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September 21, 2006

Ms. Eileen Barnes
Environmental Analyst
Bureau of Waste Management
Remediation Section
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106-5127

Re: Response to August 17, 2006 CTDEP Comments on the Supplemental Investigation Addendum Report and Additional Responses to November 10, 2005 DEP Comment Letter

Dear Ms. Barnes:

1. *Comment:*

The Department does not concur with Olin's conclusion that the delineation is complete or that Olin's evaluation of the non-public properties is sufficient to support a conclusion that no remediation is required at 34 properties (See Table 1). In many instances, there are no borings or very limited data has been generated for these 34 properties to support a conclusion that no fill is present and that no remediation is warranted. Most significantly, at some properties concentrations of constituents of concern (COC) were detected at concentrations in excess of the applicable RSR criteria or fill materials were documented to be present nearby on adjacent properties. Table 1 has been prepared to provide Olin with the Department's property specific data gap assessment and comments.

Consent Order SRD-128 Section B. 3. e. (1) states that the Investigation Report and Remedial Action shall define the existing and potential extent and degree of soil, surface water and groundwater pollution which is on, is emanating from or has emanated from that portion of the Site for which Respondent is responsible. The edge of the fill line has not been delineated with respect to the properties listed in Table 1. Olin shall propose additional investigations designed to obtain the information necessary to support a conclusion relative to the presence of fill and/or associated pollution on each of the 34 properties.

Response:

Olin believes that the investigation completed as part of the Supplemental Investigation Addendum adequately identified the limits of contamination, based on a sound scientific approach to the investigation. Presence of former wetland areas or historically placed waste materials are not indicated by historical evidence, reports from residents, inspections, and investigation results from adjacent properties. Additional investigation beyond what has currently been completed is not necessary. While additional investigation may serve to slightly reduce some of the uncertainty with regard to the extent of fill materials, uncertainty will still remain about the exact location of all fill. It is likely that during remediation, in a few locations fill may be found to extend beyond the current identified limits, and remediation may be required on a few additional properties. The lines delineating extent of fill drawn are based on point values and interpolation of fill locations between points so that fill in some locations may extend beyond these lines, while in others not extend as far as these lines. Even if extensive additional investigation was completed, it would not guarantee that all fill boundaries were exactly defined, and that no remediation beyond the projected fill boundaries would be needed. However, in the spirit of cooperation, Olin is proposing additional soil borings at select locations to visually evaluate the possibility of fill extending from one property where fill was found to an adjacent property (see Attachment 1). No additional chemical analysis is proposed as part of this effort; decisions about the presence of fill will be made on these visual observations. For properties where sufficient data are available to conclude that no fill is present, the rationale is also provided in Attachment 1. Sheet 1 shows the locations of proposed additional borings.

2. *Comment:*

According to Sheet 10 of Addendum, 45 properties are shaded green depicting that fill is present on a property at a depth less than four feet and are recommended to be included in Remedial Alternative 1 (See Table 2). In Section 5.5 of the SI, Alternative 1 is the complete removal of all the fill materials to depths shallower than approximately 4 feet and replace with clean soil. The implementation of this Alternative will result in the removal of all impacted material from a property; therefore, addresses the RSRs and an Environmental Land Use Restriction (ELUR) will not be required for a property. According to Sheet 10, these 45 properties shaded green have contour fill thickness lines depicting that fill exists at depths of 4 feet or greater on most or at least on a portion of the property. For these 45 properties, Olin shall clarify the depth of the fill and confirm the proposed remedial alternative. The clarification and proposed remedial alternative must be submitted to the Department and the property owner.

Response:

Olin recognizes that while the Newhall NPP area has been investigated extensively, there is still some uncertainty with regards to the exact depth of fill in certain properties. For those properties designated as having fill at a depth no greater than four feet (shaded green on the map), there may be some properties which have some fill at greater than four feet. It is anticipated that during

remediation in the field, a field determination can be made as to whether minor additional excavation can render the property free of fill, or if there is too much additional fill at depth, thus requiring an ELUR for the property. The ELUR would only be executed if fill remained at deeper than 4 feet.

3. *Comment:*

For the 43 properties at which remediation is not proposed, Olin shall provide the Department specific technical justification supporting this outcome. As discussed at the Department's June 29, 2006 meeting with Olin, Olin must provide the Department property specific technical information why remediation is not proposed for a property. If the existing data are not adequate, in accordance with the terms and conditions of the Consent Order, Olin shall propose additional investigations designed to obtain that information necessary to support a defensible conclusion relative to the presence of fill and/or pollution on each of the 43 properties.

