



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ONE CONGRESS STREET, SUITE 1100
BOSTON, MA 02114-2023**

March 12, 2009

Steve Morrow
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312

Subject: Disapproval and Notice of Deficiencies
DRAFT Project Operations Plan
Olin Chemical Superfund Site, Wilmington, Mass

Dear Mr. Morrow:

In accordance with Paragraph 40 of the Administrative Settlement Agreement and Order on Consent ("AOC"), Region I of the United States Environmental Protection Agency ("EPA") has reviewed the above-referenced document prepared by MACTEC and dated October 2008. This letter serves as a Notice of Deficiencies and constitutes a disapproval of the above referenced document as submitted. EPA respectfully directs Olin to submit a revised document that sufficiently cures the deficiencies described herein, and responds to the written comments provided, no later than April 30, 2009. This letter builds on preliminary review comments submitted to Olin on November 17, 2008; and Olin's written Response to EPA Comments Dated January 30, 2009.

Pursuant to Section 1.III.D of the Remedial Investigation/Feasibility Study Statement of Work ("RI/FS SOW"), EPA solicited comments from external state and local stakeholders and has consolidated certain of the written comments received within the context of this letter. Original comment letters are enclosed.

The Project Operations Plan ("POP") was prepared under the terms of the AOC, and Section 2.0 and of the RI/FS SOW to propose the collection of new field data to complete remedial investigations, risk assessments and feasibility studies. The primary objective of the RI/FS Work Plan, and thus this POP, is to collect data necessary to determine the full nature and extent of contamination for each of the three operable units. The data must also be sufficient to perform baseline risk assessments and, if necessary, evaluate remedial alternatives through a feasibility study.

It was apparent upon EPA's preliminary review of the POP that it did not contain all required information as described in the RI/FS SOW (as acknowledged in Olin's written response to preliminary comments). This letter therefore requires Olin to produce a full

RI/FS Work Plan and to revise the submitted POP documents. This letter also serves as a Notice of Deficiencies as described below. It is EPA's intent to discuss each of these deficiencies, and various related comments, with Olin in a two day meeting planned for March 19th and 20th. The primary objective for this meeting will be to clearly present EPA's expectations for a satisfactory cure. Olin will then have about 40 days from that time to submit a revised RI/FS Work Plan, including any changes necessary to the POP, to cure the stated deficiencies. If the revised RI/FS Work Plan does not, in EPA's opinion, adequately address the stated deficiencies, it is EPA's intent to modify the submission consistent with the terms of the AOC.

OVERVIEW

On November 17th, 2008, EPA provided Olin with a preliminary review letter containing comments on the Draft POP. The overriding concern was that, in EPA's opinion, the POP did not address numerous data gaps identified by EPA across all three operable units.

While EPA recognizes that significant field efforts have been completed under the Massachusetts Contingency Plan (MCP), the objectives for each of these focused studies were not consistent with the objectives of a CERCLA RI/FS. EPA negotiated with Olin in good faith to structure the AOC in a manner that would allow use of the existing data set to the maximum extent practicable. Olin first identified data gaps as required in the Draft Focused RI Report (FRI). Although EPA's review of the FRI identified significantly more data gaps, and raised many questions, EPA did not require Olin to go through the timely and costly process of revising the Draft FRI Report because it was EPA's understanding, based on written and verbal statements offered by Olin, that the additional data gaps identified by EPA would be addressed in the Draft RI/FS Work Plan. This did not happen. EPA did not issue the November 17th preliminary comment letter as a disapproval and notice of deficiencies with the expectation that the additional data gaps identified by EPA would be addressed in Olin's written response to the preliminary comment letter. This did not happen.

EPA therefore believes it is necessary to issue this letter as a disapproval and notice of deficiencies, consistent with the narrow range of options available to EPA under the AOC for review of an Olin submission. This letter is not intended to be punitive, nor does EPA desire to modify the RI/FS Work Plan without providing Olin a chance to cure the deficiencies first. EPA firmly believes that Olin and their consultant, MACTEC, possess the historic knowledge and expertise necessary to delivery a quality RI/FS Work Plan that effectively addresses all the objectives specified in the RI/FS SOW in a timely manner.

A summary of the enduring data gaps are below, followed by an identification of the deficiencies that must be cured in the revised RI/FS Work Plan. In addition, EPA has provided additional comments that must be addressed in the revised RI/FS Work Plan.

