <input type="checkbox"/>	Wetlands <input type="checkbox"/>	Other (describe): <input style="width: 95%;" type="text"/>
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b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

After treatment, water is discharged directly to Turnpike Lake in the Taunton River Basin.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:

1. For multiple discharges, number the discharges sequentially.
  2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
- The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water  cfs  
 Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y  N  If yes, for which pollutant(s)?

Is there a final TMDL? Y  N  If yes, for which pollutant(s)?

**6. ESA and NHPA Eligibility.**

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

<p>a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit? A <input checked="" type="radio"/> B <input type="radio"/> C <input type="radio"/> D <input type="radio"/> E <input type="radio"/> F <input type="radio"/></p> <p>b) If you selected Criterion D or F, has consultation with the federal services been completed? Y <input type="radio"/> N <input type="radio"/> Underway <input type="radio"/></p> <p>c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is “not likely to adversely affect” listed species or critical habitat received? Y <input type="radio"/> N <input type="radio"/></p> <p>d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.</p>
<p>e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit? 1 <input checked="" type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/></p> <p>f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.</p>

**7. Supplemental information.**

<p>Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.</p>
<p>See attached figures and supplemental documentation</p>

**8. Signature Requirements:** The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

*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 gather and evaluate 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Facility/Site Name:	BASF Plainsville
Operator signature:	
Printed Name & Title:	Joseph Taormina, Senior Engineer
Date:	12/03/10

**B. Submission of NOI to EPA** - All operators applying for coverage under this General Permit must submit a completed Notice of Intent (NOI) to EPA. Signed and completed NOI forms and attachments must be submitted to EPA-NE at:

U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Mail Code OEP06-4  
Boston, MA 02109-3912  
ATTN: Remediation General Permit NOI Processing

or electronically mailed to [NPDES.Generalpermits@epa.gov](mailto:NPDES.Generalpermits@epa.gov)

or faxed to the EPA Office at 617-918-0505

If filling out the suggested NOI form electronically on EPA's website, the signature page must be signed and faxed or mailed to EPA at the fax number and/or address listed above.

1. Filing with the states - A copy of any NOI form filed with EPA-NE must also be filed with state agencies. The state agency may elect to develop a state specific form or other information requirements.

a) Discharges in Massachusetts - In addition to the NOI, permit applicants must submit copies of the State Application Form BRPWM 12, Request for General Permit coverage for the RGP. The application form and the Transmittal Form for Permit Application and Payment may be obtained from the Massachusetts Department of Environmental Protection (MassDEP) website at [www.state.ma.us/dep](http://www.state.ma.us/dep). Municipalities are fee-exempt, but should send a copy of the transmittal form to that address for project tracking purposes. All applicants should keep a copy of the transmittal form and a copy of the application package for their records.

1) A copy of the NOI, the transmittal form, a copy of the check, and Form BRPWM 12 should be sent to:

Massachusetts Department of Environmental Protection  
Division of Watershed Management  
627 Main Street, 2<sup>nd</sup> floor  
Worcester, MA 01608

2) A copy of the transmittal form and the appropriate fee should be sent to:

Massachusetts Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02111

Please note: Applicants for discharges in Massachusetts should note that under 310 CMR 40.000, *as a matter of state law*, the general permit only applies to discharges that are **not** subject to the

Massachusetts Contingency Plan (MCP) and 310 CMR 40.000. Therefore, discharges subject to the MCP are **not** required to fill out and submit the State Application Form BRPWM 12 or pay the state fees. However, they must submit a NOI to EPA.