Response:

For most of the properties listed, Olin has provided information documenting why no sampling is needed at each of the properties in previous submittals and meetings. Specifically, the properties do not overlie an area of contiguous or isolated fill. Presence of former wetland areas or historically placed waste materials are not indicated by historical evidence, reports from residents, inspections, and investigation results from adjacent properties. A summary of the extent of fill based on historical documents is included as Attachment 2. Additional responses for each property in question are provided in Attachment 3. Olin is proposing to re-inspect three of the properties to evaluate presence of debris, bare spots and/or depressions and, if warranted, conduct limited additional borings to visually evaluate whether fill is present (without chemical analysis of samples).

4. *Comment:*

At 263 Morse Street (a residential property) Olin indicates that the edge of fill line is drawn between borings A1008 and A1009 and that the fill line does not need to be extended to include 263 Morse-HA8-SI.

Soil sample 263 Morse HA8-SI located at 263 Morse Street has a detected concentration of lead and arsenic of 23,100 mg/kg and 13 mg/kg, respectively. Sample 263 Morse HA8-SI is located outside Olin's fill line depicted on Sheet 2 of 10, Updated February 3, 2006 (Sheet 2). Olin states that waste fill was observed at 1.8 feet at boring A1009, but no waste fill was observed in boring A1008. According to Sheet 2, boring locations A1008 and 263 Morse HA8-SI are adjacent and in close proximity to each other. These borings are located approximately 10 feet or less south of boring A1009 where the fill was observed.

In 2001, the United States Environmental Protection Agency (EPA) completed an emergency soil removal project where the top 18 inches of soil was removed from the entire back yard at 263 Morse Street for the purpose of high lead levels. The detected concentration of lead in soil sample 263 Morse HA8-SI collected from 1.5- to 2-foot depth interval exceeds the applicable residential Direct Exposure Criteria (RDEC) by a factor greater than 40.

The Department does not concur that the elevated lead result of 23,100 mg/kg is not related to fill materials located at the Site. The fill line must be extended to include sample location 263 Morse HA8-SI.

Response:

The sample in question, HA8-S1, was a DEP/GZA post-excavation sample 1.5 feet bgs at the bottom of the EPA emergency removal action. This boring (below the excavation) was logged as sand; hence was excluded from the fill area in the Supplemental Investigation Report Addendum. The fill line also matches the edge of fill mapped at adjacent properties. The high lead concentration could be attributed to fill mixed with soil during the EPA fill excavation on site. This area will be re-excavated to remove deeper fill on this property not removed during the EPA removal action. The backfill that was used to fill the EPA excavation will be segregated and reused as backfill after this excavation is complete.

5. *Comment:*

Olin proposes remediation for all the properties in the Morse Street area within the Consent Order boundary with the exception of two properties 275 and 279 Morse Street. Olin's investigation shows that at a majority of the properties located on Morse Street, fill is present in the northern portion. Olin based its remedial alternative for the Morse Street Area, Block A solely on borings.

At 275 and 279 Morse Street multiple exceedances of the RDEC and the applicable pollutant mobility criteria (GAPMC) for lead, antimony and for several polyaromatic hydrocarbons including, but not limited to, benzo(a)pyrene were detected in the northern portion of these properties. In addition, it is possible that fill may extend on to 279 Morse Street from 283 Morse Street. The eastern edge of fill line on 283 Morse Street was not delineated by borings but drawn arbitrarily. It is possible the fill could extend onto the northern portion of 279 Morse Street.

The Department does not concur that the exceedances of the applicable RDEC and GAPMC are not related to fill materials located at the Site and 275 and 279 Morse Street should be included in the proposed remedial action plan.

Response:

Questions pertaining to these two properties were discussed in a meeting between DEP, LEA, and MPI on December 8, 2005. All of the findings were reviewed, which confirmed that there is no evidence of fill on either parcel. Reasons why neither property needs a remedy were also discussed. The findings are summarized below.

Five borings were drilled at 275 Morse St. All were logged to a depth of 8 feet and contain native sands and gravel. Two samples from A1001 were analyzed for arsenic and lead with the results shown in the following table:

Sample ID	Depth, ft.	Arsenic, mg/kg	Lead, mg/kg	SPLP Arsenic, µg/l	SPLP Lead, µg/l
A1001S1	0 – 0.25	4.5	306	ND	31.8
A1001S2	2.0 – 4.0	4.4	143	NA	NA

A 0 to 2 foot sample from boring A1011 (at the northern edge of the property bordering the school) was screened in the field with XRF, which detected a lead concentration of 47 ppm. In addition, one surficial sample (0 – 0.5 ft.) was collected from a bare spot adjacent to cracked asphalt and a garage. XRF screening detected lead at 349 ppm. Laboratory analysis found lead at 583 mg/kg, SPLP lead at 508 µg/l, SPLP antimony and arsenic, and 9 PAHs exceeding GAPMC, and 5 PAHs exceeding RDEC (pg. 19 of 24, SI Report, Appendix H, Block A). No fill was observed in the sample. The results are consistent with asphalt fragments, the routine operation of motor vehicles at this location, and lead paint from a 1920s era structure adjacent to the sample location. DEP stated in its June 14, 2001 "Newhall Street Neighborhood Rights-of-Way Sampling" report that elevated ETPH and PAH concentrations detected in a sample collected near a driveway "are possibly a result of driveway paving materials at that location."

