



3855 North Ocoee Street, Suite 200  
Cleveland, TN 37312

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November 16, 2011

Mr. Patrick Bowe  
Director  
Remediation Division  
Bureau of Water Protection and Land Reuse  
State of Connecticut Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106

Re: Property-Specific Remedial Action Report  
Newhall Street Neighborhood  
17 Edwards Street, Block J  
Hamden, Connecticut 06517

Dear Mr. Bowe:

Enclosed please find the Property-Specific Remedial Action Report (RAR) prepared for the property located at 17 Edwards Street in Hamden, Connecticut. The Property-Specific RAR summarizes the remediation and restoration activities conducted at the property as required by Consent Order No. SRD-128. Remediation and restoration of this property are complete and were implemented in compliance with the Remedy Selection Plan, the Generic RAP, and the Property-Specific Remedial Action Plan (RAP) approved by the Connecticut Department of Energy and Environmental Protection (DEEP).

Section 2.0 of the enclosed report documents property-specific construction activities, as well as any adjustments to the Property-Specific RAP that were required due to the extent of fill encountered or other field conditions. Please note that any field adjustments made were pursuant to the approved Generic RAP and/or with DEEP oversight and approval. Olin hereby submits this Property-Specific RAR for DEEP approval. As noted below and as required by the Remedy Selection Plan, a copy of the enclosed report has also been provided to the property owner.

Please contact me at (423) 336-4540 if you have any questions regarding this matter.

Sincerely,  
OLIN CORPORATION

A handwritten signature in black ink, appearing to read "David M. Share".

David M. Share  
Director, Environmental Remediation

cc: Richard and Sharon Moore, 17 Edwards Street, Hamden, Connecticut 06517  
Curt Richards – Olin  
Carrie Hunt – Olin  
Nelson Walter – AMEC  
Robert Bell – DEEP  
Ray Frigon – DEEP  
Richard Pearce – Newhall Street Neighborhood Community Liaison  
Robert Labulis – Town of Hamden Building Department

**PROPERTY-SPECIFIC REMEDIAL ACTION REPORT  
17 EDWARDS STREET**

**NON-PUBLIC PROPERTIES  
NEWHALL STREET NEIGHBORHOOD  
HAMDEN, CONNECTICUT**

*Prepared for:*



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

*Prepared by:*



**AMEC Environment & Infrastructure, Inc.**  
1090 Elm Street, Suite 201  
Rocky Hill, Connecticut 06067

November 16, 2011

AMEC Project Number: 6107110004/65

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**AMEC Project Number: 6107110004/65**

A handwritten signature in black ink that reads "Nelson Walter".

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Nelson Walter, P.E.  
Project Manager

A handwritten signature in black ink that reads "Rod Pendleton".

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Rod Pendleton, P.G  
Principal Scientist

## **TABLE OF CONTENTS**

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1.0	INTRODUCTION .....	1-1
1.1	Regulatory Status.....	1-1
1.2	Description of Remedy Process .....	1-1
2.0	PROPERTY-SPECIFIC CONSTRUCTION ACTIVITIES.....	2-1
3.0	REFERENCES .....	3-1

## **FIGURES**

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Figure 2-1 Post-Construction Conditions

## **TABLES**

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Table 2-1 Excavation Confirmation XRF Sampling Results

## **ATTACHMENTS**

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A Photographs

## ACRONYMS AND ABBREVIATION

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AMEC	AMEC Environment & Infrastructure, Inc.
bgs	below ground surface
DEEP	Connecticut Department of Energy and Environmental Protection
MACTEC	MACTEC Engineering and Consulting, Inc.
NPP	non-public properties
Olin	Olin Corporation
RAP	Remedial Action Plan
RAR	Remedial Action Report
RSP	Remedy Selection Plan
XRF	X-ray fluorescence

## **1.0 INTRODUCTION**

This Property-Specific Remedial Action Report (RAR) was prepared by AMEC Environment & Infrastructure, Inc. (AMEC) on behalf of Olin Corporation (Olin) for the property located at 17 Edwards Street in Hamden, Connecticut. This Property-Specific RAR was prepared based on information obtained during remediation activities conducted at the property during the 2011 construction season. This document provides information about the remediation activities completed for the property, which are required by Consent Order SRD-128 entered into by Olin, the Town of Hamden, the Regional Water Authority, the State Board of Education, and the State of Connecticut Department of Environmental Protection (DEEP). The Consent Order requires Olin to excavate and remove fill material up to 4 feet below ground surface (bgs) from approximately 230 residential properties within the Consent Order boundary.

Section 1 of this report provides a summary of site history and a general description of the remedy process for the Newhall Street Neighborhood. Section 2 of this report describes the construction activities conducted at 17 Edwards Street.