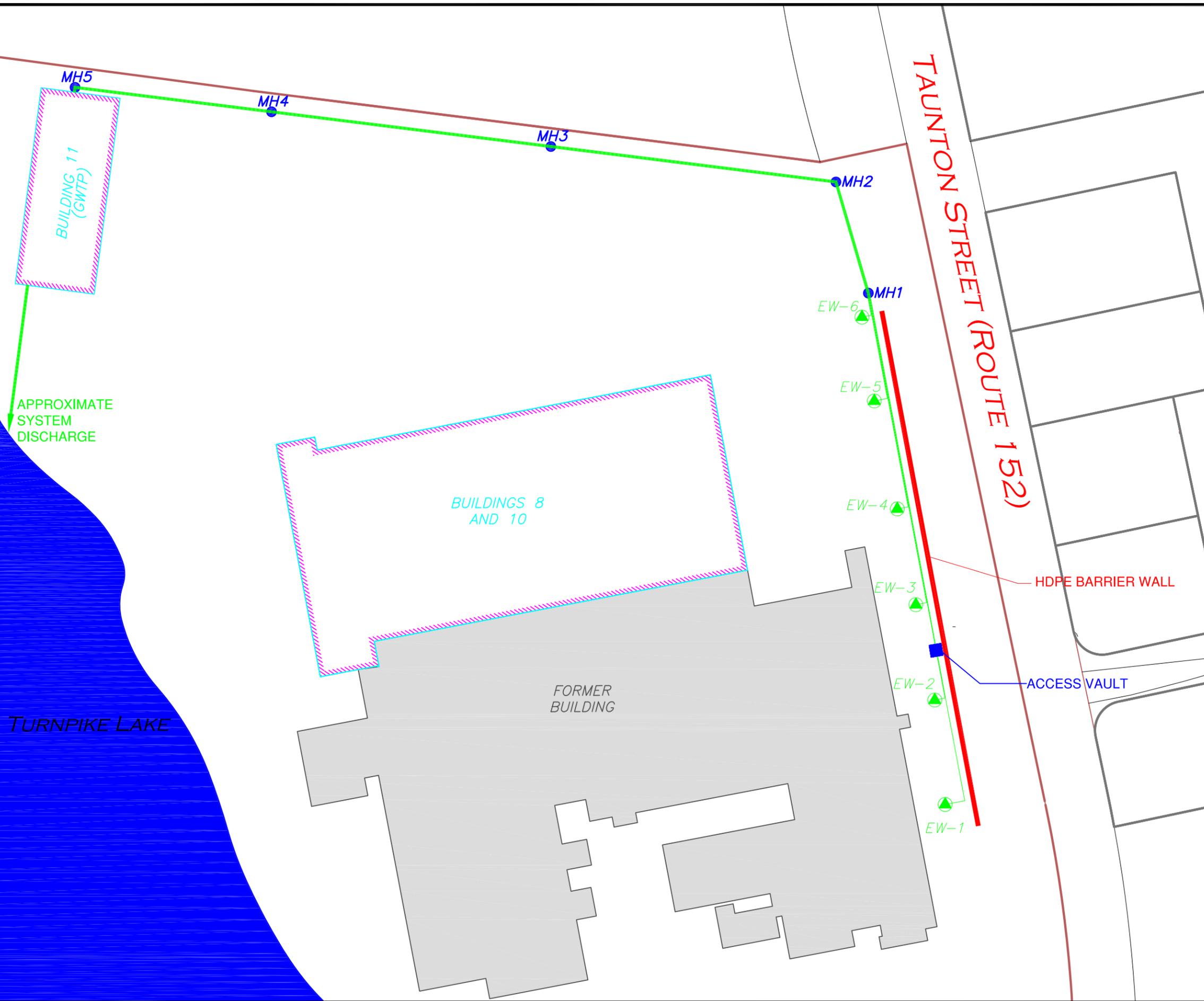
b) Discharges in New Hampshire - applicants must provide a copy of the Notice of Intent to:

New Hampshire Department of Environmental Services  
Water Division  
Wastewater Engineering Bureau  
P.O. Box 95  
Concord, New Hampshire 03302-0095.

2. Filing with Municipalities - A copy of the NOI must be submitted to the municipality in which the proposed discharge would be located.

## **ATTACHMENT 2**

Figures



LEGEND:

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



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: 11/18/10	FIGURE 1
	Prepared by: WH/CC	Scale: AS SHOWN	
	Project Mgr: JT	Office: MA	
	File No: BF0010002	Project: 0251.0020.M003	

APPROXIMATE  
SYSTEM  
DISCHARGE

TURNPIKE LAKE

BUILDING 11  
(GWTP)

BUILDINGS 8  
AND 10

FORMER  
BUILDING

TAUNTON STREET (ROUTE 152)