Three borings were drilled at 279 Morse St. All were logged to a depth of 8 feet to contain native sands and gravel. Samples to depths of 2 and 2.5 feet from borings A1014 and A1058 were screened for lead by XRF. Concentrations were 28 ppm and ND, respectively. In addition, one surficial sample (0 – 0.5 ft.) was collected from a bare spot reported by the owner to have been caused by a children's swimming pool. Laboratory results were compliant for metals, including lead, but exceeded GAPMC for SPLP lead and 6 PAHs, and RDEC for 4 PAHs (pg. 19 of 24, SI Report, Appendix H, Block A). No fill was observed in the sample. The results are consistent with what would be expected in a former roadway.

The edge of fill line at 283 Morse St. was conservatively drawn to extend beyond what would be based "solely on borings". It took into consideration current and historic topography, aerial photographs, and results from adjacent properties. The topographic low found in these 2 properties is lower than the fill is thick on adjacent properties and matches the area where Shelton Avenue extended north from its current terminus, through these properties, and into the former

lowlands currently under the school fields, as shown in the 1877 United States Coastal Survey map of the New Haven region, Sheet 2. Based on a sound scientific approach to evaluating the extent of fill in this area, the conclusion is that no fill is present and no remediation is needed on these two properties.

6. *Comment:*

Olin states that the costs presented are realistic based on best engineering practice and experience, but are not intended to be used for funding or construction purposes. Further, Olin states the costs are sufficiently accurate to rank alternatives for planning and decision making purposes. As discussed in the Department's November 15, 2005 meeting with Olin and its consultant Malcolm Pirnie, the cost estimates seem high for the excavation and backfilling operations, and transportation and offsite disposal. Specific to transportation and offsite disposal, we have received information that if the waste material were characteristically hazardous for lead above the land disposal restriction and requires stabilization, the cost would be in the range of $180.00 per ton but that given the significant quantity of material to be disposed, could be negotiated to be in the range of $125.00 per ton. Additionally, it is very unlikely that all soils would meet this characterization. Once material is excavated and stockpiled and characterized, it is likely that a significant percentage of the material would not be characteristically hazardous for lead and could be placed in a lined landfill. Costs for disposal in a lined landfill are in the range of $65 to $85 per ton. As the estimates are based on the presumption that 148,500 tons of waste are to be disposed off the site, the reduction of disposal costs as detailed above would have a significant impact on the overall cost and may effect the overall ranking of alternatives based on cost. Olin must provide specific documentation supporting the basis for the estimated costs and must provide the rationale for the assumed characterization of the waste fill materials designed for offsite disposal.

Response:

The disposal costs used in the Remedial Action Plan were based on a telephone quote for transportation and disposal at the Cycle Chem, Inc. facility for disposal of hazardous waste. Olin concurs that lower prices may be available at other facilities. Given Olin's internal policy on disposal of such materials, if Olin is the generator, Olin is prohibited from using other potentially less costly facilities. As discussed previously with the DEP, the consolidation of excavated fill at the Middle School is the most protective and cost effective remedy.

There are many variables that impact the cost of waste transportation and disposal, including waste classification, demand for disposal capacity, transport distance to disposal facilities and fuel costs. The actual cost of waste transportation and disposal will only be accurately obtained at the time of procurement of those services. The costs presented in the RAP are reliable for decision making and remedy selection and are not expected to change the ranking of remedial alternatives

in the RAP. Even if the DEP's cost estimates for disposal are used, the ranking of alternatives would not be likely to change (off-site disposal of fill is still much more expensive than consolidation at the Middle School).

7. *Comment:*

Olin's cost estimate does not include confirmation sampling. Further, Olin has stated that confirmation sampling is not productive or necessary. The Department strongly disagrees. In fact, confirmation sampling is necessary to support decision documents for Environmental Land Use Restrictions, among other reasons. Furthermore, the investigations performed to date do not provide data of sufficient quantity to support the performance of a removal action to a given line and Olin has, in numerous meetings, described an iterative removal process. The iterative removal process that has been described by Olin clearly indicates recognition of, and supports the Department's position that, the extent of fill is not fully understood at this time and conditions not fully understood at this time will be discovered during removal actions. Additional data are necessary to document the completeness of the removal action at all properties designated for remediation. As a result, Olin must prepare and submit to the Department a plan for the sampling and analysis that will be implemented to document the completeness of the proposed remedial action.

