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**SENT BY FEDEX**

January 13, 2011

Mr. Patrick Bowe  
Director  
Remediation Division  
Bureau of Water Protection and Land Reuse

State of Connecticut Department of Environmental Protection  
79 Elm Street  
Hartford, CT 06106

Re: Property-Specific Remedial Action Report  
Newhall Street Neighborhood  
116 Morse Street  
Hamden, Connecticut 06517

Dear Mr. Bowe:

Enclosed is the Property-Specific Remedial Action Report (RAR) prepared for the property located at 116 Morse 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 for this property is complete and has been implemented in compliance with the Remedy Selection Plan, Generic RAP, and Property-Specific RAP approved by the CTDEP.

Section 2.0 of the RAR documents property-specific construction activities, as well as any adjustments to the Property-Specific Remedial Action Plan (RAP) that were required due to the extent of fill encountered or other field conditions. Please note field adjustments were made pursuant to the approved Generic RAP and/or with CTDEP oversight and approval. Olin hereby submits this Property-Specific RAR for CTDEP approval.

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

Sincerely,  
OLIN CORPORATION

A handwritten signature in dark ink, appearing to read 'David M. Share', written over a horizontal line.

David M. Share  
Director, Environmental Remediation

cc: Mr. Charles Patterson – 116 Morse Street, Hamden, Connecticut 06517  
Curt Richards – Olin  
Carrie Hunt – Olin  
Nelson Walter – MACTEC  
Robert Bell – CTDEP  
Ray Frigon – CTDEP  
Richard Pearce – HEDC  
Susan Bryson – Wiggin & Dana

**PROPERTY-SPECIFIC REMEDIAL ACTION REPORT  
116 MORSE STREET**

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

**Prepared for:**

**Olin Corporation**  
Cleveland, Tennessee

**Prepared by:**



**MACTEC Engineering and Consulting, Inc.**  
1090 Elm Street, Suite 201  
Rocky Hill, Connecticut 06067

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MACTEC Project No.: 6107100004-55

A handwritten electronic signature in black ink, reading "Nelson Walter", positioned above a horizontal line.

**MACTEC Electronic Signature**

Nelson Walter, P.E.  
Project Manager

A handwritten electronic signature in black ink, reading "Rod Pendleton", positioned above a horizontal line.

**MACTEC Electronic Signature**

Rod Pendleton, P.G.  
Principal Scientist

## 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.

David M. Share, Director, Environmental Remediation

  
\_\_\_\_\_  
Chief Executive Officer (or duly authorized representative)  
Olin Corporation

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Nelson Walter, Project Manager



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MACTEC Engineering and Consulting, Inc.

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### LIST OF ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
CTDEP	Connecticut Department of 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 MACTEC Engineering and Consulting, Inc. (MACTEC) on behalf of Olin Corporation (Olin) for the property located at 116 Morse Street in Hamden, Connecticut. This Property-Specific RAR was prepared based on information obtained during remediation activities conducted at the property in August and September 2010. 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 (CTDEP). 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 116 Morse Street.

### **1.1 REGULATORY STATUS**

In April 2003, the CTDEP issued a Consent Order to Olin, the Town of Hamden, South Central Connecticut Regional Water Authority, and the State Board of Education (CTDEP, 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 CTDEP (CTDEP, 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 CTDEP 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 CTDEP. The Final Design - Generic RAP and other plans are available at the Town of Hamden Miller Public Library located at 290 Dixwell Avenue, and on the CTDEP 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 CTDEP 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

In August and September of 2010, Olin completed the excavation of fill material to a depth of 4 feet bgs, 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. X-ray fluorescence (XRF) excavation confirmation sampling results are presented in Table 2-1. As indicated in Table 2-1, all confirmation sampling results, with the exception of fill material remaining on the property, indicate total lead concentrations less than the criteria of 400 mg/kg approved by CTDEP in the Final Design - Generic RAP.