HDPE BARRIER WALL

ACCESS VAULT

MH5

MH4

MH3

MH2

MH1

EW-6

EW-5

EW-4

EW-3

EW-2

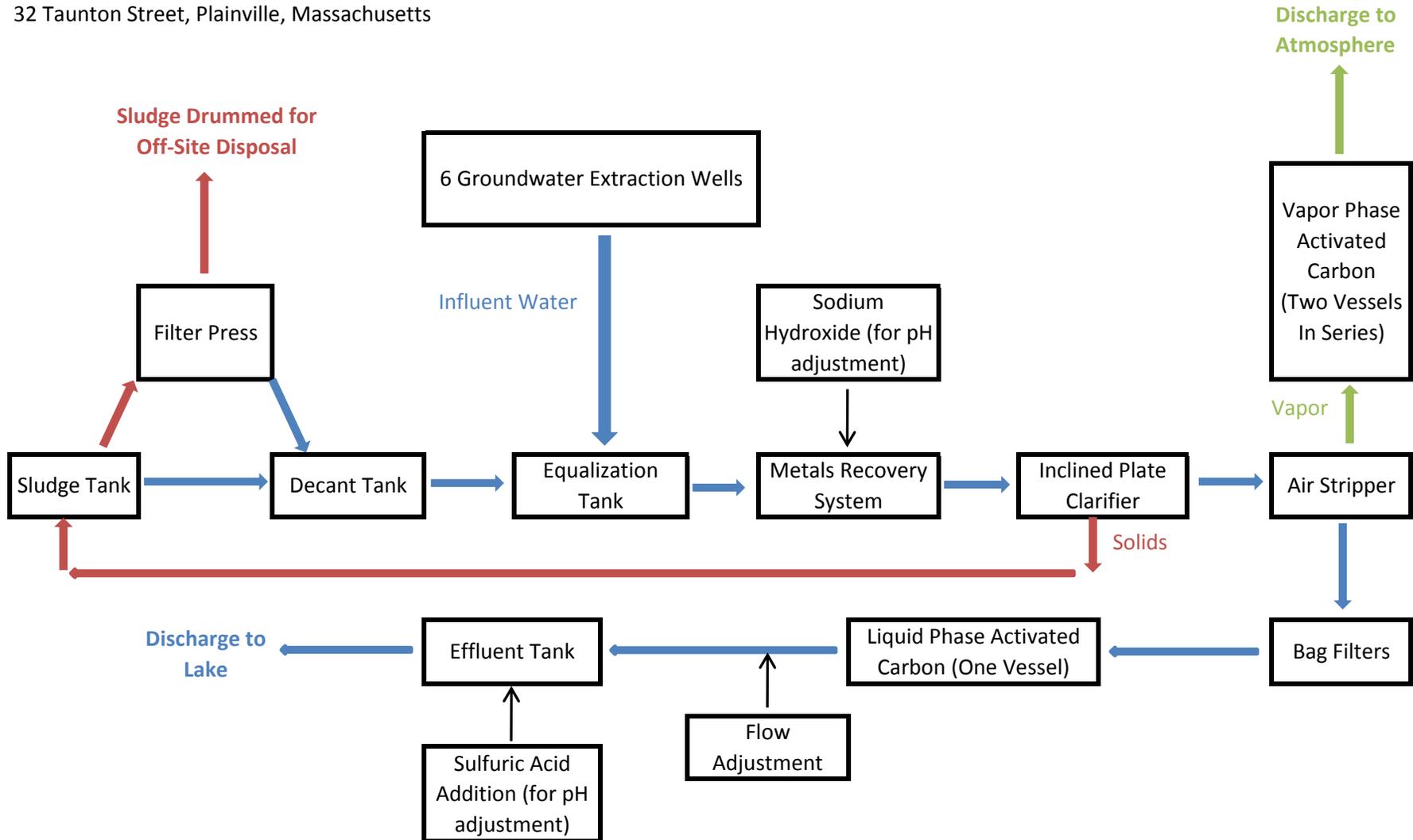
EW-1

**Figure 2**

System Flow Schematic

BASF Corporation

32 Taunton Street, Plainville, Massachusetts



**ATTACHMENT 3**

Additional Information in Support of NOI

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

The following information has been provided in support of the NOI provided herein for the former BASF Chemical Corporation (BASF) facility located at 32 Taunton Street in Plainville, Massachusetts:

***Section 1, Subsection a***

The subject facility is owned by BASF and is located at 32 Taunton Street in Plainville, Massachusetts. The facility is no longer in operation. As such, the SIC code portion of this question was marked as not applicable. When the facility was in operation its primary function was metal processing including metal machining and stamping.

