



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

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August 9, 2012

Mr. Scott Hansen, Operations Director
INEOS Melamines, LLC
730-B Worcester Street
Springfield, MA 01151

Re: Springfield
Transmittal No.: X241798
Application No.: WE-12-004
Class: OP-3
FMF No.:511019
**Air Quality Plan Approval
Amendment**

Dear Mr. Hansen:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed installation of **a new cooling tower** at your facility located at 730-B Worcester Street in Springfield, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

In response to verbal comments submitted by MassDEP to INEOS in a phone conversation on March 2, 2012, MassDEP received updated INEOS process information on March 19, 2012, which served to complete the Application submittal.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this Plan Approval for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

In response to provision 1 in Table 6; Special Terms and Conditions, INEOS submitted a Startup, Shutdown, and Malfunction Plan for the new cooling tower. This Approval Amendment incorporates provisions included in the SSM Plan approval (Application #WE-12-013; Transmittal # X251732; amended 8/9/2012) that are required to make these two plan approvals consistent with each other.

Please be advised that this Plan Approval Amendment replaces in-full the Plan Approval issued by MassDEP dated March 30, 2012.

1. DESCRIPTION OF FACILITY AND APPLICATION

The INEOS Melamines, LLC facility ("INEOS") manufactures high solids liquid melamine resins by reacting melamine with formaldehyde and alcohols. These resins are sold to companies that use them as cross linkers in industrial coating systems. The operation consists of the storage for virgin raw materials (melamine, formalin, methanol, butanol, isobutanol, isopropanol, nitric acid, and sodium hydroxide) and recycle streams, batch reactors and associated hold tanks, batch and batch-continuous filters, blend tanks and product storage tanks, packaging equipment for drums, totes, tank trucks and rail cars, and batch and continuous distillation facilities for recovery of formaldehyde and alcohols.

In this application, INEOS proposes to install a cooling tower and sump reservoir to be located approximately 40 feet west of Building 81. In accordance with 310 CMR 7.02 (2) (b) (6) Cooling Towers, the cooling tower unit itself meets all the criteria established in that regulation to be eligible for exemption from MassDEP plan approval. However, this plan approval application was required by MassDEP because of VOC and HAP emission increases associated with the process changes in which the tower water is substituted for the cooler 'once-thru' city water in process condensers and recovery/distillation columns at the INEOS facility.

The purpose of the cooling tower system is to supply the production process with cool recirculation water instead of 'once-thru' city water for the recovery/distillation column condensers and the #6 Kettle/#7 Kettle cooling coils and condensers. Provisions will be made for the future tie into the #1 Kettle system.

Cooling water returning to the tower is expected to be 110°F and the supply water from the tower to the process will be approximately 85°F at a flow rate of approximately 4,200 gallons per minute during peak summertime conditions.

INEOS calculates that the cooling tower will reduce city water demand by 1.137 million gallons per day, reduce wastewater flow to Bondi's Island by 296,000 gallons per day, and reduce clean water discharged into the Chicopee River by 841,000 gallons per day.

INEOS calculates that the emissions of VOC and HAP from the facility, on a potential-to-potential basis, will change by +0.35 tons/year and +0.19 tons/year respectively. Actual VOC and HAP emissions changes, comparing 2010 actual emissions with the post-project potential emissions, is +0.46 tons/year VOC and +0.30 tons/year HAP.

INEOS is proposing no changes to current permit terms and conditions or emission control efficiency requirements. INEOS will monitor the cooling tower water outlet temperature to ensure it remains $\leq 85^{\circ}\text{F}$ on a rolling 24-hour basis. In the event the cooling tower water temperature approaches an exceedance, INEOS proposes to follow an established Startup, Shutdown, and Malfunction Plan that is being approved by MassDEP concurrent with this Plan Approval Amendment.

After the addition of the cooling tower, all referenced process equipment will continue to operate in conformance with existing MassDEP plan approvals (except where cooling tower water will be used to replace once-thru city water), and will continue to meet air pollution emission limits that had previously been approved as Best Available Control Technology (BACT).

Resimene Reactors; #6/#7 Kettle Systems & Distillation/Recovery Columns

The new cooling tower will supply tower water for the #6 Kettle cooling coils and condenser for approximately 10 months of the year, and for the #7 Kettle cooling coils and condenser for approximately 7 months of the year, depending on ambient temperature and process chemistry, but no upper limit on frequency of use are written into this Air Quality Plan Approval.

A new shell and tube condenser utilizing tower water for 12 months per year will replace the existing second venture scrubber (also referred to as "direct contact after-condenser") in the common control system for the reaction kettles.

Other small emission increases will result from six condensers in this distillation/recovery area now operating on tower-water instead of city-water. The subject condensers are as follows:

1. CD condenser
2. Methanol condenser
3. Methanol condenser subcooler
4. Butanol column (wet) condenser (cooling water from outlet of #6 Kettle condenser)
5. Butanol recovery batch still – decant cooler
6. Butanol dry condenser

Emission increases of VOC/HAP from this process area, on a potential-to-potential basis, will be 0.28/0.13 tons/year respectively.

Resimene Tankfarm

Small emission increases will result from several storage/recovery tanks in this process area operating at slightly elevated temperatures due to tower-water being used instead of city-water on the sources of supply (recovery distillation columns) for the tanks. Emission increases of VOC/HAP from this process area, on a potential-to-potential basis, will be 0.07/0.06 tons/year respectively.

2. EMISSION UNIT IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval. Since only parts of the original emission unit 081 S001 are affected by the cooling tower water project, a new emission unit, 081 S001e has been created for the storage tanks that are unaffected by this project, and is listed in Table 1 for reference only.