The following is a description of changes from the Property-Specific RAP that were necessitated because of field conditions:

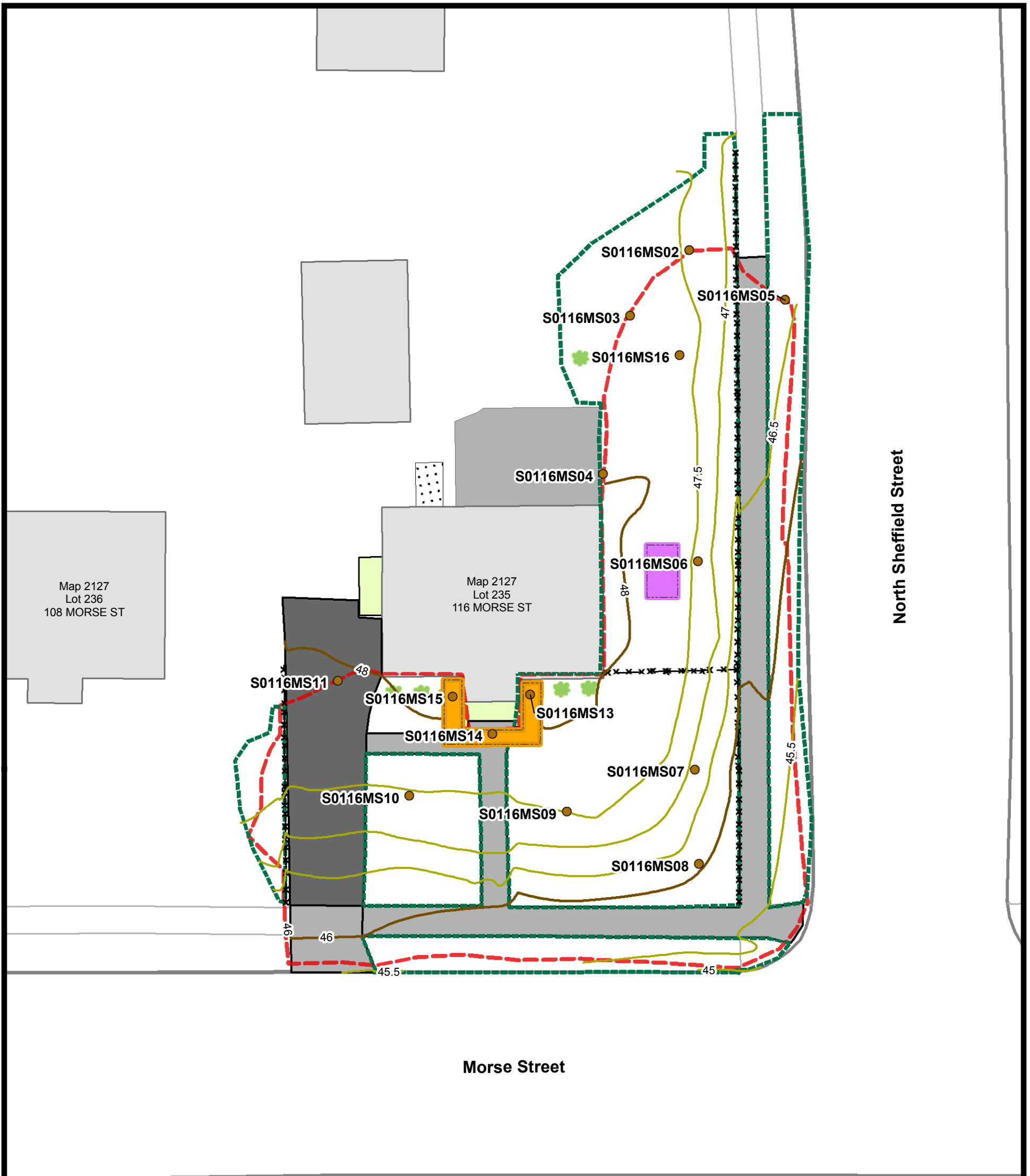
- Additional fill material was located on the property outside of the originally expected areas presented in the Property-Specific RAP and the Final Design - Generic RAP.
- All fill material within 4 feet of ground surface was removed in accordance with the Property-Specific RAP and the Final Design - Generic RAP, with the exception of an area around the front steps facing Morse Street where fill material removal would have resulted in undermining the steps. The fill material was covered with an orange geotextile marker barrier prior to backfilling with clean soil, in accordance with the Final Design - Generic RAP. The approximate limits of the orange geotextile marker barrier are presented on Figure 2-1.
- 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 approximately 5 feet by 10 feet area of geotextile fabric, located between the house and North Sheffield Street.