DATA GAP SUMMARY

For OU1: Existing soil samples are focused on previously documented source areas, leaving large areas of the site without samples, or under-sampled for the purpose of characterizing full nature and extent, and to perform a baseline risk assessment. In previously documented source areas where existing sample density appears to be nearly sufficient, many samples were analyzed for only a handful of the compounds on the mutually-approved TAL. Many of the existing surface soil samples, as identified by Olin, were collected at a depth of 0 to 3 feet. EPA defines surface soils as generally representative of samples collected from 0 to 1 foot. Further complicating soil data acceptance is the fact that some of the existing sample points as shown by Olin on various figures actually represent composites collected over broad areas.

For OU2 (and OU1): Much of the sediment and surface water data are greater than five years old now, calling into question their representativeness of current conditions. This concern is exacerbated by the construction of the slurry wall/cap area in 2005, and shut down of the municipal supply wells in Maple Meadow Brook in 2003. These significant actions have likely caused changes in flow patterns, and groundwater to surface water interaction, resulting in changes to the nature and extent of contamination as determined by older data. Also, areas to the south of the on-site portion of the existing South Ditch, including the southern portions of South Ditch and East Ditch, North Pond, upper New Boston Drainage Way and Landfill Brook are largely uncharacterized, although elevated ammonia has been documented in these areas. There is also a need for additional toxicity testing, consistent with current methodology.

For OU3: Additional deep overburden wells are necessary in the area of the slurry wall to effectively monitor the slurry wall to bedrock interface. Also, EPA has consistently raised concerns about the lack of data collection and evaluation in the bedrock aquifer. Additional wells are clearly needed beyond what is currently proposed in the POP, particularly in light of the recent detections of NDMA in area private wells believed to be several hundred feet in depth.

DEFICIENCIES

- 1. The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not include the non-POP components as specified in Section 3.0 of the RI/FS SOW.**

In the November 17th comment letter, EPA noted the submitted document was not titled "work plan." More than semantics, EPA explained that the POP did not contain the required components of Section 3.0 of the RI/FS SOW. Although not specified as deficiencies, EPA cited several objectives of the field investigation from Section 3.0 as examples. These media specific objectives require the proposal of field and

data evaluation activities beyond sample collection. In Olin's January 30th response, it is explained that Olin intends to provide the non-POP components of the RI/FS Work Plan. However, portion "c" of this response indicates that, "It is premature to identify what receptors, exposure pathways, or exposure areas would be evaluated (although some preliminary approaches could be discussed)." Section 3.0 of the RI/FS SOW clearly states the primary objective of the RI, "At its onset, the goal of the Remedial Investigation shall be to supplement the usable existing field data and studies summarized in the Focused RI Report, and collect all new field data which can reasonably be assumed to be necessary to complete a Remedial Investigation (RI), Feasibility Study (FS) and Baseline Risk Assessment for each OU, and which will be sufficient to select a remedy for each OU." To achieve this objective, the RI/FS Work Plan must identify receptors, exposure pathways, or exposure areas to ensure adequate data collection. EPA understands and expects that these receptors, pathways and areas are preliminary and may change as the RI proceeds. The cure requires that the revised RI/FS Work Plan include a description of all the data evaluation activities proposed to address the objectives contained in Section 3.0 of the RI/FS SOW.

- 2. The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not propose a field sampling and site characterization program for soils located beneath the temporary cap as is necessary to satisfy the objectives as described in Section 3.0, Sub-Section IV.B of the RI/FS SOW.**

In the November 17th comment letter, EPA requested that soil samples be collected from beneath the temporary cap within the footprint of the slurry wall area. This is necessary since the temporary cap does not provide a permanent barrier to potential direct contact. Olin's response is that data collection is not necessary since a permanent cap is planned. EPA considers this response to be insufficient. There is no commitment in the existing AOC for the installation of a permanent cap. As such, there is no schedule or timeline for the installation of a permanent cap. It is also unclear to EPA if Olin possess' the geotechnical information necessary to install a permanent cap. This presents a real scenario where the existing tarp, already aged and weakened despite Olin's best efforts at maintenance, could quickly fall into disrepair resulting in a direct contact pathway for exposure to uncharacterized, yet presumable contaminated surface soils. Additionally, while EPA plans to consider the incorporation of the existing slurry wall and cap area into the final remedy, there is no presumptive remedy under CERCLA providing for an engineered cap. It also seems that chemical and physical soil data are needed to effectively evaluate and design various capping technologies. Therefore, EPA continues to request that surface and subsurface soils beneath the cap be sufficiently characterized to adequately evaluate potential risks and to provide the data necessary to make a final remedial determination. EPA has proposed a scope for characterization of soil within this exposure area in Attachment #1. Alternatively, EPA may consider the placement of a final engineered cap as a Non-Time Critical Removal Action. Olin may propose

that a permanent RCRA cap (or equivalent) be designed and installed within a reasonable time frame (this alternative approach may require amendment to the consent order.) The cure requires that the revised RI/FS Work Plan include a proposal for characterization of soils within the footprint beneath the temporary cap. Alternatively, Olin may propose the design and installation of a permanent cap for EPA's consideration.