Response:

Olin's conceptual plan for remediation is that excavation will primarily be guided by visual observation of fill materials. Iterative removal of materials is planned based on field observations during fill removal. After excavation of each area, if there are indications of additional fill extending laterally from the excavation area, additional excavation will be completed to remove the additional fill. A plan that documents the methodology for evaluation of the completeness of the remedy will be prepared and submitted to the DEP as part of the remediation of the Non-Public Properties.

8. *Comment:*

Based on its review, of Olin's characterization of the adjacent, ambient and/or underlying soil samples from the contiguous and isolated fill areas, the Department believes that characterization is confusing and difficult to interpret for DEP, the property owners and the public. Olin shall provide to the Department an additional new figure showing the location and depth interval of each adjacent, ambient and underlying soil sample collected. Laboratory data for all samples shall be included with an indication if any sample exceeded the applicable RSR criteria.

Response:

The requested figure has been prepared and is attached to this letter (Sheets 3 & 4).

9. Comment:

The comment shown below regarding bare spots from the Department's letter dated November 10, 2005, regarding its review of the SI was not addressed in Olin's letter and Addendum Report.

Table 2-1 should be amended to show the number of bare spots that were identified and an indication if they were sampled or not. If a bare spot was not sampled Olin shall provide justification. In addition, all laboratory data for any sample shall be included with an indication if any sample exceeded the applicable RSR. Olin must submit a revised Table 2 depicting the requested information.

Response:

A revised Table 2-1A is attached with the rationale for not sampling some bare spots. The protocol for bare spot sampling is described in Section 2.1.2 of the March 2005 SI Report and in Section 2.2.1 in the March 2006 Addendum Report. XRF results for all samples are reported in Appendix E and laboratory results are reported in Appendix H with an indication if applicable RSRs were exceeded.

10. Comment:

Olin states in the Addendum that at one property where access was not granted and the subsurface conditions could not be inferred. Olin shall identify the one property that access was denied and subsurface conditions could not be inferred.

Response:

This is 163 Shepard St. DEP may have investigated this property, but to date Olin has not received data or reports on this property.

11. Comment:

It is unknown if fill materials exist at 10 non-public properties because access was not granted. (Note: DEP evaluated 2 properties where Olin was denied access and it was determined that fill materials exist at these properties). Olin shall explain their best efforts, procedure and/or process that were utilized to try to obtain access to those properties where access was denied.

Response:

Olin obtained access to 291 of the 303 (96%) non-public properties in the Consent Order study area. Of the 12 properties where access was not received, 5 refused to grant access and 7 were non-responsive. Olin was able to infer that fill is likely to exist at 10 of these properties and is likely not present at the other 2.

The process used for gaining access is described in Section 1.3 of the March 2005 SI Report and in Section 1.1 of the Addendum Report. To quote:

"Before entering a private property within the NPP Study Area to perform an investigation activity, permission was obtained from the property owner via a signed access agreement letter prepared by Olin. In April 2004, access agreement letters were mailed to the owners of 303 non-public properties. By the time field investigation activities began on June 7, 2004, access was granted to 133 properties (44%). Significant efforts and resources were continually used to obtain access to more properties. Activities included repeat mailings by certified mail with return receipt, numerous attempts to reach owners by phone, and many attempts to speak to owners face to face. By August 5, access was granted to 219 properties (72%); by September 7, the number was 260 properties (86%). At the suspension of field investigation activities on February 10, 2005 due to weather conditions, access was obtained from 289 properties (95%). Two more access agreements were received during resumption of the investigation in May 2005, for a total of 291 properties (96%)".

In addition, Olin sent periodic updates (August, September, November 2004) to DEP documenting the efforts made to obtain access agreements. A copy of the November 2004 update is attached as Attachment 4.

Very truly yours,

MALCOLM PIRNIE, INC.

Andrew Dozier for

Ken Cichon
Associate

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cc: David Silverstone, Regional Water Authority
Jeff Lenox, Leggette Brasherars, & Graham, Inc.
Chris Harriman, Haley & Aldrich Inc.

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DOCUMENT CERTIFICATION

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

Raymond J. Horn

Chief Executive Officer (or duly authorized representative)
Olin Corporation

DOCUMENT CERTIFICATION

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Responsible for document preparation