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

### **3.0 REFERENCES**

- CTDEP, 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 Environmental Protection, April 16, 2003.
- CTDEP, 2007. Remedy Selection Plan, Newhall Street, Neighborhood Remediation Project. State of Connecticut Department of 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.
- MACTEC, 2009. Property-Specific Remedial Action Plan, 116 Morse Street, Non-Public Properties, Newhall Street Neighborhood, Hamden, Connecticut. MACTEC Engineering and Consulting, Inc., June 29, 2009.

## **FIGURES**



Morse Street

North Sheffield Street

**Legend**

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



Prepared/Date: CHL 01/10/11  
Checked/Date: DRP 01/10/11

**TABLES**

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

**116 MORSE 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
S0116MS02	PES	S0116MS-SON0202EX	23-Aug-10	2	2	Lead	50	U	MG/KG
S0116MS03	PES	S0116MS-SON0302EX	23-Aug-10	2	2	Lead	50	U	MG/KG
S0116MS04	PES	S0116MS-SON0401EX	24-Aug-10	1	1	Lead	50	U	MG/KG
S0116MS05	PEB	S0116MS-SON0502EX	24-Aug-10	2	2	Lead	50	U	MG/KG
S0116MS06	PEB	S0116MS-SON0603EX	24-Aug-10	3.9	3.9	Lead	50	U	MG/KG
S0116MS07	PEB	S0116MS-SON0703EX	24-Aug-10	3.9	3.9	Lead	50	U	MG/KG
S0116MS08	PEB	S0116MS-SON0803EX	24-Aug-10	3.9	3.9	Lead	50	U	MG/KG
S0116MS09	PEB	S0116MS-SON0903EX	25-Aug-10	3.4	3.4	Lead	50	U	MG/KG
S0116MS10	PEB	S0116MS-SON1003EX	25-Aug-10	3.5	3.5	Lead	50	U	MG/KG
S0116MS11	PES	S0116MS-SON1101EX	25-Aug-10	1	1	Lead	50	U	MG/KG
S0116MS12	PES	S0116MS-SON1202EX	25-Aug-10	2	2	Lead	50	U	MG/KG
S0116MS13	PES (a)	S0116MS-SON1302EX	25-Aug-10	2	2	Lead	50	U	MG/KG
S0116MS14	PES (a)	S0116MS-SON1402EX	25-Aug-10	2	2	Lead	1101		MG/KG
S0116MS15	PES (a)	S0116MS-SON1502EX	25-Aug-10	2	2	Lead	168		MG/KG
S0116MS16	PEB	S0116MS-SON1603EX	23-Aug-10	3.9	3.9	Lead	50	U	MG/KG

Notes: (a) Results from a sample of fill material remaining on the property in accordance with the Final Design - Generic RAP (MACTEC, 2008)

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 southwest from driveway showing fill remaining around front steps facing Morse Street.**



**View looking northeast from N. Sheffield Street showing restored property.**





**View looking southeast from corner of Morse and N. Sheffield streets showing restored property.**



**View looking south from Morse Street showing restored front lawn and sidewalk.**





**View looking south from Morse Street showing restored driveway, front lawn, and sidewalk.**