### **1.1 Regulatory Status**

In April 2003, the DEEP issued a Consent Order to Olin, the Town of Hamden, South Central Connecticut Regional Water Authority, and the State Board of Education (DEEP, 2003). The Consent Order requires Olin to investigate and remediate the Non-Public Properties (NPP) within the Consent Order boundary of the Newhall Street Neighborhood.

### **1.2 Description of Remedy Process**

In October 2007, a Final Remedy Selection Plan (RSP) was approved and issued by the Commissioner of the DEEP (DEEP, 2007). The remedy for the NPP within the Consent Order boundary is summarized below:

- Excavation of fill within the top 4 feet;
- Disposition of excavated material at authorized off-site facilities;
- Backfilling of excavated areas with clean soil; and
- Restoration of existing features including landscaping, patios, fencing, driveways, etc. that are disturbed during construction activities.

The Final Design - Generic Remedial Action Plan (RAP) (MACTEC, 2008), was approved by the DEEP and serves as the basis for remedial action activities within the NPP. The Final Design - Generic RAP details remedial construction activities including excavation of fill to a depth of up to four feet, backfilling excavations, disposition of fill and debris, and restoration of disturbed areas. Detailed plans and specifications regarding the remediation are contained in the Generic RAP and other project plans which have been approved by the DEEP. The Final Design - Generic RAP and other plans are available at the Town of Hamden Miller Public Library located at 290

Olin Corporation  
Newhall Street Neighborhood Site, Hamden CT  
Property-Specific Remedial Action Report – 17 Edwards Street

Dixwell Avenue, and on the DEEP website at: at 290 Dixwell Avenue, and on the DEEP website at: <http://www.newhallinfo.org>.

Prior to implementing the approved remedial solution, a Property-Specific RAP was prepared for each property owner and submitted to the DEEP for approval. The purpose of the Property-Specific RAP was to provide the homeowner with information regarding the planned construction activities, temporary relocation requirements (if necessary), access provisions, an estimated time table to complete the planned work, and a description of plans to restore the property to existing conditions.

## 2.0 PROPERTY-SPECIFIC CONSTRUCTION ACTIVITIES

During the 2011 construction season, Olin completed the excavation, backfill, and restoration of the property in accordance with the Final Design - Generic RAP and the Property-Specific RAP. Figure 2-1 shows the areas where excavation occurred on the property and the locations of excavation confirmation samples. Excavation confirmation samples were collected in accordance with Section 3.2.3 - Confirmatory Sampling of the Final Design - Generic RAP, including adherence to the sampling frequency requirements. X-ray fluorescence (XRF) excavation confirmation sampling results are presented in Table 2-1.

As indicated in Table 2-1, most confirmation sampling results indicate total lead concentrations less than the criteria of 400 milligrams per kilogram (mg/kg) approved by DEEP in the Final Design - Generic RAP. Several samples collected from the perimeter of the excavated area indicated total lead concentrations that exceeded 400 mg/kg. Additional soil could not be removed from these locations because continued excavation could jeopardize the integrity of the structure.

The following is a description of changes from the Property-Specific RAP that were necessitated because of field conditions and/or details regarding the marker barrier installed following excavation activities:

- In some locations, fill material was encountered at greater than 4 feet in depth below ground surface (bgs). This fill material was left in place, covered by an orange geotextile fabric, and backfilled with clean soil in accordance with the Final Design - Generic RAP. Figure 2-1 shows the approximate area of geotextile fabric identifying the presence of fill at a depth greater than 4 feet bgs.
- In some locations, it was necessary to leave fill material in place at depths less than 4 feet bgs in order to avoid jeopardizing the integrity of a structure. This fill material was left in place, covered by an orange geotextile fabric and/or shotcrete, and backfilled with clean soil in accordance with the Final Design - Generic RAP. Figure 2-1 shows the approximate area of geotextile fabric/shotcrete identifying the presence of fill at a depth less than 4 feet bgs.

Photographs of construction activities and the restored property are presented in Attachment A.



### **3.0 REFERENCES**

DEEP, 2003. Order No. SRD-128, State Of Connecticut vs. Town Of Hamden, South Central Connecticut Regional Water Authority, State Board Of Education, and Olin Corporation. State of Connecticut Department of Energy and Environmental Protection, April 16, 2003.

DEEP, 2007. Remedy Selection Plan, Newhall Street, Neighborhood Remediation Project. State of Connecticut Department of Energy and Environmental Protection, October 2007

MACTEC, 2008. Final Design - Generic Remedial Action Plan, Non-Public Properties, Newhall Street Neighborhood, Hamden, Connecticut. MACTEC Engineering and Consulting, Inc., August 19, 2008.

