



3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

SENT BY FEDERAL EXPRESS

October 7, 2011

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

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

Dear Mr. Bowe:

Enclosed please find the Property-Specific Remedial Action Report (RAR) prepared for the property located at 330 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 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

Enclosure

cc: Ms. Cylla Hack, 330 Morse St. LLC – 4 Country Court, Woodbridge, CT 06525 (w/enclosure)
Robert Bell – DEEP (w/enclosure)
Ray Frigon – DEEP (w/enclosure)
Curt Richards – Olin (w/o enclosure)
Carrie Hunt – Olin (w/o enclosure)
Nelson Walter – AMEC (w/o enclosure)
Richard Pearce – Newhall Street Neighborhood Community Liaison (w/enclosure)
Robert Labulis – Town of Hamden Building Department (w/enclosure)

**PROPERTY-SPECIFIC REMEDIAL ACTION REPORT
330 MORSE 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.
511 Congress Street, Suite 200
Portland, Maine 04101

October 7, 2011

AMEC Project Number: 6107110004/75

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

Nelson Walter, P.E.
Project Manager

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

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

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.

Nelson Walter, Project Manager



MACTEC Engineering and Consulting, Inc.

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Table 2-1 Excavation Confirmation XRF Sampling Results

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1 Photographs

ACRONYMS AND ABBREVIATION

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 330 Morse 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 Energy and 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 330 Morse 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 (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 DEEP (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 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 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 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. 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 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 around the perimeter of the house and other on-site structures, because continued excavation could jeopardize the integrity of the structures. Additional soil could not be removed from the rear property line because additional excavation in this location would disrupt the adjacent property which was excluded from the remedy.

The following is a description 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 or disrupt a feature outside of the project boundaries. 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.
- A fuel oil underground storage tank (UST) was located within the excavation area. After coordination with the property owner and the DEEP, the UST was removed in accordance with the proper protocols and local approvals and the property was connected to natural gas service.
- As part of efforts to improve drainage following excavation and backfill activities, a drywell was installed in a low-lying portion of the property. The location of this feature is indicated on Figure 2-1.

Photographs of construction activities and the restored property are presented in Attachment 1.

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.

FIGURES

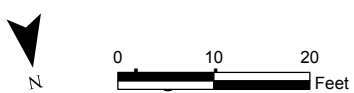


Morse Street

Legend

- | | | | |
|--|--|---|---|
| <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Excavation Confirmation Sample Limits of Excavation Final Elevation Contour (2-ft interval) Final Elevation Contour (0.5-ft interval) | <ul style="list-style-type: none"> New Tree New Shrub Hedge New Fence New Fence Gate New Dry Well New Wooden Ramp | <ul style="list-style-type: none"> New Crushed Stone New Asphalt Driveway/Sidewalk New Concrete Driveway/Sidewalk/Stairs Stairs Former Underground Storage Tank (Removed) |
|--|--|---|---|