3. **The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not propose a sufficient field sampling program for surface and sub-surface soils to satisfy the objectives as described in Section 3.0, Sub-Section IV.B of the RI/FS SOW.**

In the November 17th comment letter, EPA requested that all contaminants on the target analyte list be analyzed at a representative number of soil samples. Olin responded with an approach that is focused on site features and locations where releases were most likely to have occurred. While EPA agrees that it is not necessary or appropriate to evaluate samples for all target analytes at all sample locations, EPA does not agree that an expanded list of analytes should be limited only to previously identified source areas. Spatial coverage for an expanded list of analytes, including specialty compounds, is required. Also, a majority of the existing surface soil samples were collected from 0 to 3 feet and do not represent surface soil conditions, but may be used to represent sub-surface soil. Proposed samples may be collected from 0 to 1 foot but no deeper (this is a departure from the 0 to 6 inch requirement contained in the RI/FS SOW). Subsurface soil samples are only proposed to a depth of ten feet. While ten feet is adequate to evaluate potential human health risks, it is not adequate to assess the nature and extent of contamination in deeper soils. The cure requires that the revised RI/FS Work Plan include a sufficient number of samples between 1 to 10 feet, and a sufficient number of samples below 10 feet, and a sufficient number of analysis for an expanded list of analytes, to satisfy the objectives outlined in Section 3.0, Sub-Section IV.B of the RI/FS SOW.

4. **The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not propose a sufficient field sampling program for surface water and sediment to satisfy the objectives as described in Section 3.0, Sub-Section IV.E of the RI/FS SOW.**

In the November 17th comment letter, EPA noted that the age of the existing surface water and sediment sample sets raise concern over representativeness of the data. EPA requested additional surface water and sediment samples not only to confirm previous results, but also in areas not previously sampled or proposed to be sampled. Olin proposed that a comparison of new data to existing data be allowed to determine if existing data are representative of current conditions. However, no details are provided on how such comparisons would be performed. Also, while EPA agrees that it is not necessary or appropriate to evaluate samples for all target analytes at all

sample locations, EPA does not agree that an expanded list of analytes should be limited only to previously identified source areas. Spatial coverage for an expanded list of analytes, including specialty compounds, is required in a representative number of sediment and surface water samples. The cure requires that the revised RI/FS Work Plan include a sufficient number of samples, and a representative number of samples with analysis for an expanded list of analytes, to satisfy the objectives outlined in Section 3.0, Sub-Section IV.E of the RI/FS SOW. The cure should also propose a method for data comparison.

- 5. The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not propose a sufficient field sampling program for the bedrock aquifer to satisfy the objectives as described in Section 3.0, Sub-Section IV.C of the RI/FS SOW.**

In the November 17th comment letter, EPA noted that a clearly articulated program for determining the nature and extent of contamination in the bedrock was not included in the POP. Olin proposes through their written response to install two additional bedrock wells in an area just south of the currently defined plume adjacent to the Cook Avenue area. Olin then proposes the geophysical logging of these wells with a suite of instruments. While EPA concurs with these activities, the bedrock program as proposed is not sufficient to address the full list of objectives identified in the RI/FS SOW. Specifically, there is no program proposed to evaluate the condition of bedrock beneath the known DAPL pools. Concerns voiced by Olin regarding possible cross contamination as a result of drilling through the known DAPL pools can be addressed using appropriate well installation techniques. Further, the work plan does not propose any activities to confirm that the extent of DAPL is accurate. Also, despite repeated requests by EPA, no wells are proposed in the area of the slurry wall to adequately monitor the bedrock/slurry wall interface for leakage. The POP should also acknowledge that the cessation of pumping from the Maple Meadow Brook aquifer and the installation of the slurry wall have impacted groundwater gradients, and that the existing data set was largely compiled based on conditions which may no longer be representative. The cure requires that the revised RI/FS Work Plan include a bedrock program that is sufficient to address the full list of objectives identified in Section 3.0, Sub-Section IV.C, of the RI/FS SOW. The cure should also acknowledge that the cessation of pumping from Maple Meadow Brook and the installation of the slurry wall have impacted groundwater gradient, and propose a program to determine current groundwater gradients, including interaction between the overburden and bedrock aquifer, and interaction between groundwater and regional surface water bodies.

- 6. The POP as submitted, and as supplemented by Olin's January 30th response, is deficient in that it does not include a plan for air monitoring during certain site activities as required in Sections 2.0 and Section 3.0, Sub-Section IV.D of the RI/FS SOW.**