## FIGURES

Map 2126  
Lot 198  
293 GOODRICH ST

Map 2126  
Lot 200  
17 EDWARDS ST

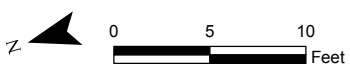
Map 2126  
Lot 202  
21-23 EDWARDS ST

Edwards Street

**Legend**

- |  |   |                                |        |
|--|---|--------------------------------|--------|
| Approximate Extent of Marker Barrier Covering Fill < 4 ft bgs Remaining on Property        | Excavation Confirmation Sample            | New Shrub                      | Stairs |
| Approximate Extent of Orange Marker Barrier Covering Fill > 4 ft bgs Remaining on Property | Limits of Excavation                      | New Fence                      |        |
|  | Final Elevation Contour (2-ft interval)   | New Fence Gate                 |        |
|  | Final Elevation Contour (0.5-ft interval) | New Asphalt Driveway/Sidewalk  |        |
|  |   | New Concrete Driveway/Sidewalk |        |

Note: All grass areas disturbed by excavation were restored with sod and/or seed/mulch.



Prepared/Date: BRP 10/27/11  
Checked/Date: DRP 10/27/11

## TABLES

**TABLE 2-1  
EXCAVATION CONFIRMATION XRF SAMPLING RESULTS**

**17 EDWARDS STREET  
NEWHALL STREET NEIGHBORHOOD  
HAMDEN, CONNECTICUT**

Location ID	Location Type	Field Sample ID	Sample Date	Top Depth (ft,bgs)	Bottom Depth (ft,bgs)	Parameter	Result	Final Qualifier	Unit of Measure
J0017ES01EX	PES	J0017ES-SON0102EX	05-May-11	2	2	Lead	108		MG/KG
J0017ES02EX	PES	J0017ES-SON0202EX	05-May-11	2	2	Lead	95		MG/KG
J0017ES03EX	PES	J0017ES-SON0302EX	05-May-11	2	2	Lead	50	U	MG/KG
J0017ES04EX	PES	J0017ES-SON0402EX	06-May-11	2	2	Lead	441		MG/KG
J0017ES05EX	PES	J0017ES-SON0503EX	09-May-11	3	3	Lead	50	U	MG/KG
J0017ES06EX	PES	J0017ES-SON0602EX	09-May-11	2	2	Lead	133		MG/KG
J0017ES07EX	PES	J0017ES-SON0702EX	09-May-11	2	2	Lead	943		MG/KG
J0017ES08EX	PES	J0017ES-SON0803EX	09-May-11	3	3	Lead	594		MG/KG
J0017ES09EX	PES	J0017ES-SON0902EX	09-May-11	2	2	Lead	328		MG/KG
J0017ES10EX	PES	J0017ES-SON1002EX	09-May-11	2	2	Lead	417		MG/KG
J0017ES11EX	PEB	J0017ES-SON1102EX	10-May-11	2	2	Lead	50	U	MG/KG
J0017ES12EX	PEB	J0017ES-SON1202EX	10-May-11	2	2	Lead	50	U	MG/KG
J0017ES13EX	PES	J0017ES-SON1302EX	10-May-11	2	2	Lead	369		MG/KG
J0017ES14EX	PES	J0017ES-SON1402EX	10-May-11	2	2	Lead	241		MG/KG
J0017ES15EX	PES	J0017ES-SON1502EX	10-May-11	2	2	Lead	302		MG/KG
J0017ES16EX	PEB	J0017ES-SON1602EX	10-May-11	2	2	Lead	143		MG/KG
J0017ES17EX	PES	J0017ES-SON1702EX	10-May-11	2	2	Lead	351		MG/KG
J0017ES18EX	PES	J0017ES-SON1802EX	10-May-11	2	2	Lead	1191		MG/KG
J0017ES19EX	PES	J0017ES-SON1902EX	10-May-11	2	2	Lead	255		MG/KG
J0017ES20EX	PEB	J0017ES-SON2003EX	10-May-11	3	3	Lead	347		MG/KG

Notes: bgs - below ground surface  
ft - feet  
KG - kilograms  
MG - milligrams  
PEB - sample from bottom of excavation  
PES - sample from perimeter of excavation  
U - not detected at a concentration above the reporting limit  
XRF - x-ray fluorescence

**ATTACHMENT A**  
**PHOTOGRAPHS**



**View looking South at excavation around garage**



**View looking East at excavated side yard**





**View looking Southeast at excavation around back entrance**



**View looking South at restored front yard**





**View looking West at partially restored back yard**