Table 1			
EU#	Description	Design Capacity	Pollution Control Device
081 S001	<u>Resimene Raw Material: Recycle, Blending & Storage</u> #14 Tank (methanol storage) (stk. TKF T214) # 3 Tank (n-butanol storage) (stk. TKF T320) # 9 Tank (n-butanol storage) (stk. TKF T321) # 5 Tank (CD Distillate; wet butanol storage) (stk. TKF T213) #17 Tank (wet methanol storage) (stk. TKF T211) #18 Tank (wet methanol storage) (stk. TKF T211) #19 Tank (wet methanol storage) (stk. TKF T211) # 7 Tank (CD distillate storage) (stk. TKF T219) #10 Tank (8% butanol storage) (stk. TKF T323)	25,800 gallons 25,800 gallons 25,800 gallons 25,800 gallons 36,800 gallons 22,700 gallons 30,000 gallons 25,800 gallons 15,600 gallons	packed bed scrubbers
081 S001e (not supplied with cooling tower water)	# 1 Tank (isobutanol storage) (stk. TKF T215) # 4 Tank (wet butanol storage) (stk. TKF T220) # 6 Tank (methanol storage) (stk. TKF T323) #16 Tank (wet butanol storage) (stk. TKF T220) #13 Tank (isopropanol storage) (stk. TKF T322)	25,800 gallons 25,800 gallons 4,400 gallons 15,000 gallons 15,000 gallons	packed bed scrubbers
081 S004	#6 Reactor System (stk. 081 P012) #6 Kettle, #6 Distillate Receiver, #6b Hold Tank		condensers, vacuum jets, venturi scrubber, new condenser, & packed bed scrubber
081 S004b	#7 Reactor System (stk. 081 P012) #7 Kettle, #7 Distillate Receiver		condensers, vacuum jets, venturi scrubber, new condenser, & packed bed scrubber
081 S008	<u>Butanol Recovery</u> (stk. 081 P025)		packed bed scrubber

3. APPLICABLE REQUIREMENTS

A. Operational, Production and Emission Limits

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2, below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
081 S001 081 S004 081 S004b 081 S008	Maintain cooling tower water outlet temperature $\leq 85^{\circ}\text{F}$ based on a rolling 24-hour average. Implement the procedures of a MassDEP approved Startup, Shutdown, Malfunction Plan if the cooling tower water outlet temperature increases above 85°F based on a rolling 12-hour average.	VOC/HAP	N/A

B. Compliance Demonstration

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
081 S001 081 S004 081 S004b 081 S008	<ol style="list-style-type: none"> 1. INEOS shall continuously monitor and record the cooling tower water outlet temperature on an instantaneous basis, a 12-hour rolling average basis, and on a 24-hour rolling average basis. INEOS shall obtain valid data from the cooling tower water outlet temperature monitor for at least 75% of the hours per day for 75% of the days per calendar month that the subject emission unit operates, and for at least 90% of the hours per calendar quarter that the subject emission unit operates, except for periods of calibration checks, zero and span adjustments, and preventive maintenance. 2. INEOS shall ensure that the cooling tower water outlet temperature is alarmed to provide in the control room an audible and visible indication of either an instantaneous, a rolling 12-hour average over-temperature, or a rolling 24-hour average over-temperature. 3. INEOS shall conduct field verification tests at kettle sources affected by the cooling tower project in order to verify the emission estimates provided in the Air Quality Plan Approval application. 4. INEOS shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration. 5. If and when MassDEP requires it, INEOS shall conduct emission testing in accordance with USEPA Reference Test Methods and 310 CMR 7.13.

Table 4	
EU#	Record Keeping Requirements
081 S001 081 S004 081 S004b 081 S008	<ol style="list-style-type: none"> 1. INEOS shall maintain records of the cooling tower water instantaneous, rolling 12-hour average, and rolling 24-hour average temperatures. 2. INEOS shall maintain a daily log of cooling tower water temperature alarms.

Table 5	
EU#	Reporting Requirements
081 S001 081 S004 081 S004b 081 S008	<ol style="list-style-type: none"> 1. INEOS shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c). 2. INEOS shall notify the Western Regional Office of MassDEP, BWP Permit Chief by telephone at (413) 755-2115, by email at Marc.Simpson@state.ma.us, or fax at (413) 784-1149 as soon as possible, but no later than three (3) business days after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Marc Simpson, Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s). 3. INEOS shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP's request. 4. INEOS shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Item #3 – Monitoring and Testing Requirements. 5. INEOS shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Item #3 – Monitoring and Testing Requirements.

4. SPECIAL TERMS AND CONDITIONS

The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
081 S001 081 S004 081 S004b 081 S008	1. deleted; requirements of this provision have been fulfilled with the timely submittal of a SSM Plan. 2. INEOS shall ensure that in the event the cooling tower temperature exceeds > 85 °F based on a rolling 12-hour average, the procedures specified in a MassDEP approved SSM Plan are followed. If INEOS adheres to the procedures in the SSM Plan, then any temperature deviation shall not be considered a permit violation. 3. INEOS shall ensure that tower water of ≤ 85°F is used only for the Kettle #6 and Kettle #7 cooling coils/condensers, the Kettle system after condenser, methanol condenser, methanol condenser subcooler, CD condenser, butanol column (wet) condenser [cooling water from the outlet of the #6 kettle condenser], butanol recovery batch still – decant cooler, and butanol dry condenser.
Facility-Wide	4. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. INEOS shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, if any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. If there are any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

If you have any questions concerning this Plan Approval, please contact John Kirzec by telephone at (413) 755-2225 or in writing at the letterhead address.

Sincerely,

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Marc Simpson
Permit Chief
Bureau of Waste Prevention
Western Region

JK/jk
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ecc: Peter Czapienski, WERO
Yi Tian, Boston