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



Prepared/Date: BRP 09/23/11
Checked/Date: DRP 09/23/11

TABLES

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

**330 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
H0330MS02EX	PES	H0330MS-SON0202EX	21-Apr-11	2	2	Lead	725		MG/KG
H0330MS03EX	PES	H0330MS-SON0302EX	21-Apr-11	2	2	Lead	239		MG/KG
H0330MS04EX	PES	H0330MS-SON0402EX	21-Apr-11	2	2	Lead	109		MG/KG
H0330MS05EX	PES	H0330MS-SON0502EX	21-Apr-11	2	2	Lead	66		MG/KG
H0330MS06EX	PES	H0330MS-SON0603EX	28-Apr-11	3	3	Lead	477		MG/KG
H0330MS07EX	PES	H0330MS-SON0702EX	29-Apr-11	2	2	Lead	63		MG/KG
H0330MS08EX	PES	H0330MS-SON0801EX	29-Apr-11	1	1	Lead	152		MG/KG
H0330MS09EX	PES	H0330MS-SON0901EX	29-Apr-11	1	1	Lead	259		MG/KG
H0330MS10EX	PES	H0330MS-SON1002EX	29-Apr-11	2	2	Lead	50	U	MG/KG
H0330MS11EX	PEB	H0330MS-SON1103EX	29-Apr-11	3	3	Lead	50	U	MG/KG
H0330MS12EX	PEB	H0330MS-SON1203EX	29-Apr-11	3	3	Lead	50	U	MG/KG
H0330MS13EX	PES	H0330MS-SON1302EX	29-Apr-11	2	2	Lead	96		MG/KG
H0330MS14EX	PES	H0330MS-SON1402EX	29-Apr-11	2	2	Lead	50	U	MG/KG
H0330MS15EX	PES	H0330MS-SON1502EX	29-Apr-11	2	2	Lead	437		MG/KG
H0330MS16EX	PES	H0330MS-SON1603EX	29-Apr-11	3	3	Lead	621		MG/KG
H0330MS17EX	PES	H0330MS-SON1702EX	02-May-11	2	2	Lead	354		MG/KG
H0330MS18EX	PES	H0330MS-SON1802EX	02-May-11	2	2	Lead	203		MG/KG
H0330MS19EX	PES	H0330MS-SON1902EX	02-May-11	2	2	Lead	83		MG/KG
H0330MS20EX	PES	H0330MS-SON2002EX	02-May-11	2	2	Lead	116		MG/KG
H0330MS21EX	PES	H0330MS-SON2102EX	02-May-11	2	2	Lead	159		MG/KG
H0330MS22EX	PES	H0330MS-SON2202EX	02-May-11	2	2	Lead	575		MG/KG
H0330MS23EX	PES	H0330MS-SON2302EX	02-May-11	2	2	Lead	84		MG/KG
H0330MS24EX	PES	H0330MS-SON2403EX	02-May-11	3	3	Lead	158		MG/KG
H0330MS25EX	PES	H0330MS-SON2503EX	02-May-11	3	3	Lead	94		MG/KG
H0330MS26EX	PEB	H0330MS-SON2603EX	04-May-11	3	3	Lead	50	U	MG/KG
H0330MS27EX	PES	H0330MS-SON2702EX	04-May-11	2	2	Lead	126		MG/KG
H0330MS28EX	PES	H0330MS-SON2802EX	04-May-11	2	2	Lead	50	U	MG/KG
H0330MS29EX	PES	H0330MS-SON2902EX	04-May-11	2	2	Lead	555		MG/KG
H0330MS30EX	PES	H0330MS-SON3002EX	04-May-11	2	2	Lead	436		MG/KG
H0330MS31EX	PES	H0330MS-SON3102EX	04-May-11	2	2	Lead	50	U	MG/KG

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

**330 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
H0330MS32EX	PES	H0330MS-SON3203EX	04-May-11	3	3	Lead	50	U	MG/KG
H0330MS33EX	PES	H0330MS-SON3303EX	04-May-11	3	3	Lead	50	U	MG/KG
H0330MS34EX	PES	H0330MS-SON3403EX	04-May-11	3	3	Lead	50	U	MG/KG
H0330MS35EX	PES	H0330MS-SON3503EX	04-May-11	3	3	Lead	87		MG/KG
H0330MS36EX	PEB	H0330MS-SON3603EX	04-May-11	3	3	Lead	50	U	MG/KG
H0330MS37EX	PES	H0330MS-SON3701EX	09-May-11	1	1	Lead	110		MG/KG
H0330MS38EX	PES	H0330MS-SON3801EX	09-May-11	1	1	Lead	323		MG/KG
H0330MS39EX	PES	H0330MS-SON3901EX	09-May-11	1	1	Lead	86		MG/KG
H0330MS40EX	PEB	H0330MS-SON4003EX	09-May-11	3	3	Lead	125		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 1
PHOTOGRAPHS**



View looking East at area of UST removed as part of excavation activities



View looking North at excavated property during placement of marker barrier



View looking Northeast at excavated yard following placement of marker barrier



View looking East from St Mary Street at restored parking area



View looking West at restored yard