***Section 2, Subsection b2***

System upgrades have been proposed for 2011 which will increase the flow of groundwater through the system by increasing the extraction rates from one or more of the existing on-Site extraction wells. The maximum and average flow rates provided are based on the proposed system conditions.

***Section 3, Subsection a***

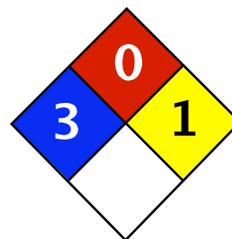
Contaminant information provided in this section is based on the results of system influent sampling events conducted between July and September 2010 (laboratory reports are provided in this submittal). Maximum and average daily mass values are calculated based on the proposed maximum and average flow rates through the system, assuming upgrades are made in 2011.

***Section 3, Subsection b and Section 5, Subsection e***

Source data for determining the seven day-ten year low flow (7Q10) used for calculating dilution factors for zinc and nickel is: August 21, 2010 Gauging Data for USGS Station 001109000 near Norton, MA in the Taunton River Watershed available at <http://ma.water.usgs.gov>. Based on discussions with the EPA, the closest stream gauge station in the same watershed as the discharge was used for the 7Q10 because there were no shown gauges in Turnpike Lake or its tributary streams.

## **ATTACHMENT 4**

MSDS Sheets



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](http://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 dichloroethylene, 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 spontaneously 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 aqueous sodium hydroxide, under vacuum distillation, residue darkened and exploded. Sodium Hydroxide + 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/m<sup>3</sup>) from OSHA (PEL) [United States]  
CEIL: 2 (mg/m<sup>3</sup>) from NIOSH Consult 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 tetrahydrofuran is very exothermic, a mild explosion being noted on one occasion.

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, formaldehyde), 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. beryllium, lead acetate, nickel carbonyl, tetraethyl lead), nitrides (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, acrylonitrile, phosphorus 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

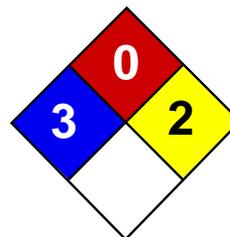
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/09/2005 06:32 PM

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

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*



Health	3
Fire	0
Reactivity	2
Personal Protection	

## Material Safety Data Sheet

### Sulfuric acid MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Sulfuric acid

**Contact Information:**

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

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

**CAS#:** 7664-93-9

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

**RTECS:** WS5600000

Order Online: [ScienceLab.com](http://ScienceLab.com)

**TSCA:** TSCA 8(b) inventory: Sulfuric acid

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**CI#:** Not applicable.

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

**Synonym:** Oil of Vitriol; Sulfuric Acid

**Chemical Name:** Hydrogen sulfate

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

**Chemical Formula:** H<sub>2</sub>-SO<sub>4</sub>

#### 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 decomposition 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, phosphorous (III) oxide, and oxidizing agents such as chlorates, halogens, permanganates.

**Special Remarks on Explosion Hazards:**

Mixtures of sulfuric acid and any of the following can explode: 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, picrates, fulminates, 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 decomposition.

**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/m<sup>3</sup>) [Australia] Inhalation TWA: 1 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation TWA: 1 STEL: 3 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] [1999] Inhalation TWA: 1 (mg/m<sup>3</sup>) from NIOSH [United States] Inhalation TWA: 1 (mg/m<sup>3</sup>) [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 acetelyene carbide, Silver permanganate, Sodium, Sodium carbonate, sodium hydroxide, Steel, styrene monomer, toluene + nitric acid, Vinyl acetate, Thallium (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 dilute 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/m<sup>3</sup> 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/m<sup>3</sup> for 7 hrs.(RTECS) Teratogenicity: neither embryotoxic, fetotoxic, nor teratogenic 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 gastrointestinal 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 respiratory 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.**Created:** 10/09/2005 11:58 PM**Last Updated:** 11/06/2008 12:00 PM

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